

Poverty and Social Impact Analysis

Fuel tax in Mozambique

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Background to the PSIA Studies

Poverty and Social Impact Analysis (PSIA) is an important feature of the new approach to supporting poverty reduction in developing countries. PSIA is defined as the analysis of intended and unintended consequences of policy interventions on the well-being or welfare of different groups, with a special focus on the vulnerable and poor. Well-being or welfare includes the income and non-income dimensions of poverty.¹

The overarching objective of PSIA is to promote evidence-based policy choices, by explicitly including poverty and social impacts in the analysis of policy reforms, and to build country ownership of policies by informing a public debate on the trade-offs between policy choices.

Analysing poverty and social impact is not new, but it has yet to be routinely applied to macroeconomic and structural policy measures. In August 2000, the International Monetary Fund (IMF) and World Bank agreed to consider the poverty and social impact of major reforms in their lending programmes to developing countries.² Increasingly, developing country governments are initiating plans to undertake PSIA of key policy measures as part of the process of refining their Poverty Reduction Strategies (PRSs).

In 2001, the UK Department for International Development (DFID) undertook to support demonstration studies in six countries, in response to requests from governments and other national stakeholders for ex ante analysis of the likely poverty and social impact of particular policies or programmes. Six DFID-supported PSIA pilot studies were carried out in Indonesia, Honduras, Armenia, Uganda, Rwanda, and Mozambique.

The World Bank also undertook to pilot PSIA in six countries. In October 2002, findings from the DFID- and World Bank-supported pilot studies were brought together at a workshop in Washington DC, hosted by the World Bank, IMF and DFID. Key findings of the workshop include that it is feasible to undertake PSIA using existing data and knowledge in country, and that for PSIA to be effective in informing policy decisions, it needs to be country-owned and embedded in the national PRS process.³

The following report has been produced by independent researchers, and has been independently peer reviewed. The analysis and views contained in the study are the authors' alone.

¹ See World Bank, 2002, "A User's Guide to Poverty and Social Impact Analysis," available at <http://www.worldbank.org/psia> and Robb, C, 2003, Poverty and Social Impact Analysis - Linking Macroeconomic Policies to Poverty Outcomes. Summary of Early Experiences, Working Paper, IMF Washington, DC.

² See for example, IMF "Key Features of IMF Poverty Reduction and Growth Facility", August 16, 2000.

³ See "Poverty and Social Impact Analysis- Linking Policies to Poverty Outcomes". Workshop Summary Report, October 15-17, 2002. DFID/World Bank/IMF (available at <http://www.worldbank.org/psia>).

Disclaimer

This report is the work of independent researchers. It was commissioned by the Government of Mozambique in collaboration with the Department for International Development (DFID). The report does not necessarily represent either the views of the Government of Mozambique or of the Department for International Development.

In its present form, the responsibility for any of the opinions expressed in this report rests with the authors alone. Comments may be directed to:

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Abbreviations

BoP	Balance of Payments
BWI	Bretton Woods Institutions (primarily WB & IMF)
CEA	Centre for Africa Studies (at UEM)
CEP	Centre for Population Studies (at UEM)
CGE	Computable General Equilibrium
cif	cost insurance freight (ie delivered to port)
CPI	consumer price indicator
DAC	Development Assistance Committee
DNPO	National Division for Planning and Budgeting
ESAF	Enhanced Structural Adjustment Facility
ESAP	Economic Structural Adjustment Programme
GdE	Gabinete de Estudos
HIPC	Heavily Indebted Poor Country
HPI-1	Human Poverty Index
IAF	Household Survey (Inquerito de Agregados Familiares)
IFA	International Financial Institution (mainly WB and IMF)
IFPRI	International Food Policy Research Institute
IMF	International Monetary Institute
LDC	least developed countries
MPF	Ministry of Planning and Finance
MTEF	Medium Term Expenditure Framework
NPV	net present value
OECD	Organisation for Economic Cooperation and Development
PARPA	Action Plan for the Reduction of Absolute Poverty
PPA	participatory poverty assessment
PRGF	Poverty Reduction and Growth Facility
PRSC	Poverty Reduction Support Credit
PRSP	Poverty Reduction Strategy Paper
PSIA	Poverty and Social Impact Analysis
QUIBBS	Quick Impact Beneficiary Survey
RAI	Annual Report on Impact (of the PARPA)
RF	Road Fund
RMSM	Revised Minimum Standard Model
SADC	Southern African Development Community
SAM	Social Accounting Matrix
UEM	Universidade Eduardo Mondlane
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
WB	World Bank

Summary

INTRODUCTION

Mozambique is one of the poorest countries in the world and has some of the worst human development indicators. It has experienced years of civil war and central planning, aggravated in recent years by natural disasters. Thus, the challenges of economic reform are huge. Nevertheless, the government has embarked on an energetic programme of market-based reform, which has generated rapid economic growth in recent years.

The growth policy is complemented by a Plan for the Reduction of Absolute Poverty (PARPA), which includes:

- a series of prioritised and costed measures, designed to support growth and provide key public services
- targets to reduce poverty from 70% to 50% in 10 years, requiring a reduction in poverty numbers of about 400,000 each year
- reduction in aid dependency by increasing government revenue from 12.4% to 16.7% of GDP, which requires an annual increase in revenue of about 11% raising US\$200 million more in domestic revenue

There are a range of interlocking processes which characterise poverty in Mozambique. Five such processes were considered particularly important:

- limited and uneven market development, which relates to the variable availability of income generating opportunities
- rural–urban differentiation
- socio-economic differentiation in control of assets
- increasing dependency with erosion of social support
- the corrosion of governance

ANALYSIS AND FINDINGS

The Fuel Tax

This study considers the impact of a possible rise in fuel tax, which is currently under debate. This increased revenue has been associated with a commitment to improve road maintenance, which features both in a major road programme and in the PARPA spending priorities. The need to increase revenue is also consistent with the general PARPA objectives to raise domestic revenue and reduce aid dependency. Thus, any revenue raised from an increased tax would be used to support PARPA spending priorities, either by going directly to road maintenance or by protecting other priorities from a possible reduction in aid. The eventual effect on public finance is largely fungible and the study was restricted to examining the impact of a possible fuel tax change in isolation from alternative revenue sources or implications for expenditure or aid dependency.

The effect of increasing a tax is bound to increase poverty, if considered in isolation. The study analysed the magnitude of this effect. In the course of the study, many key Mozambican stakeholders argued that any increase in the fuel tax would have a major effect. However, the share of fuel in the economy is small, which suggests that the net impact would be smaller than feared by stakeholders.

The scope for fuel tax rises is constrained by the prices in neighbouring countries. Current fuel prices (both diesel and fuel) in Mozambique are slightly higher than those in neighbours to the south (including South Africa), and slightly lower than neighbours to the north, using the prevailing market exchange rates. This suggests that tax increases should not be dramatic.

Fuel taxes have remained constant in nominal terms for five years and their real value has therefore declined. The main scenario analyses the effect of increasing the fuel tax in line with the exchange rate, which involves a 101% increase in tax and a 20% increase in the average fuel price, weighted by the volume of use of different fuel products (and assuming kerosene remains tax-exempt). An alternative scenario would involve increasing the tax in line with inflation, which has risen by only 65%. The impact is linearly proportional to the level of price increase.

Fuel taxes have traditionally provided about 10% of government revenue. However, the decline in the real value of the tax has reduced this to 7%. The only other ways of raising equivalent additional revenue rapidly would be to increase the rates on VAT, income tax, company tax or trade taxes. However, the government is committed to low general tax rates and longer-term fiscal plans depend on increased collection efficiency and economic growth. A fuel tax increase of 101% would raise nearly US\$34 million and would move the budget 17% closer to the PARPA 10-year objective of fiscal balance.

Purchasing Power

Fuel imports have amounted to 3% of GDP in recent years. Before taking account of any knock-on effects, a 20% increase in the price of fuel would therefore amount to about 0.6% of GDP. The knock-on effects on prices are calculated using Input–Output coefficients in an existing Social Accounting Matrix (SAM): if businesses passed on the full cost increases, then average prices would rise by 2.6% for transport, 0.18% for agriculture, 0.43% for services, 0.46% for manufactured goods and 2.09% for fish. The qualitative fieldwork suggested that the price rise for milled grain and fish would be higher than this, and adjustments were made to reflect this. These *ad hoc* adjustments were limited in order to avoid the need to rebalance the SAM. In addition, qualitative fieldwork suggested that prices would rise higher in remote areas, and this was reflected in the analysis by assuming that price rises would be 50% above average in rural households, and 50% below in urban households. A number of other qualitative concerns were not incorporated in the quantitative analysis, in the absence of clear methods for doing so (eg the possible recent trend of using diesel for lighting). The average consumer price increase, after the selected adjustments to the Input–Output analysis, is 0.42%. The increased cost of marketed food accounts for about two-thirds of the increase.

The distribution of the impact can be analysed using the individual expenditure data for each of the 8,250 households in the household survey. This suggests that 28,500 people would be pushed below the poverty line. This increase in the number of poor represents 7% of the annual PARPA target for reducing the number of poor. Perhaps more significantly, over 50,000 people would be pushed into extreme poverty, largely because there is a group of extreme poor who have a high reliance on market sources for their food supplies.

The impact on purchasing power affects most households. Non-poor households are slightly more affected than poor households and there are some minor differences between urban and rural households, between provinces and between occupations. As expected, poorer urban workers are vulnerable to higher transport costs and farmers are less likely to be affected.

The above figures must be seen as illustrative of the cost-push pressures in the economy. An analysis of the statistical relationship between fuel price and CPI over the past five years does suggest that, on average, a 20% increase in fuel price has resulted in a 2% rise in CPI. However, the confidence limits for this relationship are wide. Even if the relationship were more statistically significant, it would still not provide evidence of the net effect of the fuel tax on inflation, since the price rises in recent years have been due to world prices. A rise due to a tax increase would generate government revenue, which would probably be spent on expenditure programmes, thus boosting demand elsewhere in the economy, to compensate for the reduced consumption from households. Therefore, it is not possible to provide any clear indications of the likely impact of a fuel tax increase on inflation.

Impact on Demand

The above analysis of purchasing power assumes that physical consumption declines in proportion to the increase in prices. This reduction has a number of knock-on effects on the demand for other intermediates products and for labour. Backward multipliers can be derived from the Input–Output coefficients which suggest that the net effect on the economy could be as much as three times higher than the initial effect on purchasing power (i.e. nearly 2% of GDP).

In practice, the economy has various ways of moderating the extent of this shock, as consumers will switch to alternative products and producers will use different combinations of inputs and factors of production. Estimating the magnitude of this moderating influence would require a computable general equilibrium (CGE) model with a set of supply and demand elasticities. No new CGE analysis has been possible, but there is some existing CGE work on marketing efficiency, which suggests that the net effect of all the equilibrium processes would result in a contraction in GDP of 1.25 times that suggested by the first round knock-on effects.

Producer Response

The above analysis assumes that producers will respond to meet demand by making adjustments in the factors of production. Qualitative analysis suggests that some economic activities could be more vulnerable to fuel prices and could collapse much more rapidly than the fall in demand. These include:

- Diesel-powered grain mills have been spreading through rural Mozambique in recent years, providing cheaper milling and releasing women from the burden of hand milling. The high share of costs from diesel makes grain milling vulnerable to an increase in fuel tax.
- The emergence of small trading, especially in rural areas, has also been playing an important role in providing market opportunities and cheaper consumer goods, as well as providing a source of employment. The qualitative evidence suggests that small trading is a fragile activity, but the extent to which it is vulnerable to transport and fuel costs is less clear.
- Fishing could be vulnerable because fuel accounts for a high proportion of costs for fishermen (both modern artisanal and commercial) and there is strong international competition. Artisanal fishing provides the main source of

employment in some communities and fish is a significant component of marketed food purchases, even in poor households.

- Other vulnerable activities include irrigated crops, export crops and mining, all of which provide low-wage employment for poor households.

It would be extremely difficult to administer special mitigating measures for these vulnerable activities.

Poverty Processes

The above sections analyse the available information on access to markets and employment opportunities, which is the major process determining the extent of poverty in Mozambique. There are a number of additional poverty processes which may be affected by the proposed change in fuel tax. The disruption of these processes could lead to shifts in longer-term trends in poverty. These include:

- Social services will require increased budget if they are not to suffer. Even if the Ministry of Finance allows transport/fuel budgets to rise, Ministries will also have to ensure that these resources are made available at local levels.
- Although the household survey suggests that direct spending on transport is low, most journeys will contribute to the coping strategies of several households, providing market information, facilitating remittances and exchange of food and other goods between rural and urban areas and enabling cross-community links to be developed. Increased transport costs will reduce the frequency of these benefits.
- Increased transport costs will reduce the proportion of emergency flood and drought relief which benefits the poor.
- The reduced ability to purchase marketed consumption goods, and possible increases in the cost of accessing social services, may result in other increases in women's work, including time spent on food-processing and home-based health care.

Policy Conclusions

In summary, the above analysis concluded that the aggregate short-term impact of a rise in fuel tax on poverty is modest. There is some qualitative evidence of pockets of concentrated longer-term impact on vulnerable activities or poverty processes. Aggregate statistics suggest the combined impact of these specific concerns may not be large, but further work is required to study this and to consider whether the accumulated effects over time might be more serious. In any case, the level of any increase in fuel tax is constrained by consistency with South African prices, which are already slightly lower than prices in Mozambique.

The fuel tax PSIA was deliberately undertaken in isolation from analysis of alternative sources of revenue or of expenditure implications. Without evidence from such comparative PSIAs, it is difficult to provide firm recommendations. However, the PARPA targets provide a yardstick against which the fuel tax can be compared: in total, PARPA fiscal targets involve an increase in revenue of US\$200 million associated with a reduction in the number of poor of about 1.5 million, at a 'fiscal:poor ratio' of about 150; the fuel tax has a fiscal:poor ratio of about 1,300, suggesting that far more people can be lifted out of poverty through PARPA expenditure than are pushed into poverty by raising the tax.

Any changes in fuel taxes could be introduced at times when world prices are falling, to minimise disruption. However, this could be used as an excuse to delay fuel tax rises indefinitely and a clear plan is needed to avoid this risk. It may also be useful to coordinate the timing of changes in fuel tax with changes in South African fuel prices, or in exchange rates.

LESSONS FOR FUTURE PSIA

Fieldwork is required to pick up the huge diversity of Mozambique. Original fieldwork will be essential for most PSIA because the available data will have weaknesses and will not pick up the full complexity of social situations, especially in view of the fast moving situation in Mozambique. The wide regional differences mean that good fieldwork should cover several areas, which is expensive and time consuming. Fieldwork should be done at an early stage in the PSIA, to provide time to incorporate the results in quantitative analysis.

The study suggests that data is available on which to perform some of the standard quantitative techniques of short-term impact analysis. Simple analysis of the first-round effects on purchasing power should be the starting point for this analysis and more complex analysis should then build on this. It is possible to adjust the data to reflect qualitative evidence about detailed changes for some goods and services. However, aggregate economic data does provide valid estimates of the order of magnitude of total impact, and qualitative adjustments should remain consistent with the aggregate situation, even if some pockets of concentrated impact are identified.

Many major economic reforms are designed to produce longer term changes, which require detailed and intuitive understanding of how key economic activities will respond to emerging market conditions. This suggests that future PSIA may need to draw on techniques of market research and sector studies at least as much as the more traditional analysis of poverty impact demonstrated in this study.

This study has shown that it should be possible to make future PSIA directly comparable by producing conclusions on the impact on the number of the poor. The number of poor people is a crude indicator, and may not be the most important result of any particular PSIA. However, it does provide a single comparative number which can be linked directly to national strategies and international indicators.

BUILDING CAPACITY FOR PSIA IN MOZAMBIQUE

PSIA provides a challenge to bring together studies on different macroeconomic policies in order to provide a balanced perspective. To achieve this, it will be necessary to:

- encourage the use of common approaches to methodology
- provide a synthesising function to facilitate comparative work
- select topics which address government priorities, whilst also building a balanced and complementing range of analysis
- incorporate the latest broader thinking on research and techniques, whilst retaining the focused character which typifies more commercial consultancy and also recognising the importance of commercial and civil society operators
- ensure that studies are independent of government influence

The challenges of applied economic research have long demanded the attentions of government, civil society, the private sector and donors. There have been a long string of proposals for marginal reforms and new institutions, several of which are actively being pursued. There is now an emerging movement towards PSIA as an essential supporting activity for longer-term improvements in PARPA and in the international funding of macroeconomic support.

Caution must always be taken in suggesting creating institutions. However, there is a flourishing culture of open policy debate in Mozambique, with some capacity outside established institutions. The PSIA momentum provides a unique opportunity to boost economic analysis in Mozambique by creating an institution in between government, the university, civil society and the private sector, with PSIA as its core work programme. Such an institution would bridge the two existing proposals for new institutions linked to the University and to Government and could be based on similar institutions in other African countries.

PART 1

INTRODUCTION

1 Introduction

1.1 BACKGROUND

1. Structural adjustment programmes were expected to address poverty, if not directly and immediately then at least by removing distortions, promoting investment and creating the conditions for growth. In particular, they were expected to be pro-poor through the correction of foreign exchange distortions and the ability of small local producers to compete more effectively with imports. However, experience through the 1990s suggested that poverty reduction was patchy, even when economic decline appeared to have been halted. For example, the UNCTAD 2000 Least Developed Countries (LDCs) Report shows that the percentage of people living on less than \$1 a day in non-oil-exporting LDCs has risen from 63% in 1981–1983 to 69% in 1991–1997.

2. A number of reviews of successful and failed policy implementation experiences through the 1990s generated increasing pressure for structural adjustment programmes to be more sensitive to poverty alleviation objectives⁴. These pressures were felt within recipient developing countries and between their governments and international financial institutions (IFIs). As a result, the IMF and World Bank (WB) revised their procedures and adopted the Poverty Reduction and Growth Facility (PRGF) and Poverty Reduction Support Credit (PRSC) as their main lending instruments. The main tool for making lending more sensitive to poverty was the requirement for new programmes to be preceded by PRSPs⁵. These have now also become a pre-requirement for much other aid and debt relief for developing countries.

3. Whilst PRSPs have helped to raise the importance of poverty alleviation in many countries, the pressures to maintain a poverty focus have been maintained and there has been some concern that PRSPs have sometimes not been linked clearly with actions⁶. Pressures for progress with SIA has been sustained by continued criticism of PRSP, notably at the Spring Meeting in 2001⁷.

4. In August 2000, the IMF and WB agreed to work together on promoting the use of *ex ante* SIA as a means of making PRSPs more directly relevant to reform and resource mobilisation decisions. On 26 Apr 2001, the JIC produced a Concept Note on SIA of Macroeconomic & Structural Policies. As a result of these discussions, the WB and DfID agreed to undertake a set of demonstration PSIAs, with the objective of informing the decision-making at the Autumn Annual Meetings about the possible future role of PSIA in strengthening PRSP.

1.2 THE PSIA EXERCISE

5. PSIA aims to provide clearly structured analysis on the impact of policy changes on different socio-economic groups, including the poor. A wide range of existing techniques

⁴ Notably, Gunning et al, ESAF External Review, 1997.

⁵ Interim arrangements were arranged to assist in the transition phase.

⁶ For example, IMF, Key Features of PRGF Supported Programs (approved by Allen), 16 Aug 2000.

⁷ See, notably, IMF, PRSP Progress in Implementation (Boorman and Grey), 14 Sep 2001 and IMF, Review of PRGF – Issues and Options, 15 Mar 2002.

are mobilised in the attempt to provide comparative analysis which will indicate the relative poverty impact of key policy decisions.

Objectives

6. Demonstration PSIAs are being undertaken in a selection of 12 countries, with six each funded by the WB and DfID. The overall objectives of the demonstrations are:

- to strengthen guidelines for practical PSIA work
- to boost government's ability to take forward PSIA work
- to encourage donors to support PSIA work

7. The six DfID demonstrations are guided by common terms of reference, which identify four outputs:

- a review of existing understanding of poverty and of the link with policy
- a demonstration of the use of PSIA on a selected macroeconomic policy
- conclusions on the lessons on methodology learnt in the demonstration
- recommendations for institutional arrangements for future PSIA work

Choice of Topic

8. In early discussions between government and the WB and IMF, there had been a clear interest in selecting the proposed changes in fuel tax for analysis. There were a number of advantages in selecting the fuel tax.

- It is an urgent macroeconomic policy issues on which advice would be politically useful.
- The proposed changes fit within broader macroeconomic objectives of increasing domestic revenue and reducing donor dependency.
- The core analytical tasks constitute a manageable technical exercise. At the same time, it offers the potential to explore some valuable technical and methodological innovations. In particular, it could benefit from linking qualitative and institution issues (often at micro levels) with macro decisions. The issues also offered the opportunity to explore broader issues of organising poverty impact analysis within the budget context.
- The selection of a tax issue was considered ideal, since most expenditure issues already had substantial poverty impact analysis, as part of government and donor management.

9. During the scoping mission, a number of possible reasons for reservations about selecting this policy were raised.

- Discussions suggested that the main constraints for poverty reduction were associated with institutional issues (notably, public administration, justice, local government and corruption). Whilst it was not essential that the policy selected should address the highest priority poverty concerns, there are clearly advantages in doing so.

- It became clear that there was a wide expectation across government and in the WB that the petroleum revenue would be reserved for road maintenance activities. There was some debate about whether this hypothecation would reduce the macroeconomic impact of the policy issues. However, given the fungibility of public revenue, it was felt that there was sufficient macroeconomic impact to justify continuing with the petroleum tax. Furthermore, the link to roads and access also offered opportunities for examining the poverty impact of reduced isolation, which had been identified as an impact poverty-related issue.
- There was some concern that the policy selected involved a once-off major adjustment (albeit accompanied by a policy to make subsequent regular but smaller adjustments), which would not be repeated and therefore would have less future value than a policy which could be expected to continue for some time.
- The urgent temporary nature of the policy issue meant that there had been little opportunity for broader consultation in policy selection, which could have implication for ownership of follow-on work. There is little time for a considered review by civil society groups. This is problematic since one of the complaints voiced about the PARPA process is that consultation was formalistic because there was not enough lead-in time for discussion. There has not been extensive public debate on this measure into which the exercise could fit, though its implementation is likely to be controversial.

10. Given these concerns, and in order to ensure that this was the best solution, discussions were held during the scoping visit about the possibility of selecting several alternatives, including civil service reform, deficit financing and financial services. In particular, discussions were held with the Ministry of Planning and Finance (MPF) on whether to switch to civil service reform. It was decided not to change from the fuel tax, both because of the political interest in this topic, and because of concerns about the difficulties of treating civil service reform with a PSIA approach. Also, it was felt that it was legitimate to select a more temporary urgent issue, as many macroeconomic decisions are, in practice, taken with some urgency.

Aim

11. The study was focused on providing advice on whether an increase in the fuel tax would be advisable, given the poverty objectives of government and, if so, what would be the appropriate level of an increase. Initially, there was no discussion of the possibility that some specific measures might be identified to reduce the impact on some vulnerable groups. This possibility was raised by one of the vulnerable groups (artisanal fishermen) during the study. However, given the notorious difficulties of implementing such schemes in economies which are as informal as those in Mozambique, and the widespread use of fuel in small amounts by most vulnerable groups, there were no obviously viable schemes for mitigating impact.

Scope

12. There was considerable debate at the start of the study about whether the analysis should consider the comparative impact of some alternative revenue-raising options or of expenditure implications (notably on road maintenance, which had been one of the reasons for expressing interest in analysing the fuel tax). It was decided, however, that such comparative analysis should not be done, as it would be a major task which would require more time than was available. This decision was made by both government and

donors in the knowledge that it could be difficult to draw strong conclusions without the comparative analysis.

13. There was some discussion about whether the study would consider the impact of the increased fuel tax on employment. PARPA includes employment as one of the key elements in poverty reduction. Some Mozambican analysts thought that increased costs arising from the fuel tax would lead to job losses. Despite the clear importance of this issue, it was decided that it would only be effective to devote a relatively minor part of our effort to analysing employment impact for two reasons: firstly, the available data on enterprise cost structures is weak (and we had insufficient resources to collect primary data on this); and, secondly, the economic tools for analysing longer-term production response were not considered sufficiently reliable to obtain clear practical conclusions.

14. Some government officials were interested in advice on whether the updating of the tax should be based on the exchange rate or indexed to the rate of inflation. It was decided that this was not a critical issue for this PSIA, which would in any case need to consider the sensitivity of impact to different levels of fuel tax change, regardless of the methods by which these changes were calculated. This issue should be discussed in the context of detailed proposals about the level and sequencing of implementation, which are dependent on the specific conditions at that time (and the current and expected world oil price movements, in particular).

15. The following table summarises the focus and limits of the study

TABLE 1.1 SCOPE OF THE STUDY

Included	Excluded
Explicit statement of assumptions	
Disaggregated study of individuals in household survey	Intra-household variations
Definition of policy processes	Full integration of qualitative with quantitative work
Identification of possibly vulnerable activities	Modelling to analyse long term producer response
Possible methodology for comparative PSIA's of other macro policy measures	Comparative analysis of other macro policy measures
Indications of possible policy conclusions	Clear recommendations for optimal level of tax and implementation details

Methodology

16. The study started with interviews and discussions involving some of the key decision-makers in government and the private sector. This helped to explain the existing assumptions about the fuel tax, which would provide the basis of policy decisions, in the absence of any PSIA.

17. A review of existing literature was done to identify explicit and implicit assumptions about the nature of poverty in Mozambique, to identify underlying poverty processes and to reach some early ideas about the possible nature of impact. This included: a review of policy documents and reports from earlier poverty studies in Mozambique; and a review of recent academic work on rural poverty, including a number of dissertations, statistical

data on price movements and fuel imports, news summaries and comparative studies on the impact of fuel price changes in other countries.

18. In identifying poverty profiles and processes, we relied primarily on the household survey (IAF), supplemented by the 1997 DHS and the 1997 population census. We also consulted provincial poverty profiles, and two national participatory poverty assessments. Data from the 2000 QUIBB were not in a usable form at the time of our study, nor did we have access to the agricultural household census.

19. Limited qualitative field research was carried out in Zambezia. This was selected because of the high incidence of poverty, the large changes which were thought to be taking place and the importance of small mobile trading (Bowen 2002). The fieldwork did not pretend to be participatory poverty analysis. Rather it was rapid appraisal, restricted to a limited set of questions having to do with use of fuel and transport, and based on a thorough review of existing literature before the fieldwork began. We spoke with traders, vendors, transporters, pump-owners, provincial directors, NGOs and local officials involved in social provisioning, and with members of rural producers' associations. These interviews were carried out in Quelimane, Mocuba, Ile, Gurue, Lioma, and in two rural communities near Lioma. The main concerns of this research were to look at patterns of fuel use by transporters, to determine how traders and transporters had responded to the rise of the price of fuel in 2000 (and subsequent fall in 2001); to see whether it was possible to make any assessment of intra-provincial price differentials; and to gather information on any other vulnerable activities or groups in society.

20. The quantitative analysis looked at the way in which fuel prices would be transmitted through the economy, assuming that all costs are passed on. This was based on an existing SAM, using information from 1993–1994 (see 0 for a discussion of the SAM and its limitations). The coefficients in the SAM were modified to a limited extent, to reflect the results of the qualitative fieldwork. Since all fuel is still imported, and data for current fuel imports are reliable, it was possible to use the SAM to estimate current fuel use. We found no reason to assume that there had been major shifts in patterns of fuel use, with a few detailed exceptions.

21. The impact of price rises on households was calculated by using the household consumption data in the 1996–97 IAF. The reduced purchasing power of each household was calculated, and the variation was analysed to pick up variations (e.g. non-poor/poor/very poor, region, urban/rural, occupation). The analysis also analysed the way in which demand would fall, using backward multipliers. The analysis attempted to pick up particularly vulnerable groups, guided by the clues from qualitative analysis. However, this was largely unsuccessful, because information on sources of income, profession and economic activity in the household survey did not coincide with the groups highlighted by qualitative work.

22. The qualitative analysis identified a number of activities and processes which could have concentrated longer term effects. These were identified in the study, but it was not possible to incorporate this into the quantitative analysis, because there was insufficient time to develop model of economic growth and social behaviour, within which to develop the analysis.

23. Towards the end of the study a workshop was organised by the MPF in Maputo where tentative results were presented to people from ministries and organisations

interested in the fuel tax issue and/or interviewed during the research. Follow-up interviews were carried out with representatives of advocacy organisations on what would be needed to make such PSIA exercises accessible to them in the consultation process. An extensive process of drafting, review and revision has taken place lasting over six months.

Understanding Expectations

24. During this study, most Mozambicans argued that any increase in the fuel tax would be bad for poverty reduction:

- peasants thought that traders would pay them less for their produce
- urban workers and students were worried about having to walk to work or school or spend less on basic consumer goods
- traders argued they are not making enough to pay more for transport
- transporters believed they would not be able to cover costs without raising fares
- fishermen were afraid that they would not be able to compete with other regional producers who already pay less for fuel

25. However, the results of the economic analysis undertaken in this study show that the overall effect of an increase in fuel on the cost of living is not large, though the increase may have sharper negative implications for certain groups, sectors and activities. This report attempts to explain this apparent contradiction in perspective in a way that allows conclusions to be drawn both about the possible poverty and social impact of the measure under study, and about doing poverty and social impact analysis in Mozambique. It discusses the kinds of data and information needed for PSIA in Mozambique and the institutional capacity to do it. It also argues, however, that PSIA requires open discussion, on the part of IFIs and donors, as well as the Mozambican government and poverty advocacy groups, of the assumptions that underlie the interpretation of data and information. These assumptions have to do with the nature of poverty, the identification of the poor, and particularly with the question of how poverty can be reduced.

1.3 REPORT STRUCTURE

26. The report is divided into three parts: introduction; analysis; and conclusions and recommendations.

27. Part 1 provides a description of poverty and vulnerability in Mozambique. More detailed information on the historical perspective, the demographic background and the economic situation are provided in 0.

28. Part 2 covers the main analysis of the impact of the proposed increase fuel tax, which is introduced in Section 3. Sections 4 to 6 analyse the impact of the fuel tax, through short-term effects on prices to mid-term demand response and longer term impact on production, incomes and employment and on poverty processes.

29. The study does not aim to provide comprehensive comparative information on the PSIA of the fiscal alternatives to the proposed increase in fuel tax. Nevertheless, in order

to provide some introduction and guidance to future priorities, Section 8 considers briefly the fiscal context of the fuel tax, in the light of the fiscal objectives outlined in the PARPA.

30. The third part of the study deals with the methodological and institutional conclusions and recommendations.

2 Poverty and Vulnerability in Mozambique

31. 0 provides background information on the current status of international debate on the nature of poverty.

2.1 IMPLICATIONS FOR PSIA

32. Focusing on underlying processes of impoverishment and vulnerability allows us to understand why certain widely held assumptions about who is poor in Mozambique are not precise: the South is not uniformly better off than the rest of the country; urban residents are not uniformly better off than rural people; and women are not always more vulnerable than men. But this focus also allows us to identify conditions under which particular livelihood groups will be vulnerable to impoverishment. PSIA thus requires that the impact of any particular set or sequence of policy measures be traced analytically through their impact on these processes. Correspondingly, the wider debates about the relationship between macroeconomic policy measures and poverty outcomes do not have invariant answers. In Section II, this report demonstrates how this approach can be used in assessing the impact of one particular policy measure—a proposed increase in the fuel tax. The poverty processes that are identified in this chapter should be relevant to PSIA in relation to other policy measures, but their respective importance and impact can be quite different.

2.2 APPROACHES TO POVERTY IN MOZAMBIQUE

33. ***History of Past Analysis.*** In the last decade of colonial rule, the Portuguese Government departed from the old Salazarian belief that infrastructural improvement brought opportunity for natural development, and replaced it with a more urgent concern for politically oriented projects. From the late 1950s, the development plans began to allocate substantial funds for scientific studies of geology, soils, cartography and the nutrition, education and economic productivity of the African population. The plans became also concerned with developing massive irrigated farming settlements, transport infrastructures and a programme for health and education. The core objective of the Fourth Plan (1973–79) was 'the valorisation of the land and dignification of people'. However, the colonial methods for 'dignification' remained a gradual, slow and long process of assimilation and modernisation by Western civilisation.

34. After independence, the first Mozambican government had an immediate and central concern with poverty. The government saw poverty as largely a problem of technological backwardness in peasant agriculture. Their solution was to bring about a radical social revolution, expecting to create a new and developed society free from the ills of the traditional, feudal and colonial-capitalist society. Attention was focused on poverty reduction through growth and improving social indicators, by expanding health and education and improving rural water access. However, the newly independent Mozambique immediately suffered a severe economic depression, exacerbated by external and internal security problems. There was some apparent recovery during the 1980s, but this was based on large-scale investments which proved to be inefficient. Above all, the investments in cooperatives and state enterprises failed to benefit the large majority of small farmers.

35. The multi-party regime introduced reform measures gradually. But, as liberalisation and privatisation quickened, income differentiation widened, urban unemployment increased and the real wages of the lowest paid workers fell. In contrast, the terms of trade generally improved for agricultural producers.

36. Understanding of the causes of poverty changed, with greater responsibility assigned to errors of government policy and the effects of prolonged war. After the first Economic Structural Adjustment Programme (ESAP) in 1987, there was more specific concern with identifying the poor and estimating the extent of poverty. The first reliable national household survey was carried out in 1996–97 and showed that almost 70% of the population lived below the absolute poverty line, most of them residing in rural areas. The survey also showed that poverty as measured by income indicators was higher than if measured by social indicators. In addition to the survey work, there have been numerous studies of policy impact at all levels. Most of these have been *ex post*, but have attempted to inform policy dialogue, choice and implementation.

37. ***Differing Assumptions about the Extent and Nature of Poverty.*** Both Mozambicans and donors agree that lack of income (both monetary income and self-consumption) is a central aspect of poverty in Mozambique. There is disagreement, however, on the extent to which wage-labour is necessary or desirable for poverty alleviation.

38. Acceptance of the multi-faceted nature of poverty has been growing and the PARPA puts health and education in a central place. The United Nations Development Programme (UNDP) indicators of human development have been integrated in poverty monitoring tools. Rural participatory poverty assessments have raised issues of access to schools and health care, but have put the greatest emphasis on marketing, prices and roads. Recently there has been new concern about public services amongst civil society organisations, government and donors.

39. The PARPA and most donors emphasise the reduction of *absolute* poverty in Mozambique. There is not much concern with income differentiation. In part this reflects the fact that overall absolute poverty is so high in Mozambique and that access to primary health and education are relatively equal (Heltberg *et al.* 2001). Participatory poverty assessments diverge, sometimes arguing that, in some rural areas, everyone is poor, and sometimes emphasising the gap between rich and poor.

40. It is often assumed in Mozambique that there are sharp differences between richer and poorer regions and specifically that southern Mozambique is richer than the centre and the north. Further, it is sometimes assumed that regional differences of wealth reflect ethnic politics⁸. However, this is now being questioned, as a result of recent analysis of survey information.

41. The PARPA emphasises reduction of rural poverty, both because over 75% of the population live in rural areas and because it is sometimes assumed that the cities are richer than the countryside. Others note that even though head-count poverty is lowest in Maputo (at 48%) the concentration of the poor in urban areas makes urban poverty an important issue to address.

⁸ For example, more Frelimo cadres come from the south and Renamo had less success there during the war.

42. The IAF showed that large households and those with high dependency ratios were poorer than others. Interpretations of the IAF data have thus suggested that reductions in fertility will lead to reduction of poverty. This position is quite different to that of participatory poverty assessments in rural areas where large households are considered more prosperous because they have more labour.

43. The PARPA takes the household as its basic unit; it is not particularly concerned with intrahousehold differences in poverty. To the extent to which it discusses gender, its focus is principally on women-headed households. Although most poverty analysis in Mozambique focuses on households, there has been growing attention on the part of Mozambican women's organisations, with strong support from some donors, to gender inequities that cross-cut households. These include weak women's rights under customary law to assets held by their husbands, to speak for themselves in court cases and to have access to reproductive health. Other concerns include women's limited access to monetary income from joint household activities and the gender division of labour which makes women responsible for much of the non-monetised work of the household (Waterhouse and Vijfhuizen 2001).

44. It was once assumed that given the pervasiveness of poverty in Mozambique, and the relative availability of arable land, it was not yet necessary to attend to environmental aspects of poverty. The recent floods challenged this assumption, with donors in particular and some national NGOs now much more concerned with the environmental sustainability of poverty reduction measures.

45. There are different conceptions in government, civil society and among donors about the relationship between HIV/AIDS and poverty and how best to confront it. Whereas it seems clear that HIV/AIDS is caused partly by ignorance and poverty, there is less agreement about the best balance of effort between poverty reduction and urgent direct intervention.

46. ***Differing Assumptions about Poverty Reduction Policy.*** As there are different assumptions about the nature and causes of poverty, so there are different conceptions of appropriate policies to address poverty. The assumptions underlying key macroeconomic policies are not always openly discussed, within government or among donors. The PARPA provides the main government statement of poverty reduction, but even in the PARPA assumptions are not always clear. The following paragraphs discuss some of the more important assumptions in Mozambique.

BOX 2.1 THE PARPA

Mozambique participated energetically in international moves to produce PRSPs. An Interim PRSP was produced in 1999, followed rapidly by a full PRSP covering 2000–05, which included substantial consultation with civil society and donors. The PARPA was produced almost exclusively by government not donors. The PRSP includes detailed proposals for spending on programmes, which are prioritised and consistent with the Medium Term Expenditure Framework (MTEF) and with subsequent budgets.

The PARPA includes a review of poverty in Mozambique, including the income and non-income elements, regional distribution, the rural/urban dimension, lack of market integration, low human development and poor services and infrastructure. The review shows that poverty takes different forms in different areas.

The PARPA is based on the objective of reducing poverty from 70% to 60% in 2005 and 50% in 2010, with a reduction in regional differences. The strategy for achieving this is based on: economic stability and broad-based growth (at a target level of 8% per year); education; health services (health education, water and sanitation); agricultural and rural development; infrastructure; employment; and social protection and governance. The PARPA involves spending about two thirds of public expenditure on priority sectors, with 30% of this for education, 20% for health, 29% for infrastructure; 6% for agriculture; and 12% for good governance.

47. It is agreed by government and most major donors that the PARPA focus on growth is correct, given the high incidence of absolute poverty. There is also some agreement that government should avoid trying to pick winning sectors and should restrict itself to providing public goods and to regulatory and institutional reform. However, Mozambicans in the private sector, and some within government, argue that particular sectors are key for growth and need protection⁹ because of Mozambique's weak competitive position in the regional and global context. There is a range of views amongst donors on the wisdom of protection.

48. There is no clear consensus on the balance of public effort and resources which should be devoted to growth, as compared to poverty alleviation. Ideally, resources should be devoted to forms of growth which will most help reduce poverty. However, there are occasions when government has to choose between measures which promote growth without a strong link to poverty reduction and measures dedicated to poverty reduction without growth. There are many occasions in the PARPA when preference appears to be given to growth.

49. It is assumed that inflation arising from increased public spending (notably on wages) is harmful to the poor, and this assumption is used to justify policies of macroeconomic stability. However, the extent to which inflation is more harmful to the poor than the rich is controversial and there is no clear evidence for this (either Mozambican or international). The lack of market involvement amongst the poor can be expected to reduce the direct impact of inflation. The indirect effects on interest rates and growth (especially of trade and services) are also unclear.

⁹ For example, from protective tariffs and graduated interest rates.

50. There is an explicit assumption that the main long term risk to macroeconomic stability in Mozambique is the low level of public revenue and, hence, the excessive dependency on aid. There is disagreement, however, as to what priority should be assigned to the reduction of aid-dependency and as to the speed with which it should be attained. Some argue that increased taxes can inhibit growth and thus undermine the longer-term fiscal basis of government.

51. The weakness of the institutions of governance—including corruption and widespread popular distrust in the institutions of justice—is now viewed as a central aspect of the relationship of public policy to poverty. Although governance is an institutional issue, public administration reform is also a matter of macroeconomic policy, since there is concern about the impact of squeezed public wages, and oversized civil service, on the functioning of government. This makes the assumptions about the relationship between increased public sector wages, inflation and the well-being of the poor particularly important to address.

2.3 POVERTY PROCESSES IN MOZAMBIQUE

52. Poverty is defined here as the inability of individuals or societies to attain a minimally adequate standard of living. It is the situation where a population or section of a population is able to meet only its bare subsistence essentials of food, clothing, and shelter to maintain minimum levels of living (UNCTAD 2002, Todaro 2000). This definition captures all important aspects of poverty, including the subjective feeling of being poor, but it allows us to use existing survey data and qualitative studies to address the questions of who is poor and why they are poor in Mozambique today. Whilst surveys do not yet provide a comparative time series¹⁰, there is a considerable range of data sources on which to build. In particular, the surveys demonstrate that there is a much wider diversity in the extent and nature of poverty than was previously appreciated, and allow for a more subtle appreciation of the varied nature of the causes and solutions of poverty.

53. There are five processes of impoverishment and vulnerability that shape the experience and the incidence of poverty in Mozambique today:

- limited and uneven productive opportunities and market integration
- rural–urban differentiation in forms of insecurity
- differentiation in control over assets
- increasing dependency and disruption of local systems of social support
- corrosion of governance.

54. In this section we explain how each shapes livelihoods in Mozambique, their combined (and sometimes countervailing) effects determining who is poor and what their experience of poverty is. Relations of gendered inequality cross-cut these processes, making the experience of men and women different in some respects. The discussion informs the subsequent analysis of the impact of a change in fuel tax. Because the most direct effect of the fuel tax change is on prices, much of the impact analysis focuses on

¹⁰ It will be easier to look at the dynamic of livelihood and processes of poverty once the 2002-3 household survey is completed.

basic income poverty and the first poverty process (i.e. productive opportunity). The effect on other processes is reviewed in section 7.

Limited and Uneven Productive Opportunities and Market Integration

55. Assumptions about the relationship between growth and poverty are critical for poverty reduction policy. This is reflected in the importance, and complexity, of processes governing the productive opportunities and market integration. Historical differences in patterns of market development have shaped the activities, assets and capabilities that different groups of people have in Mozambique. This has created regional and sub-regional differences in the dimensions of poverty.

56. **Wage Labour.** Historically, many districts of central and southern Mozambique were characterised by an interdependence of smallholder farming with casual and migrant wage-labour, resulting in a gendered diversification of rural livelihoods. Results of both the household survey and the 1997 census show low importance of wage-labour in rural areas outside the South. This raises a number of possibilities:

- wage-labour remains an important hedge against vulnerability in rural areas, but is not adequately captured by existing survey instruments¹¹
- the current lack of involvement in wage-labour is real, and an indicator of a crisis of unemployment in rural areas
- given the continuing availability of land in most rural areas, peasants in central Mozambique have withdrawn from wage-labour to take up farming or related activities, with only prime commercial land hiring casual wage-workers

57. Evidence on this question is divergent (cf. Tschirley and Benfica 2000).

58. **Rural Markets.** The majority of the Mozambican poor live in rural areas. Integration with rural markets offers varied coping strategies involving both production and consumption. The possible role of participation in rural markets is of particular importance for this study given the concern with transport.

59. Rural marketing in Mozambique is extremely complex. The collapse of state marketing has not been replaced by large-scale private marketing activity and rural marketing is still dependent on smaller-scale informal trading. Failure to market effectively peasant commercial crops, such as maize and tobacco, has been a problem in areas of northern and central Mozambique. In some cases, the problem appears to be transport costs and the slowness with which informal trading can respond to major changes in supply and demand. In other cases, low international prices for export crops and regional gluts have meant that traders are offering very low prices or are not buying at all. The accumulation of surplus offers smallholder farmers various opportunities for coping with poverty. However, the inefficient rural markets mean that this accumulation is slow and erratic.

60. There is also some evidence that market access does not always translate into a reduction of poverty. Opening up of road access in some rural areas in Zambezia has led to loggers moving in and encroaching on peasant land and forest reserves. Nutrition

¹¹ This hypothesis is being researched by a SOAS team, which is currently carrying out a household and labour-force survey designed to capture casual labour.

indicators are sometimes better for those far from marketing points whose income is principally non-monetary than it is for poor families receiving a greater part of their income from trade.

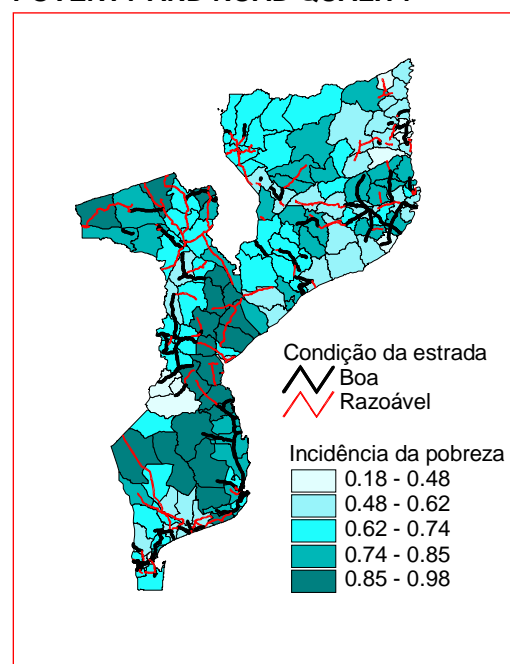
61. **Informal Sector Opportunities.** Informal sector opportunities (notably in small trade or artisanal production) have ease of entry, but their survival depends on the scale and accessibility of their markets. Thus, informal sector opportunities cluster close to areas of concentration of demand (e.g. peri-urban areas) or are vulnerable to increases in transport cost.

62. **Market Linkages.** The market processes that have favoured the city of Maputo are shaped by broader patterns of accumulation in the southern Africa region, particularly by Maputo's role as a service centre for South Africa. The market processes that have given rise to the concentration of wealth and production of wealth in the city of Maputo have been further exacerbated by the local of the capital in Maputo, concentrating higher paid public employment and giving political clout to the urban population.

63. The distance between the city of Maputo and the rest of the country has not always been as extreme as it is today. The destruction of the war, adverse movements in commodity prices for some traditional Mozambican agricultural exports, and the current difficulties of the Zimbabwean economy have particularly undercut the Beira and Nacala corridors.

64. Differences in the development of markets have shaped the movement of population and thus affected historical patterns of concentration of population in river valleys and along the coast and the division between densely populated and scarcely populated regions. Both density of settlement and commercial development are reflected in grids of transport and communication and thus underlie the relative isolation of some rural communities (see map).

POVERTY AND ROAD QUALITY



Source: DNPO 2002, p. 18

65. Patterns of road and transport development have also followed market development and areas of concentration of population, further adding to the relative isolation of some rural communities. Map 6 shows that there is a relationship between poverty and poor road infrastructure.

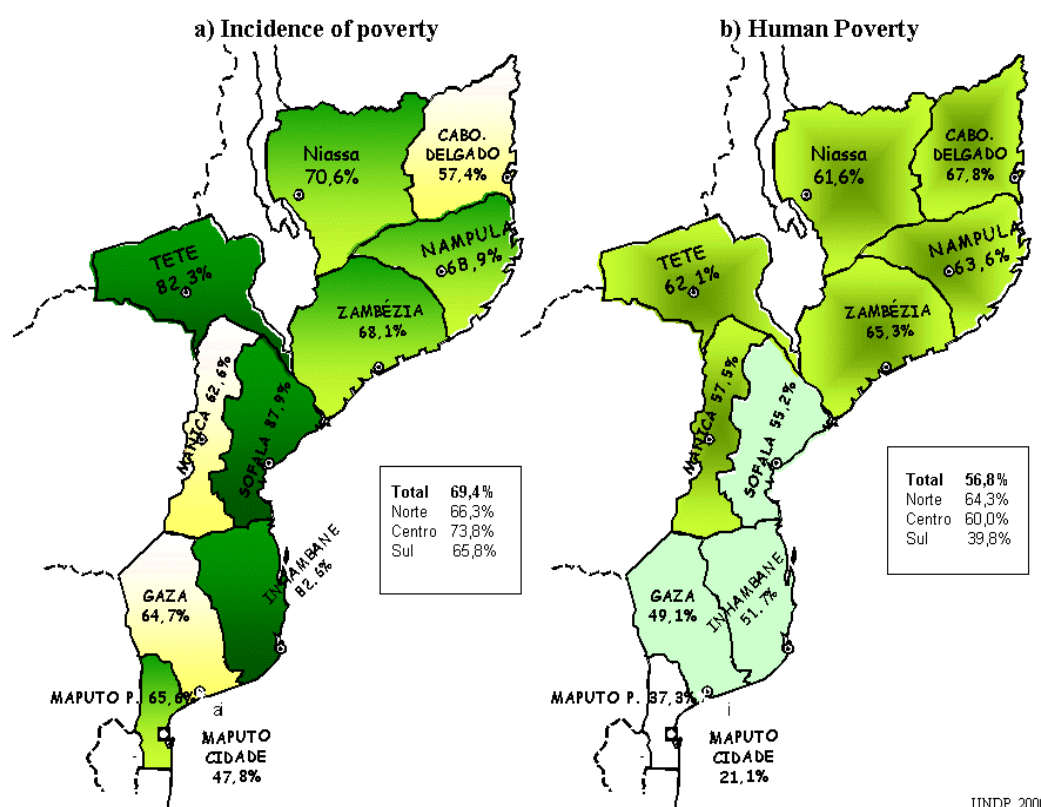
66. The unevenness of infrastructure within Mozambique is grounded in an overall relative weakness of infrastructural development within Southern Africa. Mozambique is on a par with Botswana, which has a much lower population density.

67. **Regional Differences.** Survey evidence shows that there are regional differences in the uneven development of markets but that it is impossible to draw any sharp division

between the South and the rest of the country in terms of income poverty. Some areas of Inhambane, in the South, are amongst the poorest in the country, along with inland Sofala and Tete. Further, if one breaks down to district or even locality level, one can see richer and poorer districts in income terms scattered across the country. Human development indicators do, however, show that the South is better off than the rest of the country. The concentration of both social and transport infrastructures, and opportunities for wage-labour in the South may have something to do with better social indicators. The discrepancy between poverty defined in terms of income/consumption and as defined by social indicators was confirmed by DHST survey data on child nutritional status. This has led to discussion in government about appropriate measures of poverty alleviation and has prompted the inclusion of a wider range of social indicators for the upcoming 2002-3 household survey. It also raises questions about the impact of provisioning of public goods, local politics and social cohesion on the experience of poverty. A recent study of corruption in both rural and urban Mozambique found that payment of bribes for public services is a leading cause of rural poverty (Afrisurvey 2001).

INCIDENCE OF POVERTY AND HUMAN POVERTY

Two comparative dimensions of poverty in Mozambique, 1997



Rural–urban Differentiation in Forms of Insecurity

68. There is a marked difference in poverty processes between rural and urban areas. Various case studies have related rural poverty to the insecurity of smallholder production that suffers both from seasonal hunger and periodic shocks of drought and flood. It has taken time after the end of the war to rebuild livestock herds, establish orchards and plantations crops, recreate the intensively cultivated plots that characterise

much of women's farming in central and northern Mozambique. Rural producers in Mozambique remain both poor and vulnerable to environmental hazards. Urban residents, particularly in the largest cities of Beira and Maputo are in contrast much more dependent on the market for everyday subsistence and thus particularly vulnerable to shifts in prices, wages and market access.

69. There are also important rural–urban linkages which mediate insecurity, including the flow of food to kin in cities and the flow of remittances to rural kin. These are dependent on transport and communication.

Socio-Economic Differentiation in Control of Assets

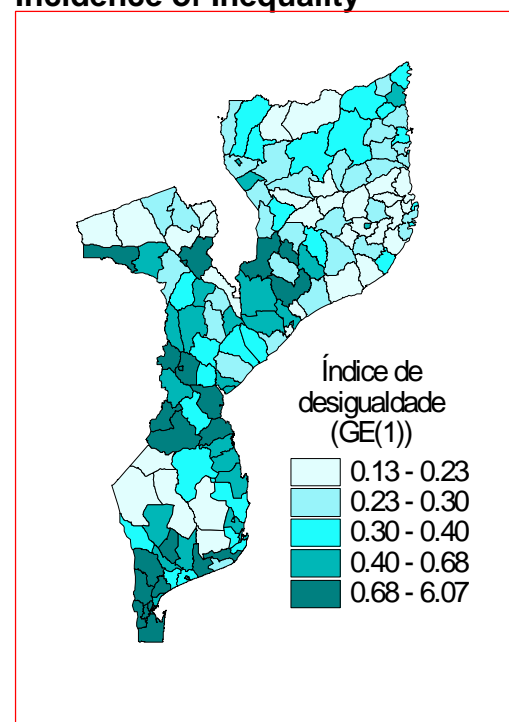
70. Diversification implicit in the development of markets on one hand has allowed people to find ways of mediating the covariance of risk inherent in small communities with rainfed farming. In both central and southern Mozambique, people in poor households resort to casual day labour (*ganho-ganho*, *xithoko*). The other side of market development is, however, social differentiation, the concentration of assets in the hands of particular groups.

71. In Mozambique there is generally an inverse relationship between the incidence of poverty and inequality: Manica and Maputo provinces have the lowest incidence of poverty, but the highest measure of inequality; the districts in the interior of Inhambane, northern Gaza and northern Tete, have the highest incidence of poverty, but also present the lowest measure of inequality. There are exceptions, however: very poor districts in Sofala also have relatively high indicators of inequality (National Division for Planning and Budgeting (DNPO), 2002).

72. This process is particularly sharp in urban areas, where differentiation has spatial and infrastructural aspects. The poorer people live in peri-urban zones with poor infrastructures and high transport cost. Differentiation in rural areas is most marked in areas where land markets have developed—valleys with irrigable potential, peri-urban zones, on main market access roads, in areas with tourist potential. The current land law allows for collective title, but the procedures are difficult for poorer communities to use as a defence against private claims.

73. Development of markets also leads to differentiation in control of assets within households as men have tended to have more control than do women and children over entitlements to commodities. Men's greater control over income from cash crops and wage labour has sometimes been based on intensification of women and children's non-monetised work within the household. Thus evidence of relative equality in access to

Incidence of Inequality



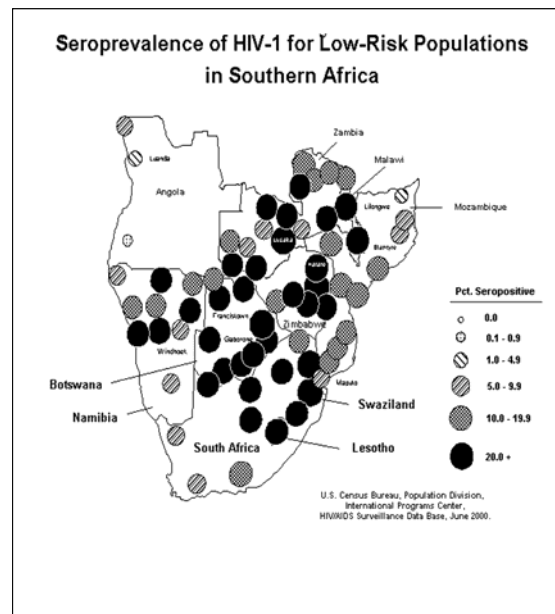
Source: DNPO 2002 Mapa 13

health and education needs to be cross-checked. The fact that richer households do not have better health and education indicators than poor ones, may only show that consumption within these households is not directed towards the needs of women and children (whose health conditions are monitored in social surveys). Gender discrimination is also important in rights to land, which is now recognised as an important dimension of poverty.

Increasing Dependency and Disruption of Local Systems of Social Support

74. Households that have a high dependency ratio tend to be poor according to the analysis of the IAF. At the beginning of a household life-cycle there may be a large number of young children to feed; at the end of the life cycle, older people may not be able to work. These demographic patterns are mediated, however, by links of extended family social support and by the assets that some groups of people hold. The demographic aspects of dependency have been exacerbated today by the burdens of HIV/AIDS related morbidity and mortality, which weigh heavily on the age-group that would generally be most productive, extend the time that must be spent on care for ageing, strain links of social support and leave children orphaned. The incidence of HIV/AIDS is thus far regionally uneven in Mozambique, putting communities in the traditional labour reserves of southern Mozambique and linked to the Beira corridor in situations of special vulnerability (see map above).

HIV/AIDS INCIDENCE

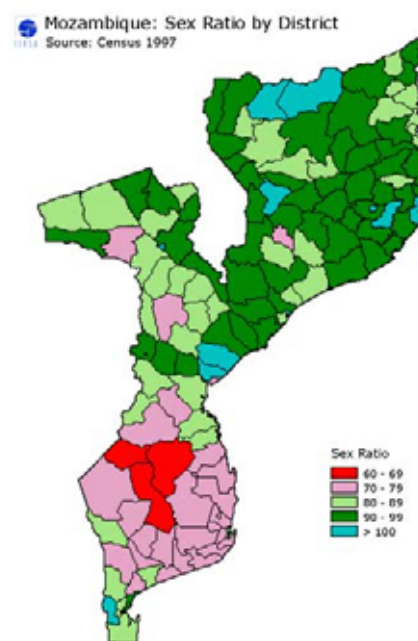


Source:

75. **Dependency and large families.** The IAF showed that large households and those with high dependency ratios were poorer than others. Interpretations of the IAF data have thus suggested that reductions in fertility will lead to reduction of poverty. This position is quite different to that of participatory poverty assessments in rural areas where large households are considered more prosperous because they have more labour.

76. **The vulnerability of women and children.**

The PARPA takes the family or the household as its basic unit; it is not particularly concerned with intrahousehold differences in poverty. To the extent to which it discusses gender, its focus is principally on women-headed households. Although most poverty analysis in Mozambique focuses on households, there has been growing attention on the part of Mozambican women's organisations, with strong support from some donors, to gender inequities that cross-cut households. These include the weakness of the following women's rights under customary law: to assets held by their husbands; to speak for themselves in court cases; and to reproductive health. Other concerns include women's limited access to monetary income from joint household activities and the gender division of labour which makes women responsible for much of the non-monetised work of the household (Waterhouse and Vijfhuizen 2001).



Source:

The Corrosion of Governance: privatisation of services within government

77. Evidence from the IAF indicates that access to primary health care and schooling is not very differentiated (Heltberg *et al.* 2001). But there is current concern with the increasing burden of extra-legal payments for access to public services (e.g. to police, judges, officials, teachers, nurses and tax collectors). Corruption has been fostered by:

- the rapid decline in public sector wages, particularly at lower skill levels
- rapid privatisation of state assets through transfers to partnership groups that included state officials involved in the transfer process
- the acceptance of commissions in return for favours by leading government officials, which makes it difficult to limit similar practices at other levels of public service.

78. Bribes and extra payments for government services are widespread in rural as well as urban areas (Afrisurvey 2001).

PART 2

THE IMPACT OF A CHANGE IN FUEL TAX

3 Fuel Tax Reform in Mozambique

3.1 BACKGROUND TO THE FUEL TAX

79. Fuel prices in Mozambique are controlled through a system in which various costs and taxes are added to import costs to reach a maximum retail price. These prices are adhered to at formal petrol stations, though small scale retailing does take place in rural areas, resulting in some higher prices for small volumes. Table 3.1 presents the table used to calculate the most recent price rise, which came into force on 15 May 2002. The table is updated every month, to reflect changes in import prices and in the exchange rate. When the average % change in import prices in Mt/lt exceeds 3%, new prices are introduced.

TABLE 3.1 THE FUEL PRICING TABLE

		Gasolina	JetA1	Petroleo	Gasoleo	Fuel Oil	Weighted
		(Petrol)	(Aviation)	(Kerosene)	(Diesel)		Average
1	Import price US\$/t						
	Last Quarter	273.1	208.4	208.4	202.9	130.8	212.3
	Previous Quarter	187.2	191.8	191.8	173.8	130.8	177.7
	% change	45.9%	8.7%	8.7%	16.8%	0.0%	19.2%
	Conversion to m3	0.72	0.79	0.79	0.85	0.97	0.82
	Exchange Rate	23,842	23,842	23,842	23,842	23,842	
2	Import price US\$/m3	196.6	164.7	164.7	172.5	126.9	173.3
	3						
	Import price (MT/lt)	4,688	3,926	3,926	4,112	3,025	4129.5
	4						
	Previous Quarter	3,220	3,618	3,618	3,528	3,030	3478.6
	% change	45.6%	8.5%	8.5%	16.6%	-0.2%	18.7%
5	Importer's costs	244.9	244.9	244.9	244.9	238.6	244.4
6	Base cost (3+5)	4,933	4,171	4,171	4,357	3,263	4373.9
7	Import duties (3*5%)	234	196	196	206	151	206.5
8	Import costs (6+7)	5,167	4,367	4,367	4,562	3,415	4580.4
9	VAT on imports (8*17%)	878			776	580	646.5
10	Distributor's margin	1,330	1,330	1,330	1,330	1,330	1329.0
11	VAT on distributor (9+10*17%)	1,105			1,002	807	832.2
12	Fuel tax	3,308	430	0	1,825	328	1708.1
13	losses/gains	0	308	308	0	-5	54.6
14	Adjustments	3	0	5	3	0	2.9
15	Price to distributor (8+10+11+12+13+14)	10,912	6,435	6,010	8,722	5,875	8507.1
16	Transport costs	57	57	57	57	57	56.6
17	VAT on transport (11+16*17%)	1,114			1,011	816	840.1
18	Price from distributor (15+16+17-11)	10,978	6,492	6,067	8,789	5,941	8571.5
19	Retailer's margin	283	283	283	283	0	274.6
20	VAT on retailer (17+19*17%)	1,162			1,060	816	878.2
21	Retail price (18+19+20-17)	11,310	6,775	6,350	9,120	5,941	8884.2
	Previous retail price	9,870	6,088	5,660	8,120	6,494	7920.3
	% change	14.6%	11.3%	12.2%	12.3%	-8.5%	11.9%
	weights	15.2%	6.8%	11.0%	63.9%	3.0%	100.0%

Source: Ministry of Energy

80. Table 3.1 shows that diesel comprises 63.9% of fuel consumption in Mozambique, with petrol accounting for 15.2%. The tax rate of petrol is nearly twice that on diesel. However, other fuel products are either exempt or have lower tax rates than diesel. As a result, changes in diesel prices arising from a proportional change in tax rates are close to those for the weighted average of all fuels.

81. The fuel tax was introduced in 1990, through the adoption of Law 22 / 90. The law specifies that updates to the rates should be proposed by MPF and approved by the Council of Ministers. The initial rates were set by a regulation which also specified the proportion of the revenue raised which should be used for the following: road maintenance at different levels of government; municipal development; rural development and central revenue. The regulation also stated that aviation fuel and kerosene would be exempt¹². This regulation has been updated on various occasions since 1990. The last update took place through law 31/97, on 7 October 1997, since when the tax rates have remained the same in local currency.

82. The table below shows the contribution of fuel tax to total government revenue in recent years. There has been only a small increase in fuel tax revenue, associated with a modest increase in the use of fuel, whilst total government revenue has increased by over 50% between 1997 and 2000. The share of fuel in domestic revenue has therefore declined from 13.1% to 10.4%.

TABLE 3.2 CONTRIBUTION OF FUEL TAX TO TOTAL REVENUE (CURRENT MT)

MT bn	1997	1998	1999	2000
Government domestic revenue	4,770	5,650	6,358	7,439
Fuel tax	627	750	759	771
as a % of total revenue	13.1%	13.3%	11.9%	10.4%

Source: derived from MPF figures

3.2 REASONS FOR CONSIDERING A RISE IN FUEL TAX

83. An increase in fuel tax could make a substantial contribution to the PARPA objectives on increasing revenue and funding expenditure programmes with reduced aid dependency. This is considered in section 3.5. 0 places the fuel tax in the context of a general review of tax theory. The fiscal objectives of the PARPA are fungible. In theory, the extent to which fuel tax revenue is used to increase expenditure rather than to reduce aid dependency, would have an important impact on the nature of the analysis: increasing expenditure would imply that the tax is a transfer within the economy and has no aggregate effect on demand; whilst reducing aid dependency would involve a reduction in demand. In practice, government is likely to accept as much grant aid as is offered, and fuel tax therefore enables expenditure to take place, for a given level of aid. This is discussed in section 8.

84. Government has also made specific commitments on road maintenance and a large part of the increased fuel tax revenue is dedicated to financing this increased

¹² The initial legislation also appears to suggest that diesel was originally exempt. However, this seems to have been changed soon after the legislation.

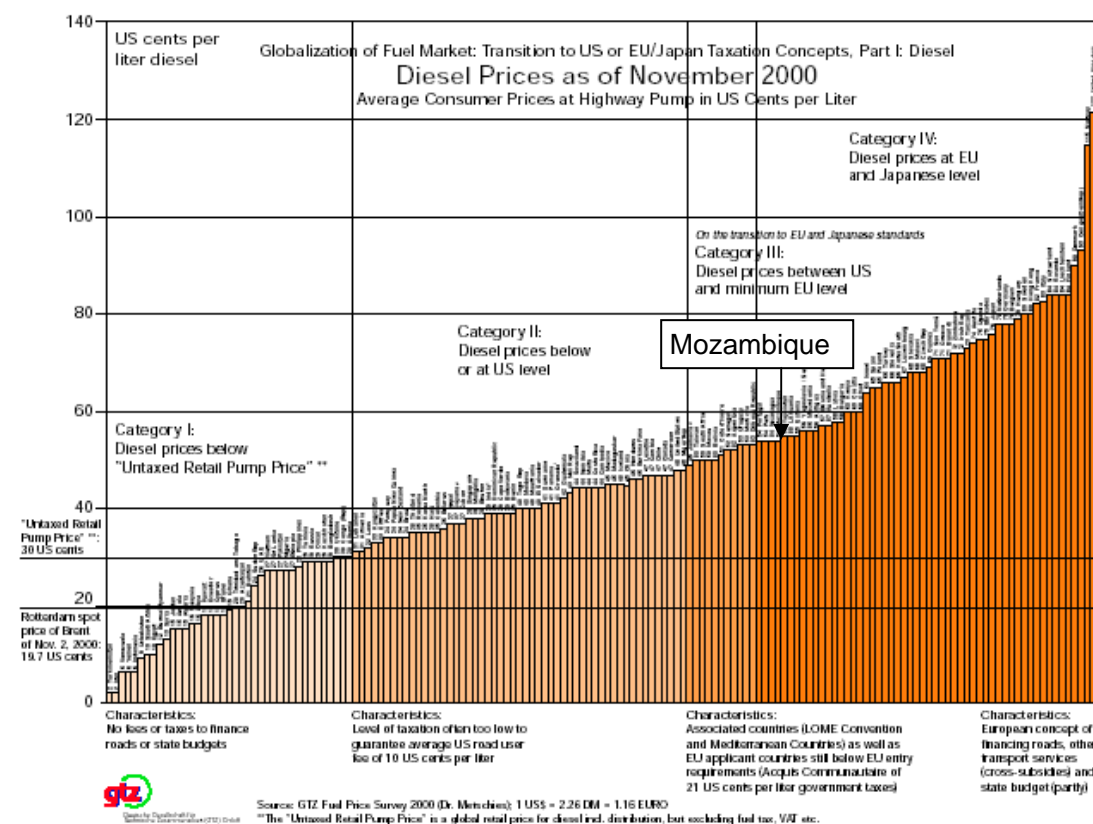
expenditure. This link between the fuel tax and road maintenance was a feature of the original legislation setting up the fuel tax, although the legislation allows for some flexibility in the link, which has been exploited to some extent in recent years. The commitments on road maintenance have been incorporated into the agreement for a major international loan to improve roads.

85. These two objectives are not inconsistent, as the road maintenance commitments are part of the PARPA prioritised spending programme. If PARPA revenue targets and/or financing targets are not met in the future, all PARPA spending priorities would be subject to review through the normal planning and budgeting processes.

3.3 COMPARISON WITH INTERNATIONAL PRICES

86. International retail prices of fuel products are largely driven by differences in tax rates. Figure 3.1 presents an analysis of international diesel prices. Petrol prices follow a similar pattern. The diagram includes a horizontal line at about 30 US cents/litre, which represents a typical untaxed retail price. The difference between actual price and this line therefore reflects the total level of taxation (or subsidy). The first group of countries have prices below the untaxed price. The second group have prices below the US price (48 c/l). The fourth category are at EU levels (from 54 to 122 c/l). There is a small group of countries in a third intermediary category. In 2000, Mozambique's diesel prices were at 54 c/l, at the bottom of the EU price band.

FIGURE 3.1 INTERNATIONAL FUEL PRICES



Source: GTZ 2001

87. Within Southern and Eastern Africa, Mozambique had lower diesel and petrol prices than all countries except South Africa, Botswana, Lesotho, Madagascar and Namibia. The table below shows how the relative position of Mozambique has changed in the last decade, and shows that Mozambique has moved from having the cheapest diesel to a position above its Southern neighbours (South Africa, Botswana and Swaziland) and below its northern neighbours (Zimbabwe, Malawi and Tanzania). The current position is the same with petrol prices, though the early trends with petrol prices are different.

TABLE 3.3 DIESEL AND PETROL PRICE TRENDS IN SOUTHERN AFRICA (USCENTS/LT)

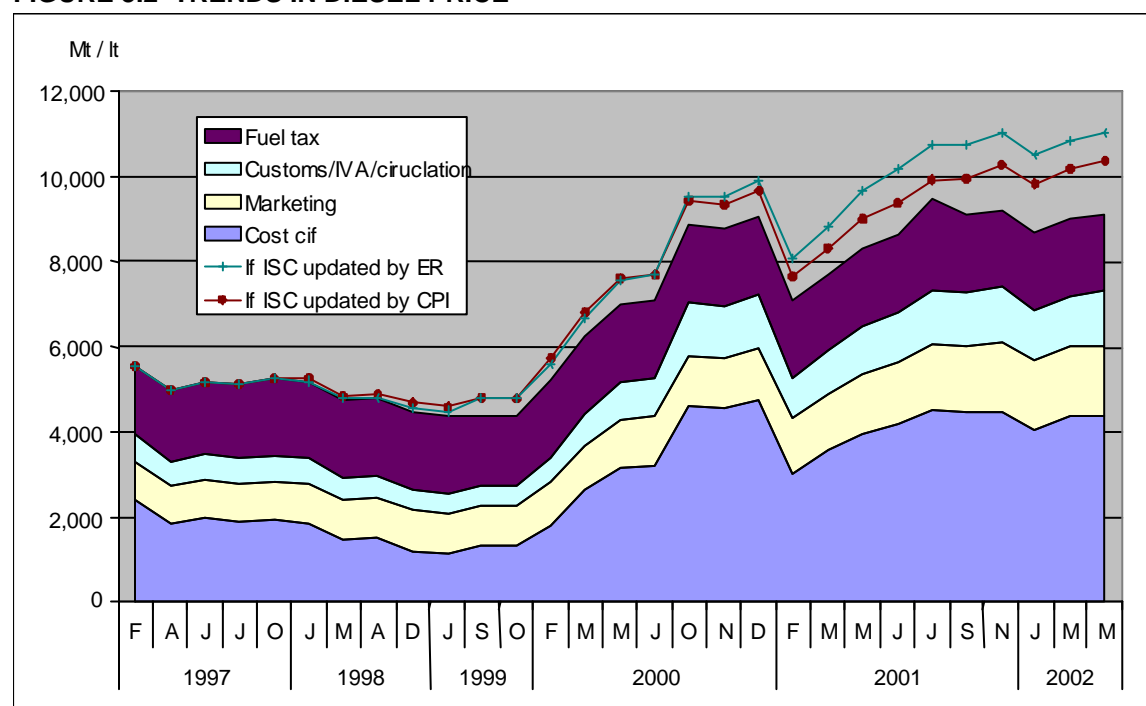
	Diesel					Gasoline				
	1991	1993	1995	1998	2000	1991	1993	1995	1998	2000
Tanzania	25	30	44	57	73	42	43	56	63	75
Zimbabwe	37	28	29	22	72	68	47	38	26	85
Zambia	24	66	57	49		40	72	60	53	
Malawi	56	67	55	45	68	64	71	65	51	69
Mozambique	26	21	32	41	54	74	48	53	55	56
South Africa		52	46	39	50		52	52	43	50
Swaziland	41	40		36	44	46	43		37	47
Botswana	61	37	35	29	39	68	41	38	31	42

Source: GTZ 2001

88. The regional trends in fuel prices are affected both by changes in fuel tax and by changes in exchange rates. More recent data is required to establish how the recent trends in the Rand and the Metical have affected comparative prices.

3.4 SCENARIOS FOR INCREASING THE FUEL TAX IN MOZAMBIQUE

89. Since October 1997, the consumer price index has increased by 65% and the exchange rate has risen by 101%. There have also been very substantial variations in fuel import prices. For example, diesel prices have varied from 9 to 29 UScents/lit, and from 1,140 to 4,700 Mt/lit. As a result, the retail price of diesel has roughly doubled. Figure 3.2 presents the trends in diesel prices since October 1997. The top two lines in the graph show how the retail price would have changed if the fuel tax had risen in line with the CPI and the Exchange Rate.

FIGURE 3.2 TRENDS IN DIESEL PRICE

Sources: INE, MPF, MINER

90. The revenue from the fuel tax has now fallen by 65% in real terms, and 101% in dollar terms, since 1997. As a result, it is natural that the government should consider the possibility of updating the tax to reflect changes since October 1997. This study considers the possible impact of two options: updating by 65% to keep revenue in line with inflation; and updating by 101%, to maintain the dollar value of revenues. The implications of these increases on fuel prices are shown in the table below.

TABLE 3.4 PRICE RISES ASSOCIATED WITH DIFFERENT TAX INCREASES

Updating in line with	Scenario 1	Scenario 2
	Inflation	Devaluation
Tax rise required	65%	101%
Weighted average fuel price rise	13%	20%
Diesel price rise	13%	21%
Petrol price rise	20%	30%

Note: it is assumed that exemptions on kerosene will continue and that tax on aviation fuel and on fuel oil will increase by the same proportions as diesel and fuel

91. There is no particular need to stick with either of these values, and the government is free to set the tax rate at the optimal level, bearing in mind alternatives available. However, they provide convenient scenarios for analysis and there is some value in establishing a precedent for future updates, which will then add some predictability to the market and reduce the risk of delays in future updates.

3.5 THE IMPACT ON THE BUDGET

92. In 2000, fuel revenues contributed 10.4% of domestic revenue. The budget for 2002 suggests this will fall to 7.1%. Under Scenario A, fuel tax revenue would have increased to 11.7% of revenue and to 14.3% under Scenario B. Table 3.5 summarises the impact on the budget of the two possible changes in fuel tax.

TABLE 3.5 THE IMPACT ON THE BUDGET (2002)

	Actual	Scenario A	Scenario B
Fuel Tax Scenarios			
Updated in line with		inflation	devaluation
Fuel Tax (Mt / lt)	1,825	3,012	3,674
increase		65%	101%
Retail price	8,938	10,125	10,787
increase		13.3%	20.7%
Net effect on Revenue			
Fuel tax receipts	771	1272	1552
as a % of total receipts	7.1%	11.7%	14.3%
Additional revenue raised		501	781
Net effect on Expenditure			
Total expenditure	24,344	24,394	24,422
Expenditure on fuel (1.54%)	375	425	452
increase		50	78
as % of total expenditure		0.2%	0.3%
as % of increased receipts		9.9%	9.9%

Source: study estimates and MPF statistics

93. The final section of Table 3.5 shows that government consumes 9.9% of total fuel consumption in Mozambique. Any increase in fuel tax rates should be matched by an increase in the fuel expenditure budgets, to cover the price rises. Thus, about 10% of total increased revenue should be used to increase expenditure on fuel and the net gain for government revenue is only 90% of total revenue raised.

3.6 THE POLITICAL CONTEXT OF FUEL TAX REFORM

94. Fuel tax reform proposals should be located within the wider political context of fuel pricing, tax reform and regulation. The price of public transport is a particularly important issue in Maputo city and province. The successful rise in the transport price in March involved negotiation between government, transporters, workers and community groups. This contrasted with the preceding price rise when there was vigilante action by transporters with burning of vehicles, blocking of roads and supportive strikes by urban workers. And the price rise was only implemented after the government promised an exemption for transporters on VAT payments. In the following period, government pressured transporters to maintain prices despite a series of increases in the fuel price. When the latest increase was accepted in March, the transporters' association promised that the price would remain in effect for two years. However, it is doubtful whether they would feel obliged to keep this promise if the fuel price rose because of a tax increase.

Trade associations in Mozambique have a long tradition of analysing public policy and negotiating strongly with government. For example, recent negotiations on the minimum salary involved a compromise between government, employers and unions, but the unions used statistical data to show that the new minimum wage is still one-third of the poverty line for Maputo¹³.

95. The impact of fuel tax reform should be assessed within the context of the broader package of reforms that will affect the cost of living in urban areas in general and Maputo in particular. Ongoing reforms in income tax are expected to be introduced early next year and will probably most affect formal sector urban workers, some of whom are also vulnerable to fuel prices. The privatised but regulated water company raised rates by 30% on 01 July. Whilst each of these is only a single example, the more changes the government is seen to support, the more difficult it becomes for them to introduce tax changes which would affect something as sensitive as the fuel price.

3.7 IMPLEMENTATION DETAILS

96. There are a number of options in implementing the fuel tax. Although these implementation details are not the main focus of the study, some conclusions are reached in Section 9.1.

97. **Exemptions and Differential Rates.** It is common in Africa for kerosene to be exempt from fuel tax, and Mozambique follows this pattern. There is some evidence in other African countries that high taxations can lead to some dilution of diesel and petrol with kerosene, which damages engines and reduces performance, as well as resulting in loss of revenue. There are no clear rules about the level of tax at which kerosene dilution becomes serious. There are some reports of diesel being diluted with water in informal rural markets, but kerosene dilution is rarely mentioned and does not seem to be widely practiced. Furthermore, the problem is not raised in discussions and studies about the situation in 1997, when the fuel tax was much higher in real terms. Nevertheless, the risk of kerosene dilution remains and it will be important for MPF to monitor this risk and take any evidence into consideration when updating fuel taxes.

98. In some countries, diesel is exempt from tax, in order to reduce commercial transport costs and concentrate the tax burden on petrol vehicles, which are normally used for personal transport. Indeed, when fuel tax was first introduced in Mozambique, diesel was exempt from tax. However, with the growth of diesel cars for personal transport, the benefits of diesel exemption are being eroded and there are risks that it may be counterproductive and lead to increased pollution. As a result it is increasingly difficult to justify diesel exemption. Gupta and Mahler (1995) showed that the average tax rate for gasoline is 82% of import cost insurance freight (cif), compared with 48% for diesel and 31% for kerosene. The differential between petrol and diesel would now be significantly lower.

99. In some countries, exemptions are applied for particular users of fuel. For example, the use of tainted diesel for agricultural purposes is common in developed countries. Policing this policy is assisted by the fact that tainted diesel is detectable in the tank for many months after it has been used. However, the capacity and discipline required to

¹³ This is true if an average household in Maputo City relies on a minimum wage from one single member, assuming the poverty line of 1997 is updated in line with the exchange rate.

enforce such exemptions are demanding and there is a risk that specific exemptions would create lucrative opportunities to extend corruption.

100. **Calculation Basis.** Most countries use fixed tax rates rather than *ad valorem* taxes (Gupta and Mahler, 1995). Fixed rates lead to more predictable income and less variable retail prices and can be easier to collect in countries with less stable economies.

101. There is increasing debate in Mozambique about whether tax rates should be set in US\$ or Meticals, or as a percentage of import prices. Provided that a Metical tax is regularly updated with inflation, the currency base should make little difference in the longer run, since it is unusual for inflation to differ strongly from devaluation over a long period. Indeed, there are arguments for using the Metical, to avoid excessive 'dollarisation' of the economy and subsequent risks for entrenched devaluation and inflation. However, as recent experience in Mozambique has shown, fixing the tax in Meticals increases the risk that updates will be neglected and the real value will fall.

102. **Regional Prices.** Whilst fuel taxes are a domestic policy issue, it is important that they are not allowed to become too far out of line with neighbouring countries. Consistency with South African prices is particularly important in view of the closeness of South Africa to Maputo, where fuel consumption is concentrated. The risks involve loss of revenue from legitimate fuel purchasing, as well as smuggling operations.

103. **Phasing.** To reduce the risks of delays in updating tax rates, it would be possible to apply a formula similar to that used to trigger retail fuel price increases arising from import costs. This would offer the opportunity of adopting a strategy for ensuring that fuel tax increases were introduced when import prices fell, whenever possible. Thus, the formula could take into account a range of variables, including: inflation, devaluation, regional prices and import prices.

104. **Retail Price Mechanism.** The current formula for retail price calculation contains a wide range of estimated costs, and government is frequently under pressure from suppliers to negotiate on different items. Whenever such a controlled system is applied there are risks that it favours certain types of operation. For example, there is a risk that it favours vertically integrated operations, which may undermine the development of competitive practices.

105. **Licensing.** The level of vehicle licensing is low by international standards, although it has recently been increased. There are arguments for raising some additional revenue by increasing licenses, rather than increasing fuel tax. In particular, this would switch the burden of taxation away from the more isolated areas, where poverty alleviation is most constrained by poor market integration. However, the potential income raised by increasing vehicle licensing is small, compared with that which can be raised by fuel tax.

4 Impact on Purchasing Power

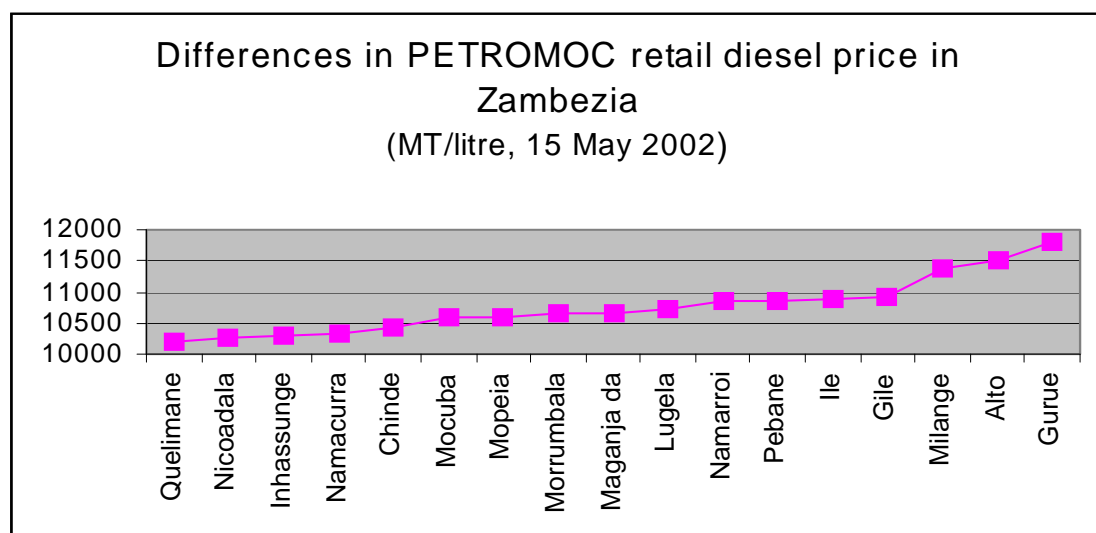
106. The short-term impact considers the effect on prices, assuming that there is no change in the behaviour of producers or consumers. This is analysed by considering first the way in which fuel prices would feed through the economy, assuming that all costs are passed on (section 4.1). There is some consideration of the possibility that these cost-based changes may be inflated, section 4.2. The price changes are used to estimate the reduction in purchasing power of households, which lead to conclusions on the numbers of households pushed below the poverty line (section 4.3). Subsequent chapters consider longer term effects, both through changes in production and the disruption of processes of poverty alleviation.

4.1 IMPACT ON PRICES

107. **Fuel Prices.** This section analyses the effect of fuel price rises on the economy. The main scenario considered involves an increase in fuel tax of 101%. This leads to an increase in diesel prices of 20.7%. Petrol prices increase by nearly 30%, because of the higher rate of tax on petrol. The weighted average increase in all fuel prices is about 20%.

108. Regional and intra-regional unevenness in market access is reflected in the higher cost of fuel resulting from the cost of its transport from the port cities where fuel is imported (an effect heightened by the levy of VAT on the cost of transport). Prices are regulated but pump-operators are allowed to adjust prices to their transport and marketing costs. Figure 4.1 illustrates the impact of transport cost on the price of fuel in towns in Zambezia province.

FIGURE 4.1 REGIONAL VARIATIONS IN FUEL PRICE



109. **Transport.** This section considers the potential impact on transport prices of the increase in fuel prices, assuming that transporters can pass on all the increase.

Discussions with transporters suggested that fuel accounts for between 40% and 60% of operating costs. This is in contrast to the cost coefficients used in the SAM, which suggest that fuel is only 10% of transporters' full costs. The difference could be partly explained by the fact that the SAM includes all transport sub-sectors, whilst the PSIA interviews concentrated on vehicle transport, which has a relatively high fuel share. The difference could also be partly explained by the fact that transporters sometimes do not include the costs of financing and longer-term repairs. Indeed, it appears that these costs are frequently covered from different sources of revenue, often associated with windfall gains, either from other activities or from individual lucrative contracts. Table 4.1 summarises a range of evidence from different sources about the composition of costs and the level of costs which are covered by typical transport charges.

TABLE 4.1 TRANSPORTER MODELS

(Mt'000/month, in mid 2002 prices)					
vehicle	A	B	B	C	D
	chapa	chapa	15t lorry	car	10t lorry
Costs					
Fixed costs	123,300	20,920	0	52,500	26,400
Maintenance	75,000	4,667	15,000	22,338	93,400
Fuel/oil	60,000	9,960	68,750	22,358	12,000
Driver	22,500	1,700	2,000	3,000	37,100
Total Costs	280,800	37,247	85,750	100,196	168,900
fuel as %	21%	27%	80%	22%	7%
Income	104,167	25,000	200,000		144,000

A: discussions with National Association of Transporters, June 2002

B: field discussions in Zambezia, June 2002, 1 trip a day Ile-Gurue (90 km)

C: field discussion Zambezia, heavy cargo, stone, cement

D: Hooker, 2002, public transport costing study

E: Agricultural Marketing Study, MIC, 2001 (based on 10t truck)

110. Discussions with transporters suggest that there is strong price pressure on formal sector transporters by unlicensed 'pirates'. The Association of Transporters in Maputo aims to resist these pressures, and succeeds to some extent in maintaining standard prices, which are also generally followed by non-members. However, these standard prices are set at levels which cover only the most basic of maintenance requirements and do not allow for contributions to financing/depreciation. As a result, the replacement of vehicles is not planned in a routine manner and tends to take place intermittently¹⁴. 0 presents more details about how transporters operate and make decisions.

111. The main analysis uses the SAM cost coefficients, which give fuel a 10% share in total transport costs. The main reason for using this coefficient is that it is consistent with fuel import figures, which are assumed to be accurate. Thus, if higher coefficients were used, it would be necessary to explain why it is that imports are not much higher. A related reason for using the SAM cost coefficients is that the coefficient applies to the whole transport sector and this is assumed in subsequent analysis of the share of transport in the rest of the economy. If more detailed figures were available, it would be

¹⁴ For example, when fuel prices dropped temporarily in early 2001, transport prices did not fall and many transporters took the opportunity to invest temporary profits in new vehicles and major repairs. In addition, the profits available encouraged some people to enter the transport market.

possible to break down the transport sector into more detailed subsectors, which could result in higher cost coefficients for smaller sectors. However, the overall impact on the pressure on prices through the economy would be similar.

112. The analysis is sensitive to the estimates on the cost share of fuel in transport, and hence the cost share of fuel in retail margins more generally. It is clearly wrong to use a cost share based solely on operating costs, since the price of transport needs to cover longer-term costs. However, if some of the capital costs are covered by activities which are not linked to the rest of the economy, then there may be some justification for using a higher cost share for the element of transport which is highly linked. Doubling the fuel cost share in transport (i.e. from about 10% to 20%) increases the general increase in prices which would occur if firms could pass on all costs by about 40%.

113. **Knock-on Effects through the Economy.** As fuel imports are approximately 3% of GDP, the total value of increased sales from a 20% price rise would be about 0.6% of GDP. In view of the limited direct importance of taxed fuel and transport for poor and vulnerable households in Mozambique, the largest impact of a change in fuel prices on poverty occurs through the impact on other prices.

114. The knock-on effects on prices are calculated by assuming that the increases in fuel and transport prices are passed on fully by other sectors of the economy¹⁵. These may be considered maximum short-run price rises. They do not constitute estimates of the inflationary impact of the rise in fuel price.

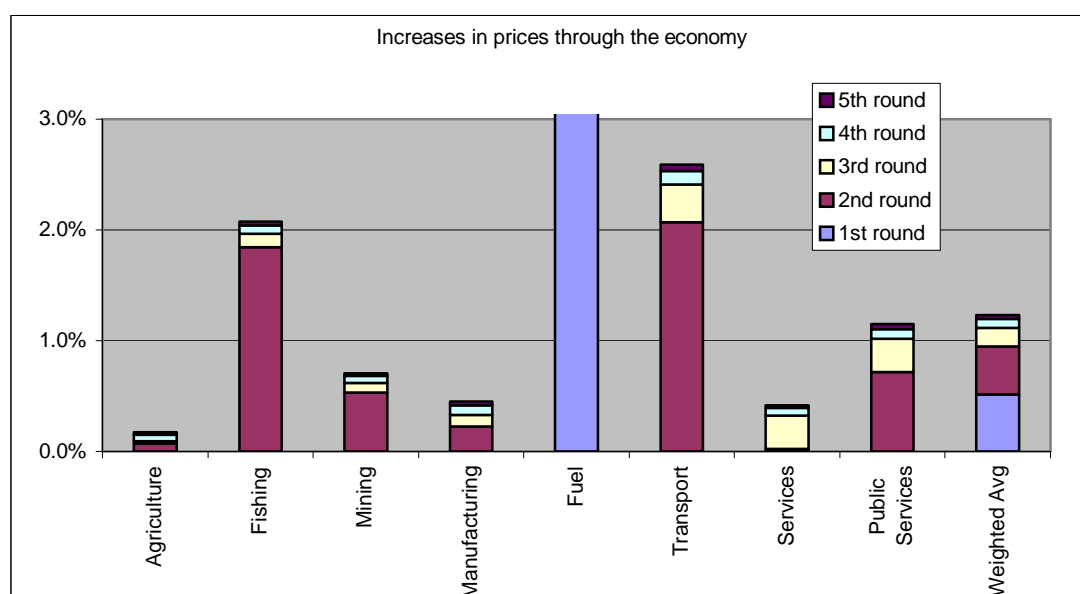
115. The composition of costs is taken from the SAM for 1995 (Arndt et al 1998), as shown in the following table. There are frequent criticisms about the accuracy of the SAM and especially about the validity of using data which is now nearly 10 years out of date. There are a number of recent trends which the SAM will not reflect, which are of particular concern for the current study. In particular, the steady growth of marketing activity, and increased use of motorised transport in marketing at all levels, could have a significant effect. However, the SAM still provides the only available comprehensive quantitative description of the structure of the economy. Furthermore, it is possible to verify the extent to which fuel use has changed, by comparing recent figures for imports and GDP: in the SAM, fuel imports are 2.9% of GDP, whilst in the most recent trade and GDP figures, they are 3.8%. If this change was spread equally through the economy, it would suggest that the impacts calculated on the basis of the old SAM would be about one-third higher using an updated SAM. However, in view of the possibility that a large part of the increased fuel use may be used for some of the major investments which have taken place in recent years, it is safer to use the hold SAM coefficients, until a thorough SAM update has been done. 0 presents more details of the IAF and 0 presents more details about the SAM.

¹⁵ This analysis therefore follows the standard methods of calculating forward multipliers.

TABLE 4.2 COST STRUCTURE

	Agri	Fishing	Mining	Manuf	Fuel	Transport	Services	Public
Agric / Forestry	8.1%	1.8%	0.2%	5.1%	0.0%	0.0%	2.2%	4.6%
Fishing	0.0%	0.2%	0.1%	0.5%	0.0%	0.0%	0.0%	0.8%
Mining	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
Manufacturing	1.5%	9.4%	10.7%	11.4%	0.0%	23.4%	3.2%	22.9%
Fuel	0.3%	8.9%	2.6%	1.1%	0.0%	10.0%	0.1%	3.4%
Transport	0.5%	2.7%	2.1%	1.9%	0.0%	9.2%	13.6%	10.7%
Services	17.5%	14.0%	12.9%	21.0%	21.4%	7.4%	5.1%	7.0%
Public	0.1%	5.5%	1.9%	2.2%	0.0%	13.8%	1.5%	1.2%
Labour	51.6%	33.8%	14.5%	8.3%	0.0%	12.2%	22.8%	31.3%
Government	-0.4%	1.1%	3.5%	3.1%	30.8%	3.1%	0.7%	2.0%
Capital	3.3%	22.7%	36.5%	10.2%	0.0%	16.5%	50.3%	5.5%
World	17.4%	0.0%	15.1%	35.0%	47.8%	4.4%	0.5%	10.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

116. The knock-on impact of fuel prices on other sectors in the economy is presented in Figure 4.2, assuming that all prices are passed on through the economy. In the first round, only fuel prices are increased. The second round of increases presents the price increase which is required in each sector to pass on the extra fuel costs arising from the round one price rises. These second round increases are clearly larger in those sectors which have the highest fuel use (notably transport and fishing). The third round then considers the rises needed to pass on the extra costs from second round increases. By the third round, the effects are smaller but have spread through the entire economy. The largest final increases are in transport and fishing. However, the main feature of the graph is the relatively low price increases involved, which reflect the relatively small part played by fuel in the economy.

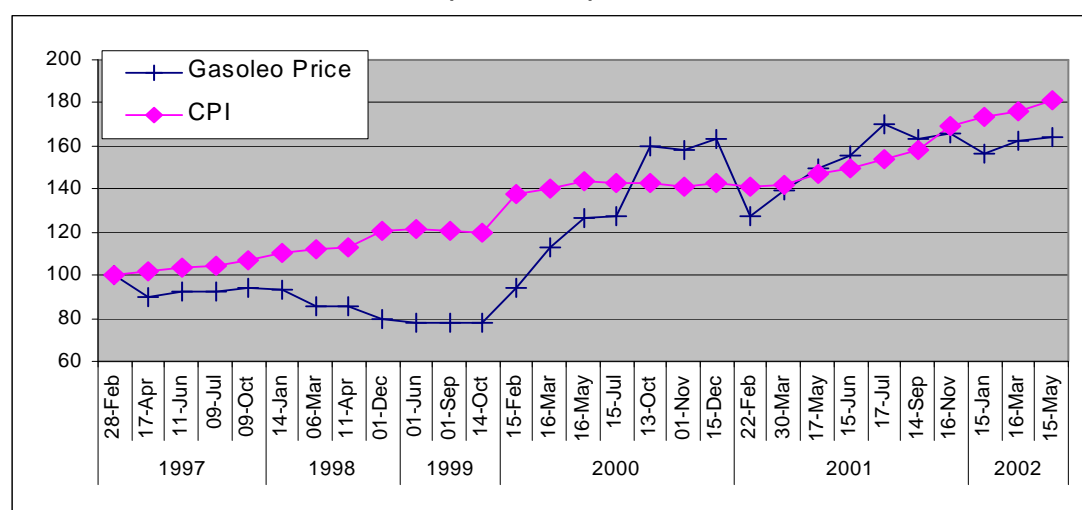
FIGURE 4.2 INCREASES IN PRICES ARISING FROM 20% INCREASE IN FUEL PRICE

117. The analysis is particularly sensitive to the price rise of marketed food, because of the high proportion of total spending on marketed food. The average price rise for marketed food products is derived from a weighted average of agriculture (48%), fishing (16%) and grain milling (36%)¹⁶. There are a number of sectors where the fuel cost share in the SAM appears to be low. Because of the need to maintain consistency with known fuel imports, it is not possible to increase the fuel cost shares across a broad front. However, two exceptions have been made to this: firstly, for grain milling, where the SAM fuel cost share of less than 1% has been increased to 10% (excluding the cost of the grain); and, secondly, for electricity in rural areas, where the fuel cost share has been increased from the SAM national average of 3% to 20%. These exceptions are based on discussions with key informants and are considered reliable because of the uniformity of the activities.

118. The aggregate effect of the above processes is for a 20% increase in fuel prices to result in a maximum short-run average price increase of 0.76%, when the average uses production weights and 0.42%, when it uses consumption weights. This is not an estimate of the likely inflationary impact of the fuel price rise, as it does not consider the contractionary effects on the economy or the possible expansion caused by increased government spending. However, it does provide a first estimate of the direction and maximum possible impact of the fuel tax rise.

119. Another source of evidence of the complexity of the full relationship between the price of fuel and of other products in the economy is provided in Figure 4.3 below. The figure shows that there is no clear relationship between fuel prices and the CPI. The only month in which there appears to have been a link was in February 2000, when both fuel and other prices rose sharply. However, at other times when there have been sharp changes in fuel prices, there has been no apparent effect on the CPI, either immediately or after some months. Regression analysis suggests there is no statistically significant relationship between the two variables.

FIGURE 4.3 FUEL PRICE AND CPI (1997 = 100)



Source: INE

¹⁶ These proportions are taken from the SAM consumption data. Equivalent data from the IAF suggests fish products have a slightly higher proportion and milled grain is slightly lower.

120. **Regional and Rural/Urban Variations.** The SAM does not analyse regional variation in the economy. Regional price patterns are complex and vary greatly for different products, depending on where products are produced or imported and on seasonal and other trends. In order to reflect these provincial and rural/urban differences, the analysis assumes that price increases will be higher in more isolated and in rural areas. In theory, the factors by which price rises will be different from the national average could be estimated through an assessment of the variations in prices of various products and a comparison of these with transport costs. The picture is complex and highly variable, but the available information suggests that product prices vary by roughly twice the expected level of transport costs¹⁷. This is consistent with discussions in the field, which suggest that transport accounts for about half of all marketing costs. Thus, one might expect price increases generated primarily by increased transport costs to vary regionally by a factor of about 2¹⁸. However, in view of the highly complex regional variability of prices, and the fact that the patterns vary for each product and from year to year, the quantitative analysis did not include an estimate of this level of variation. The analysis of the impact of fuel prices did assume that price changes in rural areas will be 50% higher than the average for the province and urban areas will be 67% of the average.

121. Experiments adding random variability to the price effects did not alter the average results. Whilst it is possible that a concentration of price rises could coincide with products and times which made poorer people more vulnerable, it is difficult to imagine how this might happen.

4.2 THE PSYCHOLOGICAL ROLE OF FUEL PRICES AND THE RATCHET EFFECT

122. In many discussions, it was pointed out that fuel prices play a very important psychological role in the Mozambican economy. There are two particular and distinct elements to this role:

- firstly, fuel is seen to play an important psychological role, perhaps because prices are widely known, and changes in fuel prices are frequently used to justify price rises in transport and in other products
- secondly, world fuel prices can be volatile and increases generally cause price rises, whilst decreases do not cause price falls

123. These observations suggest that the inflationary pressures identified in the above section understate the possible impact on inflation. This would have a substantial impact on the conclusions and strengthen the case for a cautious introduction of changes. However, it is not easy to assess the extent of this process. The effect is frequently reported in discussions in Maputo, but discussions around this subject are extremely difficult to interpret, given the vested interests in overstating the problem and the natural tendency to remember occasions when price rises seem to have been released by fuel

¹⁷ This is based on an assessment of the available retail price figures in different locations, after taking into account the advice of key informants on special reasons (eg drought and floods)

¹⁸ It is assumed that the most isolated provinces have price rises of double the national average, whilst Maputo has rises of half the national average, with various intermediate positions. Similarly, it is assumed that price rises will be 50% higher than average in rural areas and 33% lower in urban areas.

prices, whilst forgetting those occasions when general prices have not responded to fuel prices.

124. Perhaps the only objective source of evidence is the relationship between fuel prices and CPI. Figure 4.3 suggests that there was a period in early 2000 when both fuel prices and the CPI are increasing. Regression analysis suggests that, on average, the CPI moves in line with fuel prices, changing by 9.9% of the change in fuel prices. This is much higher than the 2.1% figure (i.e. 0.42% CPI change divided by 20% fuel price rise) suggested by the SAM analysis, suggesting that the overall impact of a fuel price change could be up to three times higher than that suggested by the SAM analysis. However, the 95% confidence limits on the regression are from –2.7% to 22.5%, which means that this evidence should be treated with caution.

125. These observations have implications for the future management of the tax. Several countries have attempted to use a combination of stocks, taxation and price controls to reduce the impact of world fuel price volatility on local markets. The record of these attempts is poor, and the potentially disruptive effect which they have on government finances is huge, both through the accumulation of huge losses and, equally seriously, through the disruption to fiscal predictability and discipline.

126. In addition, the prominent role of fuel in the perception of many Mozambicans means that many people will blame the increase in fuel prices for more general inflationary pressure, even if the connection does not exist in reality. This is particularly true amongst Mozambicans living in towns, which have relatively active electorates. As a result, the political importance of fuel tax may be greater than its economic importance. This would provide further argument to wait to increase the fuel tax until the world price falls, thus avoiding public perception of government being responsible for fuel prices.

4.3 PURCHASING POWER

127. This section considers the impact of price rises on the purchasing power of poor households. The analysis uses the data on consumption patterns contained in the 1996/97 Household Survey (IAF). This is described in more detail in 0.

128. The analysis considers the impact of expected price rises on each of the 8,250 households in the survey¹⁹. The aggregate national impact is then estimated by adding the individual effects on each household, weighted by the appropriate sampling factor. By analysing the survey sample in its full detail, the analysis aims to minimise underestimating the impact by concentrating excessively on average statistics.

¹⁹ Several households are excluded because they do not record any consumption of food.

129. **Fuel Prices.** The main direct effect of fuel by households is summarised below.

Transmission of effect of fuel price rise	Evidence of the extent of the effect
Purchase of diesel/petrol for vehicles	Negligible effect, because few poor people by diesel or petrol
Higher cooking costs	Limited effect because most households use tax-exempt kerosene for cooking
Lighting	Kerosene lighting is not affected but the rapid fieldwork suggested that rural households are turning to cheaper (but less healthy) diesel lighting; as this is a recent change, it would not be picked up in the IAF

130. Traditionally, cooking and lighting have been done using kerosene, which is a cleaner fuel than alternatives and has been free of tax. However, there have been some trends in recent years to rely on diesel for lighting²⁰. Many provincial towns have diesel generators that are used both for lighting and water pumping. We are not able to distinguish these effects in detail, but have assumed that any expenditure on electricity or water in rural areas is dependent on diesel generation.

131. The IAF may underestimate the consumption of maize-milling by rural households in areas where maize is the main staple because transactions are often in kind. Although almost all Mozambicans still insist that flour that is manually pounded or ground is superior, in many rural areas they now use milled maize flour. Such rural mills have high fuel costs, both for the operation of the mill and for transport of fuel to outlying areas. Since rural mill-owners usually have local monopolies, it is easy for them to pass costs on to consumers. It is true that a rise in the cost of milling could be compensated by a return to hand processing, but that is in fact impoverishing for it depends on the intensification of the unpaid work of women.

²⁰ Field research in rural Zambezia suggested that many rural people were not using paraffin lamps for lighting, but rather burning diesel in small artisanally produced oil-lamps. Though diesel is more expensive than paraffin, it is considered to be more economical because it burns slowly, though the polluting effects are recognised. The use of diesel for lighting became generalised during the war, when paraffin was not available but diesel was off-loaded from military vehicles. Because this consumption of diesel for lighting was not recognised in the preparation of the IAF, we are not able to include it in our assessment of the impact of a diesel price rise on the rural cost of living in provinces such as Zambezia where rural people do use diesel.

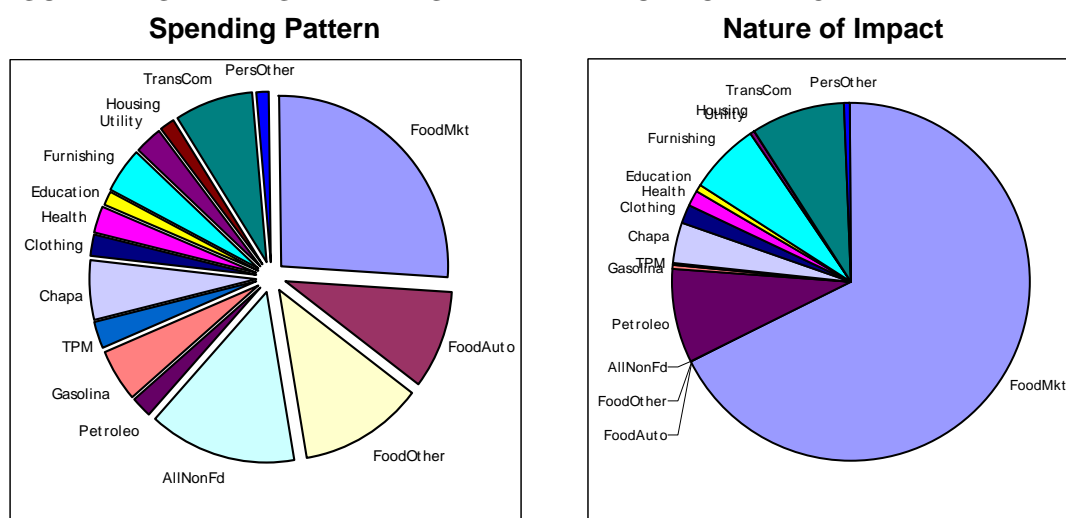
132. **Transport.** The main uses of transport by households are summarised below. The evidence of the extent of the impact is derived mainly from qualitative sources. The IAF suggested that expenditure on transport was generally very low amongst all groups.

Transmission of effect of fuel price rise	Evidence of the extent of the effect
Visits to clinics and hospitals	High impact in both rural and urban areas. Rapid fieldwork suggested that this was important to households in rural areas.
Commuting to secondary school	High impact, mainly in urban areas
Family visits (for support and exchange of goods and labour)	High impact in urban and rural areas
Receiving remittances	High impact, mainly in rural areas
Transport of goods to improve sales and prices	Highly important to rural areas (see also the discussion in section 6.2)
Small scale vendors	Moderate impact in all areas
Migratory labour	High impact in rural areas.
Commuting to work	High impact in urban areas, including amongst the poorest households
Visits to district centres for bureaucratic obligations	High impact in rural areas

133. **Knock-on Effects on Other Prices.** The main processes by which the increase in other prices might affect poor households are listed below. The IAF enables some of these effects to be analysed, by looking at the effect of the price rises of each group of products and services on the consumption pattern of each IAF household.

Transmission of effect of fuel price rise	Evidence of the extent of the effect
General increase in prices of all goods using transport	Moderate, affecting all groups
Increase in grain milling and fish, in particular	diesel-powered grain mills have spread rapidly through rural Mozambique, and have led to major changes in the last 10 years, which would not be picked up in the IAF; return to hand-pounding would have a large impact on women
Increased cost of running clinics and schools	High in rural areas
Increased cost of water and electricity using diesel generators	This will affect mainly urban areas

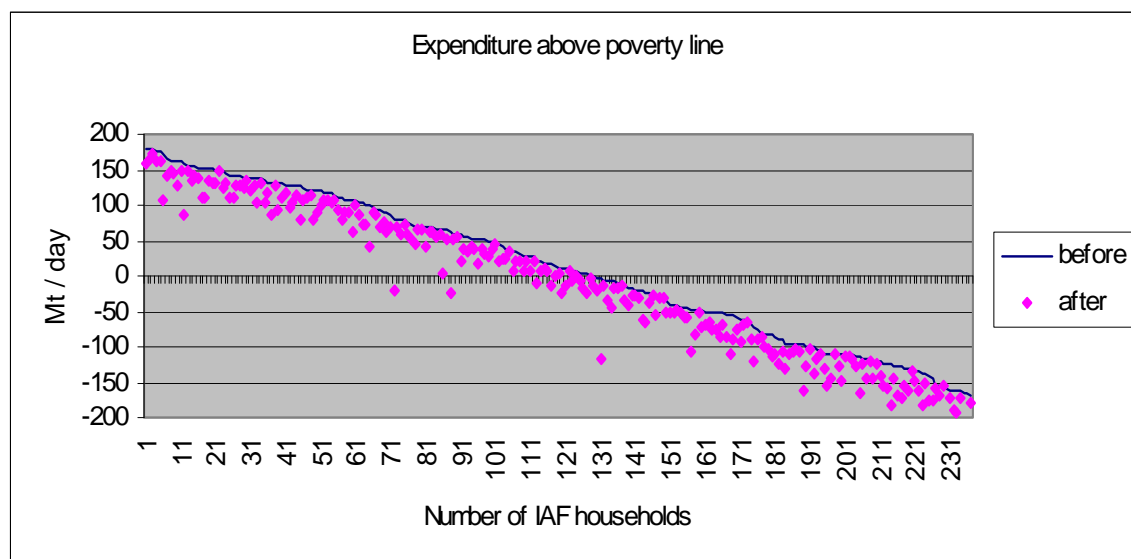
134. **Aggregate Impact of Prices.** The aggregate effect on purchasing power is calculated by examining the effect of the price rises on each of the households in the IAF. The price rises are determined using the forward linkages described in section 4.1. The nature of the impact is summarised in Figure 4.4, which shows that the impact is dominated by the impact on marketed food prices (including the effects on fish and grain milling), with significant, but smaller contributions from the increased cost of diesel used for fuel and for chapa and other forms of transport.

FIGURE 4.4 SPENDING PATTERNS AND THE NATURE OF IMPACT

135. Combining the full potential increase in prices the IAF analysis suggests that the average expenditure of households would increase by 0.42%, assuming that there was no reduction in demand²¹.

136. The total impact is calculated by summing the individual impact on each IAF household and then multiplying this by the sampling factor for each household, to estimate the impact on the population. By disaggregating to this level, the analysis aims to avoid problems of averaging and to pick up the full variation which existing amongst households. Figure 4.5 shows the effect of the prices on the purchasing power of 240 IAF households around the poverty line (which averages about 5400 Mt/day, but varies substantially).

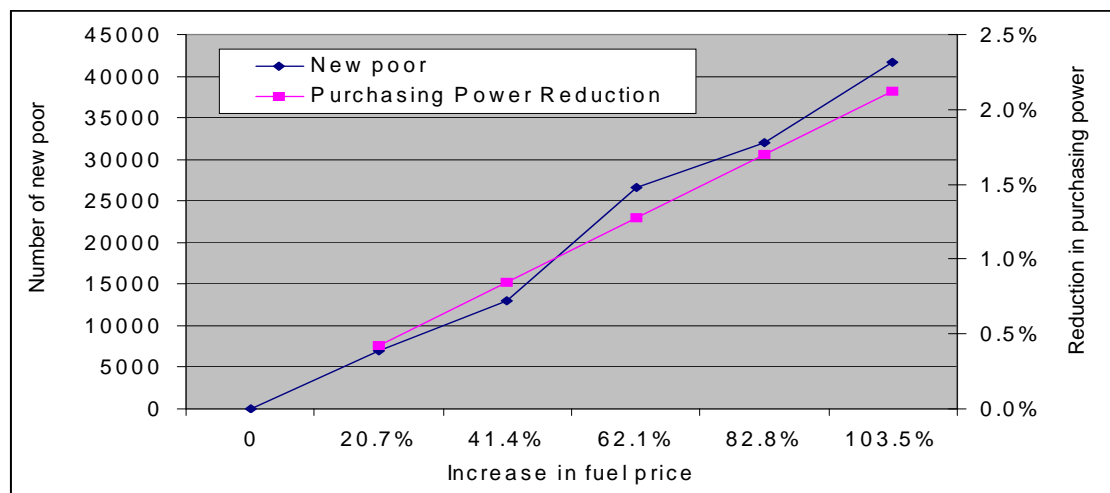
²¹ This increase can be different from the estimate of 0.76% presented in section 4.1, because the latter estimate is a weighted average based on total GDP, whilst the estimate based on IAF expenditure patterns is based only on private consumption. It is also likely that there are differences in the data set, especially as there has been no effort to compare the consistency of the IAF data with the SAM consumption data.

FIGURE 4.5 PURCHASING POWER IMPACT OF 240 HOUSEHOLDS NEAR THE POVERTY LINE

137. The reduced purchasing power has the effect of pushing about 28,500 people below the poverty line. The PARPA also includes a second poverty line, which is intended to measure absolute poverty, and the analysis suggests that the tax increase would push about 56,000 people below this absolute poverty line. The much larger impact on the number of extreme poor is explained by the fact that there are a group of extreme poor who rely very largely on marketing food.

138. **Sensitivity Analysis.** Figure 4.6 presents the relationship between the level of fuel price rise and the impact on poverty, as demonstrated by reduction in purchasing power and the increase in the number of households that would drop below the poverty line. The impact on poverty increases linearly with the fuel price increase, and is roughly proportional to the price rise²². Intuitive assessment of the impact of fuel prices might suggest that the impact would be more exaggerated at higher levels of increase. This does not appear from the purchasing power analysis, because no account is taken of the possible disruption to economic activities. Some of the reasons why this might occur are considered in Section 1.

²² For example, increasing the fuel price 5 times as much only increases the new poor by 6 times.

FIGURE 4.6 EFFECT OF LEVEL OF FUEL PRICE INCREASE ON AGGREGATE IMPACT

4.4 THE PURCHASING POWER OF PARTICULAR GROUPS

139. The following section considers whether available quantitative evidence allows us to identify particular livelihood groups that are especially vulnerable. The analysis considers only the impact of price changes on purchasing power²³. There are four methodological points to bear in mind in interpreting these data:

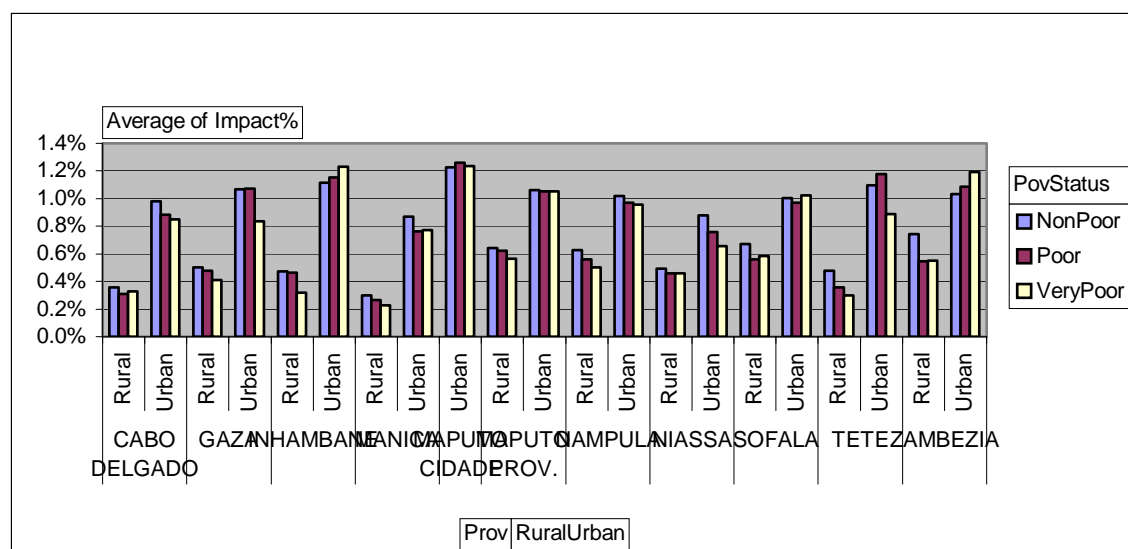
- At a household level, the various processes work together and are cross-cut by relations of gender inequality. Thus, for example, the increased time that women must spend on health care resulting from higher cost of transport to health centres will be higher in rural areas (rural–urban difference) in those provinces with fewer health facilities (uneven development of markets) among women who have no negotiable assets such as a plot of land that can be leased (asset differentiation).
- The household data are from a single period (1996–1997). It is not possible, therefore to infer anything about possible processes of change from analysis of the survey data. It is also possible that data collected from another period might have captured some processes better. We might expect, for example, an increase in the number of women- or child-headed households to result from strains in households with high ratios of dependency. Use of transport by rural households, for example, could be higher in years following major floods and could show greater differentiation among rich and poor in use of transport.
- Existing household data make it difficult to capture gender effects. The personal expenditure modules of the IAF did not give usable data on differences in expenditure patterns within households. There are no time and labour-studies with which to capture possible substitution effects that intensify women's work.
- The size of the IAF sample does not make it possible to disaggregate by district. Many of the effects of uneven development of markets are intra-provincial and thus not captured here (Simler and Nhate 2002).

²³ Some recognition is given to the possible concentration of price effects in some activities (notably grain milling) by modifying the price rises derived from the Input-Output forward linkages. However, these modifications have to be minor, since a major SAM rebalancing exercise would have to be done to introduce large changes.

140. The following sections consider briefly whether the quantitative analysis throws up any particular groups which are more vulnerable to the fuel price rise than others. In some cases, the patterns relate to the transmission mechanisms listed in the pages above. In all cases, the vertical axis relates to the reduction in purchasing power.

141. Figure 4.7 shows the differential impact of the tax rise on rural and urban populations in each province. The impact is significantly higher on urban households than on rural households in all provinces, despite the fact that the quantitative analysis has adjusted average prices to be higher in rural areas, reflecting qualitative evidence. This is mainly because of the higher share of food consumption from market sources in urban areas, though higher spending on transport also has an effect. There is some higher spending on transport in urban areas, but this is much smaller than food expenditure effects, suggesting that commuting costs are not a critical transmission mechanism. There is substantial variation between provinces, with Maputo having the highest impact, closely followed by other urban centres. The impact is lowest in rural areas of Manica, Cabo Delgado and Tete.

FIGURE 4.7 IMPACT BY PROVINCE AND RURAL/URBAN



142. In general, there is a little difference between the impact on very poor, poor and non-poor households. For rural areas, there is some tendency for the impact to be marginally higher on non-poor households. For urban areas the picture is mixed, with some areas having a higher impact on the poor and some having a lower impact.

BOX 4.1 ATTITUDES TO TRANSPORT IN RURAL AREAS

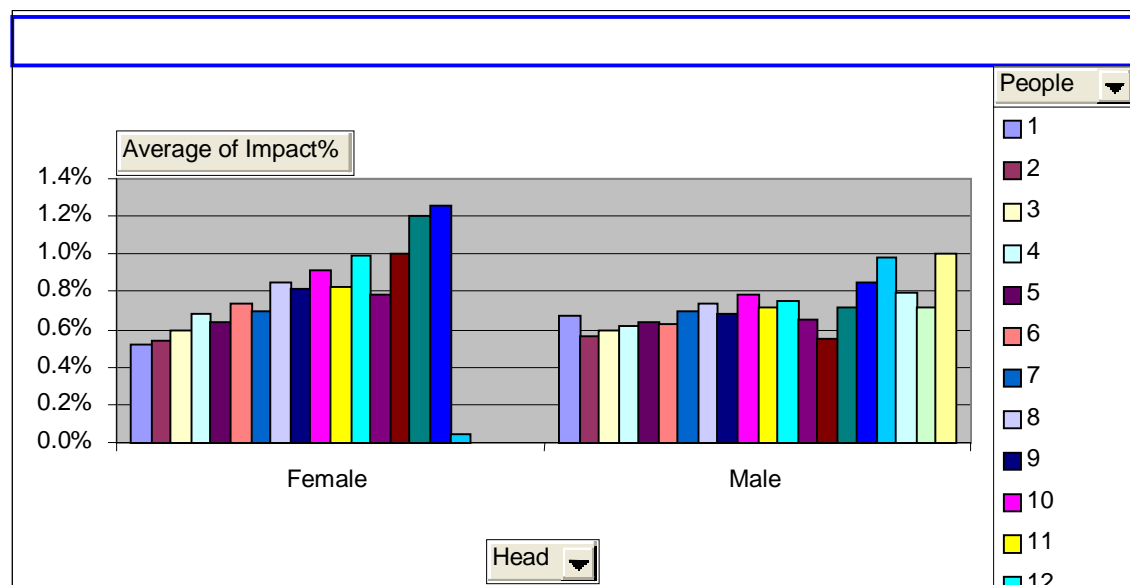
The fact that the IAF shows household expenditure on transport to be of minor importance in rural expenditures does not mean that rural people are indifferent to the cost of transport. To the contrary, participatory poverty assessments show that people consider better access to reasonably priced transport to be important in their lives. A farmers' association near Lioma pools its maize and pays transport to Lioma to avoid the short-weighing scales of the mobile traders. When private interests lay claim to customary land, community leaders want motorised transport to get them quickly into the district to discuss land registry. When a child with cerebral malaria is to be transferred from health post to district hospital, it is best done with motorised transport. School materials have to be sent from the district office of education to primary schools in outlying rural areas.

143. The regionalised effects of an increase in fuel transport cost in hinterland areas may not show up strongly because the absence of overall demand makes access a more important issue than price, as observed by a member of parliament for Tete (see the box below).

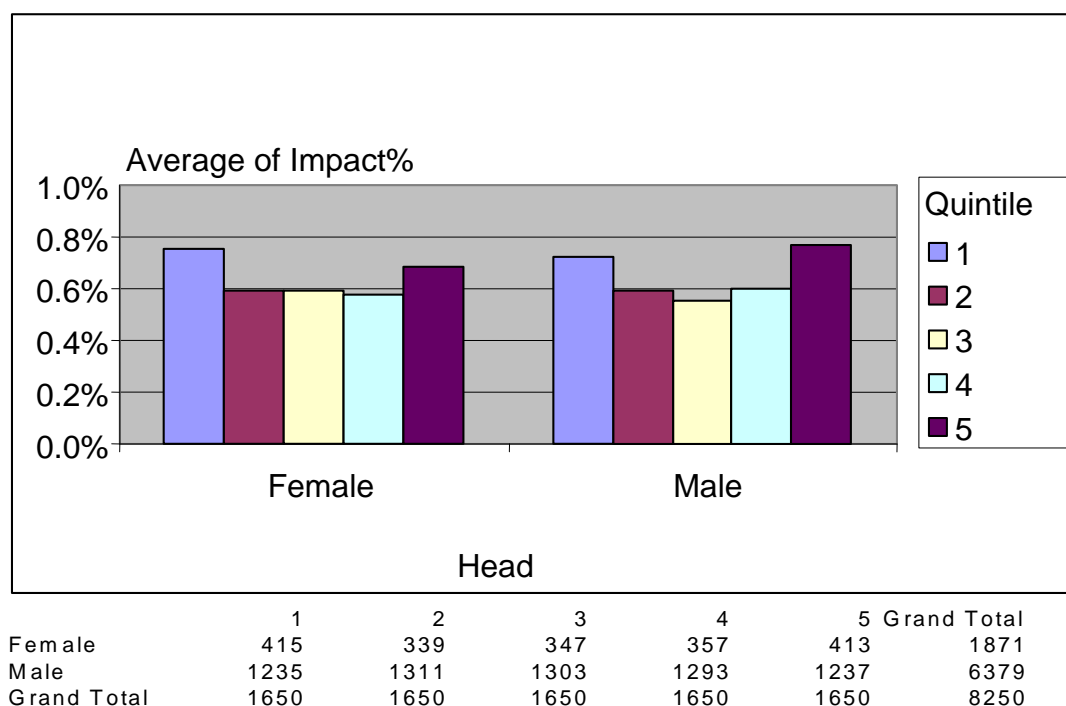
BOX 4.2 REGIONAL DIMENSIONS OF POVERTY—AVAILABILITY OF FUEL

The same goes for petrol stations. New ones spring up in Maputo, even adjacent to primary schools, but in Tete, apart from the three main towns, and two border posts, "we face a desert as regards fuel supplies" ... "You can go for hundreds of kilometres through several districts without finding a drop of diesel or petrol", said Vieira. Cautious motorists therefore carried extra drums of fuel in the back of their cars. Without guaranteed supplies of diesel, how were farmers supposed to use tractors to till the fertile lands in Tete province, Vieira wondered. (News report on speech in Parliament by S. Vieira, MP from Tete province.)

144. Figure 4.8 presents the variable impact of the fuel tax rise on female- and male-headed households of different size, to test the common assumption that female-headed households with high dependency ratios may be particularly vulnerable to breakdown of networks of social support. There is little difference in the average impact on male- and female-headed households. However, there appears to be a tendency for larger households to be more affected than small households, especially when they are headed by women. The qualitative research does not provide obvious reasons for this.

FIGURE 4.8 IMPACT BY GENDER AND HOUSEHOLD SIZE

145. Figure 4.9 distinguishes expenditure quintiles by headship of household, exploring the issue of whether the vulnerability of women and male headed households is related to income. The table beneath shows the numbers of households in each category. In fact the impact of the price rise on expenditure varies little between the two groups. What is perhaps more interesting is that the lowest quintile, the ultra-poor, will feel the impact slightly more than all other quintiles but the rich. Despite their poverty and very low-purchasing power, they nonetheless use transport and marketed products. Remittances and networks of social support are particularly important for the most vulnerable groups, although the low reported use of transport in the household survey suggests that the importance of this is not picked up data.

FIGURE 4.9 IMPACT BY GENDER AND QUINTILE**BOX 4.3 LOW-SKILLED SALARIED WORKER AND SELF-EMPLOYED TRADERS IN MAPUTO**

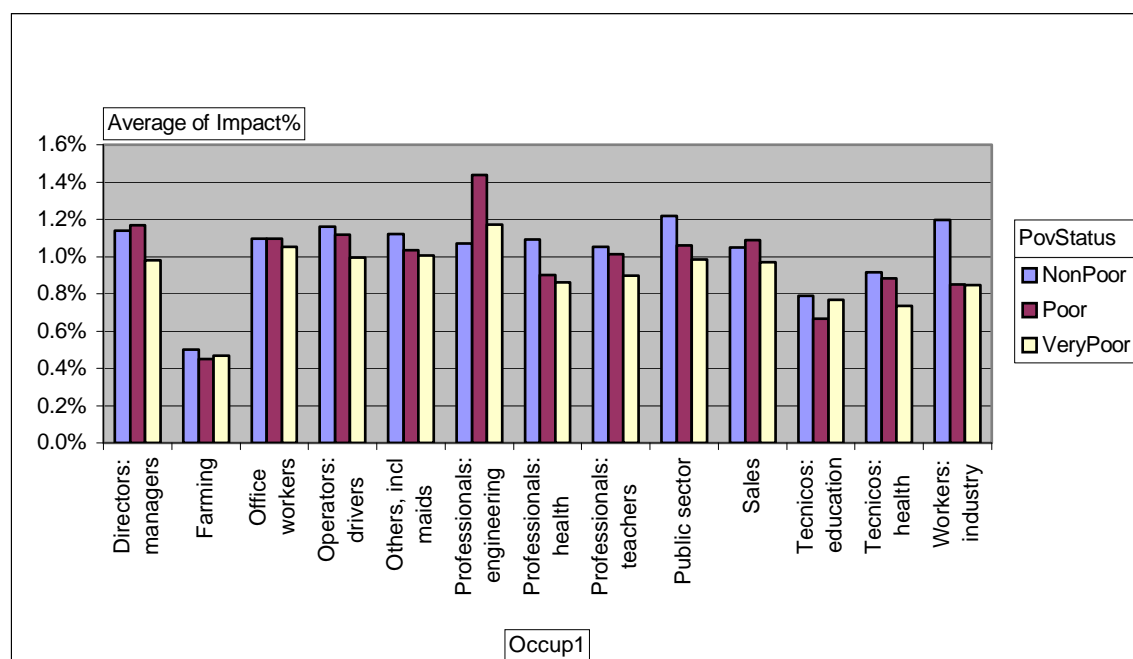
In the large urban centres—Nampula, Beira and particularly Maputo—workers, traders and secondary school students come from outlying residential areas into the city mainly by foot or by road transport. In Maputo, with its large population and residential sprawl, most of the poor live far from the central city with its public services, higher level secondary school, markets and factories. Combis (*chapas*) currently cost 5000 MT. Public buses, which cover only a few routes and are limited in number costs 3000 MT. In a household with one city-based worker and student in secondary school in Maputo, the monthly transport cost would be about 4,200,00MT. The minimum wage is currently...., and that covers only 1/3 of what is considered to be the consumption bundle that defines the poverty line for the city of Maputo. Not surprisingly many workers and students walk two to three hours to school or work, particularly near the end of the month. Urban-based traders depend on public transport or hand-pushed carts—the *chovas*.

The proportion of poor is lower in Maputo than anywhere else in the country. But is still almost half of the population of the city. The sheer number of poor and the role of transport in their livelihoods makes any increase in fuel prices a particular problem for the city of Maputo.

146. Figure 4.10 shows the different impact by occupation. The figure shows that farmers are least affected by the increase. This is mainly because they rely more on home produced food, the price of which is not affected by the fuel price. The impact on other occupations is rather uniform, though there is some suggestion that lower level teachers and nurses are less affected. The table immediately beneath the graph shows the numbers of households in each category. The qualitative analysis identifies a number

of occupations which are considered to be vulnerable to the fuel tax rise. However, this can not be picked up in the quantitative analysis both because the definition of occupation is not sufficiently detailed and because the household survey does not include expenditure on economic activities.

FIGURE 4.10 IMPACT BY OCCUPATION



	Directors: managers	Farming	Office workers	Operators: drivers	Others, incl maids	Professionals : engineering	Professionals : health	Professionals : teachers	Public sector	Sales	Tecnicos: education	Tecnicos: health	Workers: industry	Grand Total
NonPoor	42	1314	68	41	47	12	12	21	8	69	22	28	11	1695
Poor	13	1370	43	58	41	1	4	13	7	59	6	11	25	1651
VeryPoor	11	2088	30	50	52	2	3	13	12	44	22	14	30	2371
Grand Total	66	4772	141	149	140	15	19	47	27	172	50	53	66	5717

5 Impact on Demand

147. **Aggregate Demand.** The above analysis of purchasing power does not consider how the fuel tax revenue is used, and how this affects the total demand in the economy. It assumes that incomes are fixed and that the purchasing power of households is simply reduced in line with the increase in prices. If the revenue raised by the fuel tax is used to expand public expenditure, then the resources are a transfer within the economy and there will be an expansion in demand arising from the public expenditure, which will be similar in size to the contraction caused by the collection of taxes. However, if the resources raised are used to reduce inflows of aid, then there is a net loss to the economy. Because this PSIA was instructed to study the fuel price rise in isolation from the expenditure implications (see section 1.2), the effect on demand has been estimated regardless of how the resources raised are used.

148. **Backward Multipliers.** The reduced consumption of goods will have additional knock-on effects on producers. These are captured in 'backward multipliers', which use the supply links to calculate the overall contraction in the economy.

149. The nature of demand multiplier effects are complex and depend on the linkages in the economy, the cost structure of production (and notably the labour intensity of key activities) and the availability of substitute products and services. In the case of fuel in Mozambique, multiplier effects could be significant, because of the importance of fuel in transport. The large size of the country means that motorised transport has linkages throughout the economy and there are few substitutes (except reversion to subsistence production, where social links still exist to make this possible). Many products have international competitors and transport costs can shift the import and export parity frontiers quite substantially, resulting in large shifts in labour income.

150. The potential impact of these effects can be illustrated by performing a classical Input–Output analysis using the SAM coefficients. This is described in more detail in 0. The total backward multipliers in Mozambique vary from 1.58 for the fuel sector to 3.85 for agriculture. When weighted by the changes in consumption expenditure on different sectors, the total loss of purchasing power increases from 0.76% to 1.94%. Although this suggests that the impact could be significantly higher than suggested by the first analysis of short-run effects on purchasing power, there are various ways in which the impact can be moderated in the economy. These are taken into account by equilibrium analysis, described below.

151. **General Equilibrium Analysis.** The above analysis of demand does not take into account the fact that consumers will change consumption habits in response to the initial price shock and that producers will alter their use of factors of production. These alterations include complex and simultaneous combinations of changes and substitutions. Because the economy normally responds to a significant shock with a wide range of actions, it is difficult to generalise about the extent of the equilibrium effects. However, in normal circumstances, one would expect the equilibrium effects to moderate the impact of the initial shock, unless there are severe instabilities in the behaviour of key sectors or household types. The equilibrium analysis can therefore be expected to produce conclusions on impact which are more moderate than those produced by looking only at the initial changes.

152. The main analytical method of analysing the full net effect of elasticity and multiplier processes in the economy is to use a computable general equilibrium (CGE) model. Although there has not been time to construct a CGE model to analyse the full impact of fuel price rises, the existing literature on CGE analysis in Mozambique does provide some useful indications. In particular, a paper by Arndt *et al.* (1998) reports on the use of the CGE to analyse the impact of reduced marketing costs. The conclusion from this paper appears to show that an increase in the efficiency of marketing of about 4.0% of GDP resulted in an increase in GDP of about 5.0% of GDP. As fuel plays a similar role to marketing in the cost structure of the economy, it would not be unreasonable to use this conclusion to indicate the possible impact of a fuel price rise, which would be equivalent to a reduction in the efficiency of marketing. More specifically, an increase in prices of 0.42% of GDP could be expected to result in a reduction in GDP of 0.52%.

153. Although the significance of these results is limited, there is sufficient consistency between this and the multiplier effects to suggest that the net impact of the fuel price rise could be expected to be between 20% and 40% higher than suggested from a simple analysis of purchasing power. In effect, the CGE evidence suggest that the economy is able to adopt moderating strategies which largely moderate the more dramatic contractionary tendencies suggested by the demand multipliers.

154. It has not been possible to analyse the extent to which the multiplier and CGE effects would be felt by the poorest households in society, as the SAM coefficients do not distinguish between rich and poor households. When the SAM is updated to reflect the IAF, it should distinguish rich and poor households separately. The following table captures some of the possible transmission mechanisms and any evidence of the extent of the effect.

Transmission of effect of fuel price rise	Evidence of the extent of the effect
Reduced employment across many different sectors as a result of reduced consumption by households, multiplied through the economy	The multipliers suggest the effects could be 3 times higher than the simple purchasing power analysis, but the CGE analysis suggests that the effects are only 20% - 40% higher.
Particular concerns for agriculture, which is labour intensive and employs many poor people	Most of the above effects are concentrated in agriculture

155. **Elasticities.** The behaviour of the equilibrium analysis depends to a large extent on the elasticities which are used to specify demand and factor use. The level of elasticities depends to a large extent on the options for substitution. The substitution effects in industry are unclear and beyond the scope of this PSIA. For households, the main substitution effects include the following:

- the reliance on more subsistence consumption, in place of transported products with higher transport, and hence, fuel costs
- the use of firewood for cooking, in place of fuel
- the use of bicycles instead of motor vehicles

156. The immediate net effect of these substitutions is normally to reduce the impact of a change, since the substitution strategies are adopted only if they are considered preferable to simply reducing consumption. But such substitutions may have different impoverishing effects, such as the reversion to non-monetised labour, often done by women and children (e.g. for firewood collection and pounding grain). However, the net impact may also be less predictable, if substitutions take place which affect sectors with strong linkages and multiplier effects. In particular, there is often concern that substitution away from local production to imports could have high multiplier effects, especially if this is for products where there are strong linkages with related activities in emerging rural markets.

157. The evidence from developed countries gives a very wide range of estimates for the price elasticity of demand for fuel. Some short run analysis suggests it could be as small as -0.13 , whilst other evidence suggests it can reach greater than -1.0 .²⁴ One would expect elasticities for developed countries to be larger than those for developing countries, because of the greater opportunities for substitutes and the more competitive markets.

BOX 5.1 SHORT-RUN FUEL PRICE ELASTICITY IN MOZAMBIQUE

Daily fuel purchase figures were obtained for a fuel station in Mozambique, for the month before and after the most recent price rise on 15 May 2002. Figures were available for gasoline and diesel, divided into sales for cash and on account. These figures suggest that the overall fuel price elasticity in Mozambique is -0.13 (which is remarkably similar to the -0.15 often quoted in international literature). Private sales of gasoline have an elasticity of -0.20 , which business sales of diesel have an elasticity of only -0.02 . However, the number of observations is very small and the period limited. Furthermore, analysis of the relative behaviour of cash sales and voucher sales is partially counter-intuitive. As a result, the elasticity estimates provide only a very rough indication cannot be used with confidence.

²⁴ One study (Statoil, 19??) assumes an average of -0.5 , adjusted to reflect the proportion of fuel consumption which has direct substitutes, which is assumed to be 70%, on average.

6 Impact on Incomes and Economic Activities

6.1 EMPLOYMENT AND INCOMES

158. The multiplier and CGE analysis assumes that reductions in income and output are in response to reduced demand. It does not take account of the possibility that some economic activities will take longer-term decisions to expand or reduce production, in response to changes in confidence about future returns.

159. In addition, because of the need to capture and balance the whole economy in the Input–Output system, the multiplier and CGE analysis must take place at an aggregate level²⁵ and it is difficult to incorporate the behaviour of specific subsectors which may be affected by changes. Whilst the effects in particular sectors may not have a large contribution to the economy as a whole, there are risks that a few sectors may behave in rather unstable ways, which could have concentrated effects. This risk is increased when there is particular interest in some groups of society, such as the most poor.

160. There is an extensive literature on growth theory and the behaviour of producers, and there is increasing interest in Mozambique about the importance of understanding economic growth. However, this has not yet led to structured analysis of the causes of producer decisions across the economy, either in a qualitative or quantitative way. Ideally, this could be recognised in a formal quantitative manner by defining a growth model. In practical terms, this could be achieved using a simple macroeconomic consistency framework—such as that used in the Revised Minimum Standard Model (RMSM)—and identifying some key sectors within this framework.

6.2 VULNERABLE ACTIVITIES

161. The following section deals with concerns about particular activities which are considered vulnerable, especially when these may have a particular impact on poorer groups. The possible vulnerability of these activities emerged at varying points during the study. Attempts were made to provide more substantive information about the various vulnerable groups, but these were largely unsuccessful, for the following reasons.

- Efforts were made to identify people in the household survey who were engaged in the activities. However, the information provided under source of income was not detailed enough to allow for a match with the vulnerable groups. In any case, the survey would not have picked up information about the cost structure of the activities, which would normally fall outside household expenditure.
- The analysis of transport cost structures demonstrates how dangerous it can be to rely on anecdotal evidence of cost structures, without some form of aggregate verification, given the natural tendency for case studies to overstate problems, especially when there is some suggestion that their views are being used to assess policy options.

²⁵ For example, the 1994 SAM includes 40 commodities, which enables grain milling to be identified, but does not distinguish between commercial and artisanal fishing.

- Even if an establishment survey had produced data for cost structures, there would still have been great difficulties in drawing conclusions about the dynamic responses to price changes. In view of the known aggregate figures (which show that fuel-induced price changes are small), the main conclusions of the PSIA would only be affected if there were evidence that vulnerable groups would respond in a dramatically unstable manner, or that there are critical dynamic linkages of these vulnerable activities on poverty reduction process.
- In view of the above difficulties, it would have been useful to undertake some more detailed and structured case-study work, using carefully disguised questions to elicit objective responses. However, there was insufficient time to do this, both in terms of calendar time and person-weeks.

162. **Transporters.** Section 4.1 considers the general behaviour of transporters and the way in which they will pass on the increased costs of fuel. The qualitative analysis suggests that there are some concerns that transporters will withdraw altogether from significant parts of the country, if fuel costs rise substantially. In several discussions it was suggested that the importance of formal transporters in facilitating wider trading links is critical to the emergence of a market economy. To recognise this concern in the quantitative analysis, it would be necessary to identify the critical role of transports and marketing in a growth model.

163. **Rural Marketing.** The growth of transport and marketing is particularly critical in rural areas. With the collapse of colonial and state marketing traditions, small traders play are now essential in facilitating greater trade and more efficient agricultural production. For these traders, transport generally represents at least one third of their costs. Their activities are therefore vulnerable to increased transport costs arising from fuel price rises. Although information flows appear to be remarkably efficient, small traders operate in highly volatile markets. A single predictable increase in transport costs might not cause a large number of people to cease trading. However, it could contribute to the collapse of some markets, if it coincided with other unfavourable movements.

164. The scale of possible changes in rural marketing is difficult to assess. The IAF suggests that marketed products account for between 40% and 60% of total consumption. Even amongst the very poor in the most rural areas, marketing products account for over 35% of total consumption. The purchasing power analysis presented in Section 4 attempts to capture the importance of marketing for more isolated areas through two assumptions: firstly, that the price increases in more isolated provinces are double the national average, whilst those in Maputo are half the national average; and, secondly, that the price increases in rural areas are at 150% above the average for the district, and those in urban areas are at 67% of the average. These assumptions have an important impact on the results and the impact conclusions are reduced by a factor of three if they are dropped.

165. Small mobile traders with low working capital operating in competitive markets are particularly vulnerable to increases in transport prices as are public sector employees and, servants, with the cost of living of poor farmers being the least affected.

BOX 6.1 THE VULNERABILITY OF MOBILE TRADING: SCALE, RISK AND TRANSPORT

Antonio Soares, from Gurue in Upper Zambezia, used a loan from an uncle and money from crop sales to buy a bicycle when prices were low. He used it to ride to Cuamba, along the Nampula railway, to buy batteries and toilet-soap for resale in Gurue. The road from Gurue to Cuamba is a long hard ride. After several profitable trips, the bicycle broke down irreparably and he could not afford another. He then used part of his capital to buy maize for sale in Gurue and to pay transport to Malawi. He bought consumer goods in Malawi, paid for transport and made a profit on resale in Gurue. On his next trip, though, the metical/kwacha exchange rate fell while he was in Malawi. He lost most of his capital, no longer having enough money to buy maize and pay transport. Now he buys soap by the box from a shop in Gurue for 185,000MT, cuts it into small pieces and sells it in a market stall that he rents by day in Gurue town. He usually makes 15,000 MT on each box, but it takes him at least 2 days to sell a box. His turnover is very slow since his stand is far back in the market and he is competing with many other soap vendors. He pays 3000 MT a day for his stall. He therefore makes about 4,500 MT for a day's work. He's hoping for something better to turn up—a job or new source of capital that would let him get on the road again. He says, however, that 4500 MT a day is better than nothing; it adds to what his family gets from farming.

The cost of diesel is not Antonio Soares' principal problem. But any rise in the price of a box of soap in the local shop that results from increased transport cost will pinch his already tiny profit. And any rise in motorised transport cost will make it harder for him to re-enter mobile trade.

166. The gradual trends towards a growth in marketing would affect poverty in the following ways:

Transmission of effect of fuel price rise	Evidence of the extent of the effect
Lower prices for smallholder produce and higher prices for consumer goods	Small average effect, due to the low share of fuel costs in transport, the low share of transport costs in trade, and the low share of trade costs in total consumption
Higher costs for transport for urban workers	
Rural diesel lighting	
Higher fuel costs leading to enterprise failure and loss of jobs in fishing, mining, commercial farming and small industry in non-electrified areas	Analysis confirms some activities have high fuel costs, but the net impact is difficult to quantify
Higher costs of social provisioning leading to reduced public services if budgets are not adjusted	Reduced social provisioning can be stopped with budget adjustment

167. **Grain Milling.** Grain milling is expanding rapidly in Mozambique and is a central element in the growth of market activities in rural areas. It has an important function in reducing poverty, through enabling poor households to switch time from hand pounding of grain to more productive activities. The SAM estimated that grain milling generated about one third of total marketed food consumption but that fuel accounted for less than 1% of milling costs. Field discussions suggest that fuel costs are actually much higher

than this and that this could result in substantially higher food price increases. Because grain milling is in direct competition with hand milling, it is likely to be one of the activities which is particularly vulnerable to increased costs.

168. **Fishing.** Many commercial fishing boats have the option to purchase fuel in different countries. In recognition of this, South Africa and Namibia both have lower taxes for fuel for commercial fishing boats. This ensures that they do not lose tax revenue from international boats. But, perhaps more importantly, it also prevents international boats from competing unfairly with local commercial fishing boats, who are less able to refuel in foreign ports.

169. The price of fuel is also critical for artisanal fishing boats. Although the numbers are currently quite small, the motorisation of artisanal fishing is critical to the future of the industry, and progress in this direction will be constrained by an increase in fuel prices.

170. The ability of Mozambique to administer reduced fuel tax rates for fishing is limited, although a single outlet in Maputo might be manageable. Making such a scheme available to artisanal fishermen, without risking significant leakage, would be extremely complicated.

171. **Export crops.** There are a number of traditional export crops in Mozambique which are currently producing at low levels, including tea and cotton. The costs of getting these products to a port represent a significant part of the total costs of production and further declines can be expected, if fuel prices rise substantially. However, the marketing of export crops can be very complex (e.g. incorporating issues of world price variability and quality incentives) and it is possible that major institutional issues are more important than fuel costs.

172. **Irrigated smallholder market gardening and rice production.** Most of the remaining irrigated tea and sugar estates are reached by electrical line, but there are small pockets of small-holder farmers scattered throughout Mozambique who irrigate fruit and vegetables gardens along stream beds. Others grow irrigated rice. Pump-owners also irrigate the plots of their neighbours. Diesel is a major part of the operating costs for a pump²⁶.

173. **Mining.** Various informants claimed that mining could also be highly sensitive to fuel price rises, given the international competition in many mining products, and the dependence of some mining products on transport.

²⁶ One pump-owner in Lioma charges 500,000MT to irrigate 1/4 ha., but reduces the price to 250,000MT if the owner of the field provides the diesel.

7 Impact on Other Poverty Processes

174. The above sections consider the possible longer term effects of disruption to selected economic activities, arising out of disruptions to the gradual spread of markets. The lack of income-generating opportunities is a critical constraint to reducing poverty. However, as discussed in Section 2.3, there are a number of other poverty processes which are also important. Disrupting these processes could have a major effect on longer-term attempts to reduce poverty. The following sections identify the main additional poverty processes. Most of the material has emerged from existing case-studies and field research.

175. **Social Provisioning.** The higher cost of diesel and transport will require adjustments in transport budgets in line ministries and provinces (see Section 3.5). However, there are risks that this may not be done efficiently, which could lead to a regionally uneven declining availability and quality of social services (provisioning, ambulance, light, communications) in local community services and in central urban distribution points. Even if budgets are efficiently adjusted, there may still be problems in ensuring that they are reflected in increased resources being available at the most local levels of public services.

Transmission of effect of fuel price rise	Evidence of the extent of the effect
Higher costs of social provisioning leading to reduced public services if budgets are not adjusted	Reduced social provisioning can be prevented with budget adjustment, but this will require efficient budget processes, with explicit recognition from Ministry of Finance, as well as disciplined implementation.
	Some possible increase in provisioning as a result of increases in government revenue.

176. **Communications, Coping Strategies and Emergency Services.** In addition to the effect of transport costs on retail prices and personal transport, there will also be some less direct effects. Isolated communities rely on personal transport to the outside world for regular information on market opportunities, remittances and exchange of gifts. This opens up a wider range of coping strategies. One trip can often provide multiple sources of information and exchange of goods, giving it a value far higher than the cost of transport. Isolated communities may be as much concerned about a reduction in the frequency of transport, or even the collapse of local transport altogether, as they are in the cost of transport.

Transmission of effect of fuel price rise	Evidence of the extent of the effect
Increased cost of transport affecting flows of information, and frequency of remittances and food gifts	Statistics suggest low impact due to relatively small use of transport in rural and urban areas. However, the trip of one person serves multiple purposes for many families, so the value could be underestimated.
Increased dependence on local support services as a result of general price rise and higher costs of social provisioning	Limited extent of fuel in costs of households and public services suggests a small average impact
Increased cost of emergency flood and drought relief in rural areas	Some reduction in supplies, as more of the emergency budget is used for fuel
	Possible increase in emergency relief as a result of increased government revenue.

177. **Differential Control of Assets and Work Obligations.** Access to land, finance and natural resources are a very important starting point for poverty reduction for many households. There is little evidence of the impact of a fuel price rise on this access, except to the extent that transport to distant land and other natural resources could be affected.

178. There is some evidence that the fuel price rise could have a significant effect on individual work patterns within households. The examples of maize milling and relying on home health care are a particular concern. More detailed fieldwork would be required to collect a more comprehensive list of possible effects and to gain more evidence on the extent of these problems.

Transmission of effect of fuel price rise	Evidence of the extent of the effect
Inequality in access to land, finance, natural resources and commodities	Lack of evidence of impact of access to land, finance and other resources
Changing patterns of individual work burdens	Some evidence that changing individual work burdens could be high (e.g. in reverting to hand pounding or relying on home care through lack of access to health facilities)
Intensification of women's unpaid work in food-processing and health care	

179. **Corrosion of Governance.** There is some concern about the possible effect of increased transport costs within government on the scope and incentives for corruption. However, the direct impact of the fuel increase on the corrosion of governance will not be great. It may slightly increase the cost to rural communities of defending their land rights through the registry process established under the land law, and it may raise the costs of establishing links across communities by farmers' associations and women's groups, for example. Probably more important is the possible compromise of possible positive impacts of the increase—particularly the availability of more government revenue for programmes that reduce poverty. Corruption diverts government revenues into private accumulation. Parallel market sales of fuel undercut the revenue raised through VAT.

Transmission of effect of fuel price rise	Evidence of the extent of the effect
Increased cost of rural transport could impede cross-community links	Outside the scope of the fuel tax PSIA
Net impact depends on the way in which additional revenue is used	

180. **Summary.** In summary then, we can identify certain groups that are particularly vulnerable to a rise in the price of fuel according to the vector of impact. The potential impact on each of these groups is very difficult to ascertain without more detailed research, as discussed in Section 6.1. The dynamic effect of any impact on wider poverty reduction is also impossible to ascertain. Even if time and funding were available for more detailed research into dynamic responses, there are no well-established methods for reaching reliable conclusions on dynamic responses in countries which have seen major structural shifts. Case studies will provide insights, but it is extremely difficult to aggregate these insights to generate reliable national-level conclusions.

TABLE 7.1 VECTORS OF IMPACT

Price of diesel	Price of transport	Good and services with high fuel input	General CPI
Rural poor using diesel for lighting	Urban poor using public transport to work, to market, to school	Women in poor households using maize-mills	Poor urban wage-workers and independent traders without land
	Dependent households relying on remittance and social support networks, particularly AIDS affected households in Gaza and Beira corridor	Poor households in towns using generators for light and water-pumping	Dependent landless households
	Small mobile traders		AIDS affected households, particularly Gaza and Beira corridor

8 Fiscal Implications

181. An increase in the fuel tax could have a combination of fiscal implications, including: lower increases in other taxes; increased expenditure; and reduced aid dependency. Each of these are consistent with PARPA objectives. Although there are links between the fuel tax and road maintenance, public finance is essentially fungible, and the policy conclusions from the fuel tax PSIA can only be made in the context of the wider fiscal situation.

182. In theory, the conclusions from this fuel tax PSIA could be compared with similar PSIAs for alternative revenue measures, or for the benefits of expenditure. Ideally, a direct comparison of PSIAs could be made using indicators such the 'fiscal:poor ratio' (i.e. the change in public finances and the change in the number of poor people). However, comparable PSIAs do not yet exist and, in practice, they are likely to produce rather variable results. For example, PSIAs for revenue policies might all generate the fiscal:poor ratio described above, whereas PSIAs for expenditure are more likely to be considering HDI outputs, such as health and education indicators. In the absence of comparable PSIAs, a comparison with PARPA objectives provides some context of the scale of the fiscal and poverty implications.

8.1 COMPARISON WITH PARPA TARGETS

183. The PARPA includes overall targets for poverty reduction as well as targets for improving the fiscal situation. These can be used to give an aggregate fiscal:poor ratio (see the above paragraph). Thus, on average, for every person lifted out of poverty, the PARPA requires an increase in public revenue of about US\$150. This constitutes a yardstick against which PSIAs for alternative policies can be judged. The PARPA average ratio of US\$150 compares with a fiscal:poor ratio of about US\$1,300 for the fuel tax.

184. Table 8.1 presents another way of comparing the fuel tax with PARPA norms, looking at the annual change in PARPA targets compared with the annual changes caused by the an increase in fuel tax. The fuel tax change would contribute nearly one year's target improvement in domestic revenue at a cost of setting back the poverty reduction targets by little more than a month. Thus, if the activities which are funded by fuel tax revenue were to follow the average rate of impact (expressed in number of poor reduced per Metical spent) of the PARPA targets, then the net effect of the fuel tax, and its associated fiscal implications, would be pro-poor.

TABLE 8.1 ECONOMIC COSTS AND FISCAL BENEFITS, COMPARED WITH PARPA

	Domestic Revenue	Income of Poor	Number of Poor
PARPA Annual Change	+11%	+5.0%	-2.0%
Economic Impact of the Fuel Tax Increase	+10%	-0.5%	+0.2%

185. The above comparisons suggest that the net contribution of the fuel tax change to the PARPA objectives would be positive. However, a more thorough analysis would

consider whether alternative fiscal measures could achieve the fiscal objectives with less anti-poor implications. This study has not attempted to analysis fiscal alternatives. However, a number of preliminary observations may be possible.

8.2 REVENUE ALTERNATIVES

186. Other taxes which could be increased to produce comparable revenue include: VAT; personal tax rates; company tax and import duties. With all these taxes, increased rates would exacerbate problems with collection and there are other criteria and issues involved in judging the optimum tax rates and systems (see 0). Nevertheless, it would be useful to understand the poverty and social impact of changes in their tax rates in order to refine marginal changes in tax rates.

187. Increasing VAT would involve a similar impact on poverty to that caused by fuel tax, since the impact of fuel prices is quite widespread through the economy.

188. Clearly, if higher rates of personal income tax or company were collectable, then these would have a much smaller immediate poverty impact. The longer-term effect on the mobility of skilled labour and of enterprises in the region is more complex and would require dedicated analysis.

189. Import duties would have to be raised by about 60%, to raise the equivalent additional revenue to that raised by increasing the fuel tax in line with devaluation. Using comparable techniques to those described for the fuel tax would suggest that the net effect of this import prices would be 1.6%, which would increase inflation by 1.0% (compared with 1.2% for fuel). The price impact for import duties is spread more widely than for fuel, though with some tendency to be concentrated in secondary sectors. Feeding these price rises into the IAF data, suggests that the increase in the number of poor would be marginally lower than for the fuel tax.

190. There are some smaller sources of potential revenue, including various licences and use of other excise duties. This can all make valuable contributions. At first sight they would not appear to have a major poverty impact. However, some rapid PSIA analysis would be required to verify this.

8.3 EXPENDITURE IMPLICATIONS

191. The regulations on the Fuel Tax define how the revenue should be spent and allocate a large share to road maintenance, although the law also entitles MPF to reduce this share²⁷. In recent years, actual transfers to the Road Fund have been reduced, sometimes by more than 10%. Some initial analysis is presented below. In view of the link with the Road Fund, any future comparative analysis could concentrate on the poverty impact of road maintenance.

192. **The Road Fund.** According to the regulations, the Roads Maintenance Fund should normally receive 80% of fuel tax revenue, unless MPF judges that there are special circumstances which require some of the fuel tax to be used for central revenue. In recent years, the share actually received has been reduced by as much as 20%.

²⁷ Gupta and Mahler (1995) report that a share of fuel taxes is used for road maintenance in the following countries: US, Canada, Japan, Belgium, Denmark and Sweden.

However, in 2001 and 2002, the situation has improved. The fuel tax normally contributes about 90% of Road Fund revenue.

193. The main concern of the Roads Authority is for predictability and steady growth in the fund to accompany road recovery and new construction. A gradual increment in the levy is thus compatible with the needs of the road maintenance fund.

194. The negative impact of the increased levy will be felt quickly, mainly through increased transport cost. There are also some longer-term benefits from road improvement leading to decreased transport costs. However, the negative impact of neglected maintenance is almost immediate.

195. There is no unidirectional relationship between roads, economic growth and the reduction of poverty. Good roads are generally associated with lower levels of absolute poverty, but this is not invariably true (e.g. the Beira corridor). Some of the areas served by good roads also have high indices of inequality.

196. Assessment of road recovery programmes in Zambezia and our field study show that the implications of the programme for poverty reduction are mixed. Rural people were enthusiastic about the improvements in the roads and the jobs that the programmes opened. They are disappointed, however, that improved roads did not mean that someone would arrive to buy their produce (this year being an exception because of crop-failure in Malawi and Zimbabwe). They were also disappointed that in districts such as Ile traders did not return to reopen shops abandoned during the war. Yet before the war, demand for consumer goods in Ile was derived mainly from wages from work on the tea estates; there is currently little purchasing power in the district, a problem that road improvement does not resolve. Vehicle counts on many improved roads are low, though higher if one counts bicycles (for which maintenance costs such as tyre replacement are much lower on better roads). Logging companies are taking advantage of the roads, but they bring no jobs, often do not pay for the wood they take, and in some cases are encroaching on small-holder lands.

197. Funding for road maintenance does not assure that roads will be adequately maintained unless institutional issues of rural road maintenance are addressed. The Zambezia road programme trained local private road construction entrepreneurs who set up systems of paid road vigils (cantoneiros) responsible for controlling road repair. Only three of these small construction enterprises are still functioning (two are currently working in other provinces) and the road vigils system is not working, since no one is paying them. The surface of the dirt road from Gurue to Lioma (part of the main Zambezia-Nampula route) is in good shape, but high grass encroaching on the sides has reduced width and visibility, making some sections dangerous. The involvement of local communities in road maintenance, and the financing of such involvement, must be determined.

198. ***The Need to Protect Transport Budgets.*** Section 3.5 suggests that 12.5% of all fuel used is consumed by the public administration, excluding parastatals. As a result, 12.5% of any revenue raised needs to be reserved for an increase in the transport budgets across ministries and provinces. This will require some careful budgetary management, both to ensure that correct adjustments to budgets are made and to ensure that implementation of the budgets are funded.

199. The transport budget of the public administration is important both for the performance of public services and to reduce possible pressures for confused incentives within public services, which could lead to increased corruption. The price of diesel is a particularly serious concern for the district offices, such as the education office in Gurue, because it must pay for the diesel used for vehicles borrowed from other offices, NGOs and public enterprises to distribute school materials and examinations to teachers.

8.4 REDUCED AID DEPENDENCY

200. In the past, Mozambique has accepted as much international support as it has been able to attract. As a result, external financing of the budget has accounted for over 50% of total revenue. The PARPA considers that it will not be possible to achieve substantial increases in external financing and therefore proposes a rapid increase in domestic revenue.

201. Whilst Mozambique may continue to accept most international support, there are some concerns about the possible impact on the exchange rate of accepting budget support. International support regularly amounts to nearly 40% of imports. If a substantial part of this support is used for domestic expenditures, then it will have a major effect in preventing more rapid devaluation. Whilst this might seem to be a useful stabilising effect, it will contribute to a Dutch Disease effect, in which domestic producers are less competitive with imports. Some analysis has been done on this subject, but the results are, as yet, inconclusive.

202. The level of domestic resources raised from increasing the fuel tax in line with devaluation amount to US\$34 million, or nearly 2% of imports. This will not be enough to resolve any possible Dutch Disease effect, but it would have a substantial marginal impact.

PART 3
METHODOLOGICAL AND
INSTITUTIONAL LESSONS

9 Implications and Recommendations

203. There has been a longstanding debate in Mozambique about possible management reforms to improve the quality and application of economic policy analysis. This debate has involved policy-makers, academics and donors, with more limited participation from civil society. The main objective of the concern for reform has been to increase the range of information available about the possible impact of key policy options. The PRSP process, with its emphasis on poverty analysis and consultation, has broadened interest in policy analysis, but also led to some concern with the independence of analysis (both in terms of the conclusions and the selection of issues for study) and the availability and accessibility of information.

204. PSIA provides a unique opportunity for institutional change for two reasons:

- the range of activities required for PSIA require a particular blend of professional and institutional involvement
- the linkage of PSIA to PRSP and macroeconomic reforms means that it is central to many of the most pressing political issues

205. This chapter provides some illustrative recommendations on the fuel tax. It then discusses what the demand for PSIA is in Mozambique; assesses the methodological base for PSIA; breaks down the content of PSIA into six areas of activity (issue selection, policy advice, monitoring, training, documentation and dissemination); assesses present strengths and weaknesses in these areas and identifies capacity to carry out these activities. Finally it considers institutional options for improving this capacity and presents recommendations on the creation of a new institution.

BOX 9.1 ASSUMPTIONS WITHIN THE PSIA TEAM

The team of three experts involved in this demonstration PSIA came from different backgrounds, and had different assumptions about poverty processes and, perhaps, strategies to tackle poverty. The team worked constructively, exploiting their complementary experience and agreeing on the broad direction of the work. Nevertheless there were some differences in emphasis, which collaboration on the PSIA did not fully resolve, but which deeper research should clarify further. The differences in approach of the team members was typical of the debate which often takes place, within national institutions and Mozambican intellectuals, and between governments and IFIs. The following characterisation simplifies the differences.

1. The first expert, an anthropologist, had been closely involved in Mozambican economic and social research and policy analysis in the 1980s and is interested in the structure of Mozambican society and economy and the way this affects economic opportunity.
2. The second expert, an economic demographer, has been closely involved in Mozambican economic and demographic research and policy analysis for 20 years and is interested in the way national institutions can be set to facilitate the emergence of a viable economic initiative as a means of reducing poverty.
3. The third expert, an economist, has worked in different countries, advising governments and IFIs, and is interested in using data to understand the way in which many small endeavours respond to changes in economic conditions.

Although there was general agreement in the study conclusions, the difference in emphasis of team members led to slight differences in conclusions and recommendations ...

- On the priorities for exploratory data analysis, the first two experts were particularly interested in finding clues about particular vulnerabilities and impact on key structures or endeavours, whilst the third expert was more interested in looking for general patterns of response and total impact.
- On the process by which the poor can generate incomes: the first expert was looking for possibilities where key initiatives might leverage major impact on structural determinants of poverty; the second was interested in finding out if economic initiatives would be harmed; and the third expert was looking for evidence of patterns of gradual change in the balance of opportunities.
- On priorities for future PSIA, all experts were agreed on the need for improving the balance of information (e.g. with establishment and labour surveys) and the study of key issues where small changes might have big impacts (e.g. through case studies). However, in view of first two differences, the first expert was more interested in improving the use of case studies as a source of insight in the interpretation of quantitative data, the third expert in improving the quality and consistency of national data, and the second in finding out how can these views can be actually undertaken within the existing research institutional setting in Mozambique.
- On the boundaries of PSIA, The first expert considered analysis of the politics of implementation to be a task of PSIA, the third viewed the central task of PSIA to be the analysis of economic impact, and the second was interested in the complementarity of these approaches.

9.1 RECOMMENDATIONS FOR THE FUEL TAX

206. **Modest Aggregate Impact.** This demonstration PSIA suggests that an increase in the fuel tax of up to 100% would have a modest aggregate impact on the poor because the total amount concerned is a relatively small proportion of the whole economy, and the impact is spread fairly evenly through the economy. This suggests that, if government is seeking to raise revenue with minimum impact on poverty, then an increase in the fuel tax would be a reasonable option.

207. In the practical and imperfect world of applied policy decisions, this conclusion may provide useful support to justify a decision on the fuel tax. However, in an ideal world, such a decision would require more information on at least the following two issues ...

Firstly, there are several alternative sources of revenue which could have a similarly modest impact on the purchasing power of the power (including VAT, personal income tax, company tax and various excise taxes). Ultimately, comparable PSIAs should be available to analyse this in more detail.

Secondly, and partly because of the first issue, it is possible that the longer-term impact of tax policy on key economic activities will be more important than the shorter term impact on purchasing power. Useful analysis of the impact of tax policy on economic activities in Mozambique will require a major effort to improve information sources and to develop understanding.

208. Until there is a body of comparative PSIA analysis providing strong conclusions, it is likely that the collectability of tax will be a more important determinant of tax policy than the poverty impact. On these grounds, an increase in fuel tax is one of the best ways of raising new revenue, up to the point at which differentials with neighbouring countries distorts purchasing patterns and causes informal leakages.

209. **The Scale of any Increase.** This demo PSIA has considered the two scenarios of increasing the fuel tax by 65% (i.e. in line with inflation since 1997) and 101% (i.e. in line with devaluation). The links with inflation and devaluation provide a convenient basis for ensuring that the fuel tax does not become eroded in future. However, there is no particular reason to stick with these scenarios in the current decision on whether to increase the fuel tax.

210. The drive to raise domestic revenue and reduce aid dependency provides upward pressures on the level of the fuel tax. This demo PSIA suggests that the scale of any increase in fuel tax may be more constrained by consistency with fuel prices in South Africa (and other neighbouring countries) than by concerns about the poverty impact (subject to the important reservations on the potential impact on vulnerable activities).

211. In view of this, and the fact that fuel prices are already higher than in South Africa, it would be wise to for any fuel tax increase to be closer to 65% than to 100%.

212. **Implementing any Increase.** If the government decides to update the fuel tax, then there are options for doing this in a manner which minimises economic disruption, by introducing any increases at times when world prices are falling, so that an increase in fuel tax will not cause an immediate increase in fuel prices. Given the psychological and 'ratchet' effect of fuel prices (see Section 4.2), the phasing of any changes is of more than cosmetic and political importance. However, if the decision to update fuel tax

coincides with a period when world oil prices do not fall for some time, the government will have to increase fuel taxes in a manner which is fed through into fuel prices. To avoid creeping delays in any updating in fuel tax, it would be wise to introduce a deadline for the full increase, regardless of world oil price movements. Depending on the urgency of fiscal reform, and on projections of aid receipts, a deadline of two years might be reasonable.

213. **Further Studies Required.** Priority should be given to studies of the vulnerability of those economic activities and social processes which are particularly important for the poor. These studies could consider the vulnerability of these activities to a possible rise in fuel taxes. It would also be sensible to expand the scope of the studies to consider the impact on these activities of various tax policies. The vulnerable activities should include fishing, maize milling, informal trade and small businesses relying on generators.

214. Studies should also be undertaken into the possible impact of increased fuel prices on local social services which rely on generators. This should include considering the possibility that a centrally calculated increase in expenditure budget might not be actually delivered to local services.

215. **Future Increases in Fuel Tax.** The principles for considering a possible update in fuel tax levels also apply to future changes in the fuel tax. There will always be pressures to increase revenue from fuel tax. PSIA analysis of alternative revenue sources may provide information to guide prioritisation of sources for increased revenue. But the scope for increases will always be constrained by fuel prices in neighbouring countries.

216. There will also be political pressures to avoid taking decisions to increase fuel tax. To avoid a general delay in increases similar to that which has happened since 1997, it would be wise to adopt a system for 'default increases'. There are various options for this, including pegging to the CPI or the US\$ or setting the tax as a percentage of oil import prices. The main reasons for choosing between these options are the desire to reduce volatility in fuel prices and to improve budgeting. The option of setting tax as a percentage of import prices seems inferior because it would introduce greater instability into domestic fuel prices. However, there is no strong reason for choosing between pegging to the CPI or the US\$: it is not easy to predict whether inflation or devaluation will be more stable in future; and, although government budgeting is done in local currency (which would suggest pegging to the CPI), there are large areas of expenditure which are linked to the US\$ (e.g. in road maintenance).

217. In view of the above, future increases in the fuel tax should be between the increase in CPI and devaluation, with higher increases taking place when South African fuel prices permit and when world oil prices are falling. This introduces some subjectivity into the updating procedure, which increases the risk of inaction. However, it is a more realistic reflection of the subtleties of the decision. It would be possible to specify a formula which would provide a guide price, based on the above²⁸, in order to minimise the subjectivity required.

²⁸ For example, $NFT = \min(OFT * \max(1 + CPI, 1 + ER, 1 - (DWOP/OFT)), SAP * A)$, where NFT = new fuel tax, OFT = old fuel tax, CPI = change in CPI, ER = change in exchange rate, DWOP = change in world oil price, SAP = South African fuel price and A = a constant reflecting the acceptable ratio by which Mozambican fuel prices can be higher than South African fuel prices.

218. **Expenditure Budgets.** If the fuel tax is increased, the Ministry of Finance should apply an automatic increase to the fuel budgets of all ministries and local government to ensure that service delivery is not squeezed by lower fuel purchases.

9.2 DEMAND FOR PSIA

219. As discussed in Chapter 1, there is a long history of government concern with the implications of economic policy for poverty reduction in Mozambique, although the assumptions underlying this analysis have changed over time. The concern with poverty analysis in the MPF is thus long-term and consistent, not an opportunistic response to the PRSP process. There is also broad familiarity with the idea of strategic planning, and thus the involvement of line-ministries in consultation is also well-established, though certain ministries have been considered to be most closely linked to poverty issues—health, education, and agriculture.

220. What is new is the independent role now envisioned for parliament, political parties, and organisations of civil society in PSIA. Mozambique has an active and healthy debating environment for matters of national development. A wide range of opinions are expressed in public debate, in the newspapers and in private (e.g. Negrao 2002 and Ratilal 2001). Parliamentary debates are vibrant and often include serious and influential criticisms. Substantial changes in electoral behaviour have taken place in recent years, as a direct result of public opinions on national development. In all these debates, the reduction of poverty plays a central role.

221. Advocacy organisations involved in the poverty consultation process (e.g. SINTRAT, OTM, CCM, Forum Mulher, UNAC) emphasise the need for analysis in working out their positions. The better off organisations can employ consultants. AMAPIC, for example, hired Ernst and Young [2000] to develop a position paper for them on the impact of the fuel tax on industrial fishing. Other organisations have no such budget but get informal advice. They need analysis that is independent of government, autonomous and sometimes confidential (e.g. as when the unions are working out their position on the minimum wage).

222. There is scope for rooting such analysis in more firmly evidence-based argument, but this is not a process of a few months. It demands attention to evidence and analysis from policy-makers, to institutionalised collaboration with researchers, and also to developing modes of presentation accessible to different groups. It also requires some skilful presentation of complex issues in a manner which can be rapidly and easily absorbed.

223. The presence of non-governmental groups in policy debate has in turn given new impetus to government interest in PSIA. When the MPF discusses with the Mozambique Debt Group, for example, it must have both arguments and evidence on the impact of proposed measures.

224. The strong demand for PSIA style analysis is demonstrated by the lively interest in the fuel tax PSIA by different sections within the MPF, unions, transporter and fishing associations, and ministry officials dealing with transport and public works. This was true even though the timing of the exercise was constrained and the issue relatively technical. This interest has been maintained despite the fact that the study has not led to policy recommendations, in view of the partial nature of the analysis. Once comparative

analysis is available for a range of alternatives, policy decisions can be debated more forcefully, and interest in PSIA will be even greater.

9.3 METHODOLOGY OF PSIA STUDIES

225. **Data Sources.** There are certain key kinds of information that most PSIA studies will require, including the structure of production and comparable information on levels and quality of individual consumption. Because PSIA deals with impact, it is necessarily concerned with processes; thus comparable time series are important, if they are available and if the distortion from major shocks can be isolated.

226. The SAM provides a useful starting point for analysis of the structure of production. However, further work is required to research the coefficients in the SAM and to ensure that it is up to date with current macroeconomic statistics and, in particular, with the consumption patterns. There are two particularly important priorities for improving the use of the SAM in future PSIA analysis.

- The SAM needs to be updated to reflect the information in the IAF and to include some distinction between non-poor, poor and extreme poor households.
- The information on linkages between economic activities needs improving. INE have information on this as part of the National Accounts activities, but this is not publicly available. An establishment survey would help to improve the quality, organisation and availability of data on economic activities.

227. The IAF provides a good basis for analysis of the impact on purchasing power and consumption. It should be made more publicly available, possibly through releasing the summarised spreadsheet version used for this pilot PSIA. However there are also some constraints in the use of the IAF. Individual expenditure modules did not provide a robust way of looking at intrahousehold differences in poverty, but there are potentially ways to use the nutritional and health components, gender-marking in goods, and the gender division of labour in some marketed and non-marketed activities to approach intrahousehold differences. Consumption surveys do not easily capture substitution effects that can lead to intensification of non-monetised labour, itself an aspect of poverty that is often gendered. There is a need for complementary case-studies and labour surveys. The community modules also provide a basis for looking at differences in consumption of public goods.

228. The QUIBBs are likely to be useful for future PSIAs, particularly where these deal with the impact of public services and household strategies dealing with assets and uncertainty. They will be particularly useful in identifying trends.

229. The 1997 census is a good source of data on some aspects of poverty. Comparison with the 1980 census makes it possible to look at long-term trends in changing livelihoods. The methodology worked out by Simler and Nhate (2002) for integrating census and IAF data through common household variables allows for disaggregation at district level, important because there is so much intra-regional differentiation in Mozambique. This methodology allows for detailed poverty mapping (see Chapter 2), since the census data have been used for GIS mapping.

230. The absence of labour and establishment surveys has been a major weakness for the PSIA. Because these are often lower down the priority list of formal statistics than the

household survey, it is common in developing countries to find rather patchy information on employment. Even when labour or establishment surveys exist, it can be difficult to design these in a way which captures the substitution between formal and informal activities.

231. Whilst it is important to maintain a macro perspective for PSIA, in most cases, PSIA will benefit from specific fieldwork and qualitative research, to understand the processes involved, the local differences and more subtle changes. There are now a substantial number of doctoral dissertations, particularly those dealing with rural areas, that are highly relevant to PSIA. These describe the processes that give rise to poverty and vulnerability, and thus are a source of insight for the interpretation and design of surveys. This work is not always accessible, however, to Mozambican analysts, either because it is only in English or because it is published in journals that are not widely available in Mozambique.

232. **Input–Output Analysis.** Much of the speculation about the indirect effects of policy measures is built on implicit assumptions of linkages in the economy. In the case of fuel, the concept that fuel plays a central role in the economy is based on a common belief that it has strong linkages throughout the economy, based primarily on its importance for transport. This belief is often based on concerns about specific elements of economic activity (as illustrated by the dominant interest in the role of chapas in assessing the impact of fuel prices).

233. The forward price effects and backward demand multipliers used in the quantitative analysis require a SAM and an Input–Output table. The static multiplier analysis was at the core of central planning techniques. The rigid nature of this analysis, and its lack of analysis of technical and structural changes, made it a symbol of the failure of central planning. The expansion of CGE techniques aims to address some of the constraints of classic Input–Output analysis. In particular, they reverse the logic of analysis from an approach which works out how to achieve a target to one which speculates about and explores the possible implications of alternative actions. Despite this, CGE models still retain a rather rigid structure and are not ideally suited to considering the promotion of innovation.

234. **Economic Growth.** Recognition of the failings of the Input–Output style of analysis is consistent with the strong concerns in some Mozambican circles to move away from a social security approach to public services and towards a more entrepreneurial interest in wealth creation. There are a wide range of options for analysing and addressing growth policy. Long-established simulation techniques (such as RMSM), and the more recent versions of CGE analysis, are often used in an attempt to identify the best sources of growth in the economy. Although such research may be useful in providing background understanding of the economy, it can be misused to justify an excessively steered growth policy in which government intervenes too much in selected sectors.

235. **Aggregation and Integrating Qualitative and Quantitative.** One of the major challenges of PSIA work is to aggregate detailed observations into national level conclusions. Discussions and case studies reveal a wide range and variety of specific observations, often giving useful insights into the processes involved and clues for further exploration. Generally, this involves complex mixed strategies managing income and assets to manage uncertainty and adapting traditional responsibilities to deal with widely varying household situations. There are some attempts in academia to formalise such

strategies in a manner which could make them more amenable to integration with national statistics. However, the bridge between models of poverty process and applied analysis of national statistics has yet to be made, even in academic circles. It is impractical to expect rapid applied policy analysis to generate such significant methodological innovations. Until longer-term applied research provides methods of making this bridge, applied PSIA will have to rely on a more *ad hoc* approach to synthesising observations and analysis.

236. Ideally, the specific observations from case studies should be cross-checked with national sources of information to assess the aggregate impact. The success of this verification and national aggregation depends largely on whether national statistics are available which address the key issues concerned.

237. This demonstration PSIA suggests that some basic aggregation can, to a certain extent, be undertaken relatively efficiently using standard household surveys and macroeconomic frameworks, which are often available, even in developing countries. However, the demo PSIA also suggests that some more detailed processes are very difficult to aggregate.

238. The PSIA suggests that specific observations and case studies often overstate the average impact of economic changes, because of the tendency to concentrate on the most informative examples. The aggregation process needs to consider both the possibility that case studies may overstate the national averages, as well as the possibility that national averages may hide some important concentration of effects. The IAF analysis shows that this may be partly overcome by analysing dispersion and outliers within national data sets, using quintiles, cumulative frequency distributions, scatter plots and other descriptive data presentation.

239. **Sequencing Qualitative and Quantitative Analysis.** The first challenge for integrating qualitative insight with quantitative verification is to establish a theoretical structure within accommodates both sources of information and which is also amenable to applied analysis. At the simplest level, this may involve a three-phase approach as follows:

- a rapid review of available documents and statistics to pick out potentially important groups
- a series of rapid case studies for each of the groups
- quantitative work to verify the case study information against national statistics and to add up the effects on individual groups (along with the effects on the population at large)

240. At a more complex level, the qualitative analysis could provide insights into the dynamics of decision-making, both for vulnerable groups but also more generally. This opens up the possibility that quantitative analysis may need to be adapted or focused to take account of these conclusions, or that the consultation phase may need to include a second part which adds some quantitative information to provide data on issues identified in qualitative discussions.

241. The required sequencing of qualitative and quantitative analysis will be different for each PSIA. In many PSIAs, the policy being analysed will involve a transfer of resources

which has relatively modest distributional effects. It should be possible to assess this at a fairly early stage, using rough aggregate calculations. Quantitative analysis will still be required to calculate the broad distributional impact. However, if this impact is suspected to be modest, then the main focus of the quantitative work could be on understanding the concentrated effects on particular groups, by undertaking some rapid quantitative survey work, if necessary. To introduce this type of phasing will normally stretch skills and time limits beyond those available for the Mozambique fuel tax PSIA.

242. In many cases, the experiences from one PSIA are likely to draw lessons which only become obvious when conclusions begin to be reached, even with a carefully phased methodology. At this point, it will generally be too late to revisit fully the analysis involved in the aggregation. This reinforces the conclusion that PSIA style analysis needs to be coordinated in a manner which accumulates experience from one study to the other, so that future aggregation can be designed in the light of lessons from previous studies.

9.4 CONTENT OF PSIA WORK

243. **Issue Selection.** The experience of this demonstration PSIA shows how easy it is for issues to be selected for analysis which provide information to urgent policy decisions. There is also recent experience in Mozambique which suggests that some issues are avoided, if they are deemed to sensitive. These two pressures are common elements in issue selection for policy analysis in most countries. This demonstration PSIA also showed that issue selection can be influenced by expectations of the ability of the analysis to be undertaken usefully.

244. Perhaps more difficult to coordinate is the possibility that a work programme of PSIA style studies could be defined which would lead to an accumulation of understanding on related topics. There was some evidence that this was taken into consideration in selecting the fuel tax for analysis: the MPF recognised that the IAF had been under exploited for policy analysis and that analysing the fuel tax impact would help to build understanding of the information in the IAF and to encourage further analysis in due course.

245. **Policy Advice.** The core purpose of PSIA is to provide analysis to support policy advice. Most importantly, advice must relate to the MTEF and budget cycle. It may be useful to distinguish between a range of different types of policy advice in which PSIA should play an important role:

- analysis of the impact of specific macroeconomic decisions, often against tight deadlines, usually linked to budget timetables and/or IFI relations
- insight into the importance of cross-sectoral programmes and the ways in which these can help to reduce poverty
- broader analysis of general trends and identification of approaches and issues which might lead to a policy response in the medium or longer-term

246. PSIA should provide the context where poverty issues are contextually linked in analysis. Sharply delimited studies such as this one are methodologically neat, but do not look at the sequencing or accumulation of effects. The impact of one increased user fee (say of water) on the poor may not be very great, but the accumulated impact of a series of measures may be very great indeed. This problem can only be addressed by

comprehensive analysis dedicated to synthesising experience from specific studies, filling in the gaps as effectively as possible, whilst also pointing to priorities for future study.

247. This demo PSIA suggests that it is important for a range of PSIA studies to refer to a common poverty indicator, to provide some estimate of the relative magnitude of impact. In this PSIA, the headcount of the poor and extreme poor was used as the common indicator, largely because this is what was used in the main national poverty reduction policy document. Poverty headcounts are simplified indicators of poverty, but they do provide an important focus for adapting detailed analysis to produce results which can be of direct comparative interest. However, the demo PSIA also shows that concentrating excessively on a simple indicator, such as the poverty headcount, can distract attention from understanding the impact on poverty processes, which is essential for understanding how to design public intervention.

248. The problem of accumulating experience can be reduced if PSIA is co-ordinated by one institution mandated to do integrated policy advice rather than dependent on fragmented independent consultancy. This institution should be required to undertake review analysis of the accumulated effect of different PSIAs (e.g. in an Annual Report or as part of an Annual Budget Commentary). The process of consultation in PSIA also minimises this problem of accumulation. Advocacy groups (in a way that is sometimes difficult for a researcher) typically see issues contextually. In this case, for example, unions were quick to relate the price of transport to recent negotiations over the level of the minimum wage.

249. **Monitoring and Analysis.** INE is responsible for and capable of conducting regular surveys (Census, IAF, QUIBB), which provide a statistical data base for poverty monitoring and analysis. Qualitatively oriented university research centres such as the Centre for Population Studies (CEP) and Centre for Africa Studies (CEA) have produced many rich and historically grounded case-studies, but it is difficult to weave the detail into larger aggregate patterns. Institutionalised PSIA should lead to the production of focussed issue studies that integrate these approaches and also make better use of existing sources of data than is currently done. The methodology worked out by Simler and Nhate (*op cit.*) for using census data to enlarge the sampling basis of the IAF is a particularly good example of the latter. The new participatory poverty assessment (PPA) produced by MPF is a good example of beginning to link qualitative analysis to issues raised in quantitative studies.

250. There is a need to integrate PSIA analysis with the monitoring of programmes and sectoral plans included in the PARPA. This should take place as part of the routine budget operations undertaken by MPF and appropriate line ministries. Sectoral PSIA studies should be included as part of the sectoral study programme managed by line ministries. However, they may be implemented by independent institutions, which should also collaborate with the line ministries in determining priorities for study. In most cases, cross-sectoral programmes (such as those involved in the environment and women's opportunities) have special institutions to influence resource allocation (and sometimes to manage their own spending budgets). These institutions should also be involved in monitoring cross-sectoral impact. However, in view of the breadth of poverty reduction, as an over-arching cross-sectoral programme, no one institution has responsibility for this, and the monitoring therefore requires a broader and more complex solutions.

251. The PARPA includes a monitoring matrix which feeds an Annual Report on Impact (RAI). This provides a framework within which to compile regular monitoring information (such as that provided by the QUIBBs). However, experience with impact evaluation suggests that simple indicators provide only a very rudimentary picture of real impact, given the range of factors influencing these indicators, and do not normally reveal the processes behind this impact or lead to clear conclusions and recommendations about improving policy and programmes. In practice, there is no substitute for detailed impact evaluation, which aims to pick up the subtleties of institutional performance and social engagement. Early experience in using the matrix confirms this view.

252. **Training.** PSIA activities provide an ideal opportunity for developing the applied skills of young researchers. Much of the analysis undertaken uses the academic skills whilst at the same time requiring a very focused application of these skills. As a result, PSIA provides young researchers with insights into the practical implementation of applied analysis, whilst also offering researchers opportunities to develop skills in study management. The wide-ranging scope of PSIA work also provides researchers with excellent opportunities for developing experience of the functions of different institutions and for networking in these institutions.

253. Presently, however, there are limitations to the possibility of training through internship in consultancy. Time deadlines mean that younger researchers are not always involved in final drafting of reports. The quality of the report is controlled by the funder, who is not responsible for the kind of didactic criticism needed for skill development through practice.

254. It is sometimes claimed that training in quantitative analysis is more advanced than is that in qualitative analysis. This is to some extent true, but mainly because quantitative researchers are using standardised international survey methodologies. In order to develop analytical approaches to particular PSIA issues, quantitatively oriented researchers need to enhance their theoretical understanding in order to make sure that quantitative analysis and data collection addresses useful issues. Qualitative researchers, for their part, need to improve their ability to test theory with observation. Both groups could profit from receiving training in exploratory data analysis, which is particularly suitable to PSIA.

255. **Documentation: collection and consultation.** The approach used by CEP in building district profiles, and by the MPF in its provincial poverty profiles, is to build basic documentation that can be consulted by people working in particular areas. This approach corresponds to the needs, for example of NGOs working on specific projects, or local governments and organisations. One difficulty of this approach is that, thus far, there is no common network for collecting, storing and consulting documentation. Web-based systems would allow this to be done and facilitate provincial consultation. There is a proposal from the private firm Pandora to set up a web-based information sharing system. The work of the Universidade Eduardo Mondlane (UEM) on setting up rural teledata centres provides a model for possible access. There are advantages in having a physical documentation centre, similar to that operated by the CEA, open for consultation by poverty researchers. The recent PARPA Monitoring and Evaluation Study (IDS and T&B Consult, 2002) raised the importance of improving access to documentation and statistics.

256. **Dissemination.** The advocacy organisations we interviewed appreciated the fact that they were able to acquire statistical information and reports at the MPF, but observed that most reports were still not accessible to them, in content or in style. Nor do journalists make much use of PSIA relevant information in their reporting on economic and social issues. A PSIA institution needs analysts capable of simplifying information without losing analytical content and presenting it in accessible ways.

257. There are examples of this kind of approach on which to build in Mozambique: the provincial poverty profiles, illustrative use of social and economic maps in MPF publications; the MA's short bulletins on agricultural issues; and the CEA series of short bulletins on its civil society project.

9.5 EXISTING CAPACITIES

258. **Skills Base.** The most scarce resources for future PSIA work are the economics and research management skills of local experts. At present, there are fewer than 10 Mozambicans who could coordinate a sustained programme of PSIA. Several of these are located in MPF, and are strongly engaged in operational and planning issues. Several more are located at the University, where they are playing a vital role in maintaining the supply of young economists. Several more are operating as independent consultants, where they are vulnerable to the vagaries of this market. Finally, a number are currently working with international organisations.

259. **Institutions.** There is capacity for contributions to PSIA analysis scattered through Mozambican institutions, both governmental and non-governmental. This is particularly true if the wider social development understanding of poverty is considered.

260. Within government, there is a PARPA unit in the DNPO where analysis of sectoral issues is related to household poverty. INE has carried out the 1996-97 household survey, the additional QUIBB income module in 2000, a demographic and health survey in 1996, an adolescent reproductive health survey in 2001. In addition the ministries of health and agriculture have carried out both surveys and studies related to poverty issues.

261. In the University, the direction of poverty oriented work is principally qualitative. The CEP has carried out qualitative studies on poverty, and the CEA currently has research projects on HIV/AIDS and livelihoods.

262. There are many NGOs and consultancy firms that have carried out studies related to poverty issues. For example, the study financed by ETICA, and carried out by Afrisurvey, on corruption in rural and urban areas specifically relates to corruption and poverty and has engaged attention for doing so. Also, the Debt Group, LINK and Action Aid are all active in monitoring and researching the effects of PARPA. Much of this work is based on short-term consultancy rather than extended research, which is needed to provide a more robust basis for micro-studies.

263. Much of the analysis relevant to PSIA is now (and probably will continue to be) carried out by private consultants, sometimes linked to university institutions. Knowledge of this work and improvement in its quality would be enhanced if a system of peer review could be organised by the poverty observatory and financed by those donors who commission consultancy.

264. What is currently most lacking in relation to PSIA is a capacity to link together various sector approaches to poverty in an overall macroeconomic framework of analysis. The Harvard project in the Gabinete de Estudos (GdE) of the MF did not institutionalise such a capacity. Work was done on a CGE, but there is no one trained to work with it in the ministry. There are currently proposals to set up a poverty monitoring process with International Food Policy Research Institute (IFPRI) assistance in combining micro-analysis with a CGE (Merissa).

265. **Training Requirements.** Different kinds of training are needed for PSIA—that for graduate researchers working in universities, in ministries or in private consultancies and that for advocacy groups involved in the process of participative consultation and interested in developing lobbying positions.

266. Given the discipline-based university training of Mozambican researchers, capacity to integrate social and economic analysis is not developed (though the economics curriculum at UEM is broader than that at many universities). Short professional training courses in integrated analysis would be appropriate for most researchers. Such training can be particularly effective for analysts working in a single institution dedicated to applied policy analysis.

267. Advocacy organisations usually have some kind of research section, but the researchers do not generally have university training. Further, a problem cited in interviews with SINTRAT, Forum Mulher and the National Peasants Union, is the difficulty in involving provincial branches in the consultation process. Short-training seminars were specifically criticised for pretentious claims to training success. Long-term activist internships were suggested as one possible form of training. Presumably provincial governments have similar training needs. A PSIA institution should involve university capacity in and outside Maputo in this training.

268. Table 9.1 summarises the institutions involved in the key PSIA tasks.

TABLE 9.1 TASKS AND INSTITUTIONS

Task	Institutions
Budget & MTEF preparation	MPF – DNPO
Macroconsistency framework	MPF – DNPO
Policy reform & IFI negotiation	MPF
Cross-sectoral programming	MPF – DNPO
Programme and sector monitoring	MPF – DNPO & line ministries
Applied analysis of economic impact on poverty	?
CGE	Universities
Entrepreneurial growth	Private groups, Chamber of Commerce
Literature and resource centre	Universities & Institutes
Theoretical developments	Universities
On-the-job training	All institutions
Formal training	Universities

269. This table raises a number of issues that must be confronted in developing proposals for the institutionalisation of PSIA in Mozambique. First, the MPF both requires and has capacity for macroeconomic policy analysis in areas of relevance to poverty

analysis but which extend beyond it. These demand technical skills that poverty analysis does not need and do not require the kind of qualitative analysis that PSIA demands. Second, there is currently ambiguity as to where the specific kind of applied analysis that looks at the poverty implications of economic policy should be located. This analysis will have to be interdisciplinary. The following section reviews various alternatives that respond to the dilemma of how PSIA can best be institutionalised in Mozambique.

9.6 INSTITUTIONAL OPTIONS FOR PSIA IMPLEMENTATION

270. This section presents a range of institutional options for managing future PSIA work. Each option has some level of support from government and the international community for undertaking PSIA-related work. But this support is too disparate and government and donors should consider consolidating this work within a new institution.

271. ***Independent Consultancies.*** Without institutional initiatives, the 'default' option would be for donors to fund a series of PSIAs done by independent consultancy studies²⁹. However, the nature of PSIA requires continuity and comparability in these studies. This could be maintained through informal collaboration between MPF and donors, with some involvement from key people at the University. However, experience in the past suggests that it is difficult to maintain continuity, especially as donors have independent and occasionally erratic funding cycles. Furthermore, there is a tendency for independent donor-funded studies to start from scratch, with new approaches and a relatively modest scale, which makes the accumulation of experience rather difficult.

272. The importance of multidisciplinary collaboration is unusually strong for PSIA. Whilst individual studies can bring together different professions quite productively, this is done on a personal basis and there is little accumulation or feedback into these different professions.

273. ***Institution within Government.*** The GdE provides a research resource within MPF, whilst the DNPO has had a series of units involved in analysing poverty. These institutions have had various forms of international support and have been responsible for much of the existing poverty analysis. They have made strong contributions to the preparation of key policy documents, such as the PARPA, the MTEF and the Fiscal Sustainability Analysis. They have also been involved in background policy research and produced useful documentation. There are plans to continue supporting the GdE with donor resources³⁰.

274. There are a number of concerns about relying on these groups within MPF to be responsible for PSIA, although they must clearly be involved in applying PSIA in policy monitoring. These groups are heavily engaged with more operational tasks, including the background analysis for the budget, the MTEF and IFI negotiations. They will also play an important role in the increased routine monitoring of PARPA. Thus, it can be difficult for officials to find the time and to adjust work practices to do more research-style approach to analysis. Whilst past experience shows that this can be achieved within government, it also shows that it is dependent on external resources, which have been lumpy. There may also be some concern about possible institutional rivalry in future,

²⁹ One example of an approach which relies on a series of independent studies is the small research scheme funded by DANIDA.

³⁰ A programme jointly funded by NORAD, SDC and DfID, and implemented by IFPRI, will start in the autumn with the arrival of a senior economist to be resident adviser at the GdE.

although this has been avoided to date, largely through the positive relationships between key individuals.

275. **Economics Cadre.** A recent review of support to the GdE (Harris 2002) expressed concern about the lack of capacity-building and limited integration with the policy debate. Harris concludes that future support should be within the framework of an Economics Cadre, through which economists across government would be recruited. This is an arrangement which used to apply in the UK civil service and has been applied in various other African countries at different times. The main advantage of this proposal is that a coordinated programme of capacity building can be organised with maximum effectiveness³¹. However, experience in other countries (including the UK) suggests that an Economics Cadre can result in economists being marginalised from key decision-making (notably in budgeting) in line ministries. Whilst some form of economics cadre may have some role in general economic training in government, it would not be central to plans to strengthen PSIA work.

276. **University Centre.** The existing centres in the University already undertake some poverty-related research work³². Most of this research is undertaken from an academic perspective, driven by the objective of improving understanding of poverty. Whilst it may have some incidental policy value, this is not (nor should it be) the main objective of such academic research. Very little of the ongoing University work refers to the PARPA, and sets out explicitly to influence the PARPA. The academic character of ongoing University research reflects both the natural institutional orientation of the University and the professional inclinations and habits of the individuals concerned. This character of University work is not something which can be easily changed, even if this were felt to be desirable.

277. A comprehensive proposal has been prepared for the establishment of a Centre for Applied Economic Research, attached to the Faculty of Economics at UEM. Various versions of this have been submitted recently to the ACBF. This proposal provides an excellent basis for future progress. The proposal makes it clear that the University is committed to establishing Centres which are effectively independent. However, experience with other centres at UEM suggests that it is not always so easy in practice to maintain effective operational independence. The ACBF is not currently moving ahead with the UEM proposal, because of concerns about operational independence.

278. **Independent Coordinating Body.** The recent Introductory Note on Monitoring and Evaluation Systems for the PARPA (MPF 2001) proposed an 'Observatory' for monitoring poverty and the PARPA. This would have representatives from various government and non-government bodies and would act as a coordinating forum to feed information to the Economic Counsel, the Counsel of Ministers and the Assembly. It would not undertake its own analytical work, but would rely on the MPF, line ministries, Provincial Governments, Universities and others to provide the analytical basis. The recent PARPA Monitoring and Evaluation Study (IDS and T&G Consult) does not question the validity of this institution.

³¹ There may also be advantages in facilitating special employment conditions, although it is unlikely that large pay differentials could be allowed when government is committed to fiscal constraint.

³² For example: CEP have done a Participatory Poverty Assessment and some research on the poverty impact of donor support to agriculture in Tete; the Economics Faculty have done descriptive analysis of the distribution of poverty; CEA have done research into social exclusion in extreme poverty; the Centro de Formacao de Juristas has evaluated the National Feeder Roads employment-generation programme, with a gender perspective, and has done a study on abuse of rights of the elderly; and Forum Mulher has commissioned gender research from grassroots member organisations.

However, it does point out the size and complexity of the task, and there is an implicit suggestion that such a body would require more resources than originally planned, if it is to bring together all the skills necessary to analyse policy impact in a thorough and useful manner. Whilst the proposed Observatory would be a step in the right direction, there is a serious risk that it would be ineffective in building a body of PSIA work, unless it had its own analytical capacity, which would provide it with substantial professional authority.

279. **A Coordinating Institution.** There are many models for economic research institutions in Southern and Eastern Africa. In Botswana and Namibia, independent institutions have been established with Governing Bodies and strong core funding from ACBF. In Eastern Africa, there are several examples which are more dependent on the initiative and status of leading economists. There can be no doubt that an independent institution located in between MPF, the University, civil society and the private sector provides an excellent model. Independence can be maintained largely because the weight of professional resources is sufficient to defend the work. Equally important, such an institution can maintain a balance between applied policy, theoretical and operational interests.

280. Such a Centre is an expensive option, particularly in terms of the use of scarce local economics skills, and the main judgement to make is whether the extra benefits justify the additional costs. However, most of the external resources for such a centre would be incremental to existing support, either through ACBF or through various programmes of bilateral NGO support. Furthermore, experience in other countries suggests that such Centres attract additional skills from outside the country, often including highly effective African economists. Because of the nature of the institution, such skills can be fully integrated into a local institution and are often available on a long term basis. As a result, such an institution could be established by drawing on one of the most senior economists in the country, plus one or two slightly less experienced researchers and some local people with management and administrative skills.

281. **Strategic Guidance.** Because of the wide institutional demand for PSIA, and the breadth of experience required to implement it, it will be necessary to have some form of guiding body, regardless of the arrangement for implementing research. This is likely to include representatives from a range of bodies.

282. From within government, the guiding body must certainly include the MPF and, as the main user, it seems wise that MPF should be the chairing institution. The guiding body may also need to include the Conselho Económico and the Assembleia, to link with debate on budget proposals and on longer-term underlying political trends.

283. Within civil society, there are a number of groups which have an interest in PSIA and could help to provide strategic guidance: firstly, the University has interest in ensuring that the analysis reflects the latest theoretical thinking; secondly, private enterprise has an interest in understanding the analysis which is informing government decisions; thirdly, advocacy organisations will want to ensure that their concerns are represented (and this may also extend to methods of democratising applied research by involving poor people more directly in policy analysis); and, finally, the press has an interest in using the results of PSIA to inform public opinion. All these bodies need some degree of involvement in PSIA guidance.

284. Donors will also be interested to be involved in providing guidance for PSIA work: donor funds contribute a substantial proportion of incremental government spending, and they are required to monitor independently the use of their funds. In practice, donors may be satisfied with a relatively remote supervision, leaving routine guidance to national sources, but relying on the influence gained from their funding to ensure that core principles of transparency, competence and relevance are maintained.

9.7 INSTITUTIONAL RECOMMENDATIONS

285. The section above reviews the advantages and disadvantages of a variety of institutional options for managing PSIA in the future: the Observatory is under active planning and preparation; the proposal for the University Centre is being refined to be resubmitted to ACBF; donors are supporting the GdE in MPF as well as the activities of DNPO; and at least one donor is making available small research grants for independent research. The various options have a history of support and a range of proponents and opponents. For the past five years, the debate has drifted on, with various initiatives being pursued, often in parallel.

286. There are advantages to be gained from involving a number of different institutions in related tasks. And the current plans would produce some progress in generating clear applied policy analysis. However, it is difficult to see a strong comparative body of PSIA analysis emerging rapidly and efficiently from the current proposals. To achieve this would require a significant boost to provide institutional continuity.

287. The lessons from this study support the conclusion that PSIA should take place in the space between government, academia and civil society.

- Close working relations were maintained with government throughout the study: clear and constructive orientation was provided by government in selecting the research topic; access to information and statistics was excellent; and there was no interference in the conclusions of the study. This reflects the current commitment to open-ness in the Mozambique administration, as well as the intimate knowledge of the statistics of one of the team members. Members of government have expressed personal opinions, both in discussions and during the workshop, many of which raised concern over the preliminary conclusions. However, the government has not sought to veto results or express any official approval of the study.
- The study has also benefited from the close involvement of two of its team members in the activities of the University, which has ensured that the study incorporates some of the latest thinking in the University. The active involvement of academia is important, if the latest theoretical developments in understanding poverty processes are to be incorporated into future PSIA.
- Some links were also made with civil societies, but stronger links could have benefited the study.

288. It is important to involve each of the above institutions. There are risks that giving the leadership on PSIA work to any one of the institutions would result in a bias towards the particular outlook of the institution, at the expense of well-balanced PSIA. In some countries, it may be necessary to use existing institutions, either because of a shortage of skills, or because of the particular institutional history of the country. And care should

always be taken before suggesting the creation of a new institution. However, in Mozambique there are sufficient skills to justify considering establishing a modest new institution which combines the various outlooks of the key partners. The main purpose of creating such an institution would be to create an approach which combines the applied interests of government with the theoretical preoccupations of academia and the social concerns of civil society. This institution would also be able to maintain independence, although this would not be the main reasons for its establishment. In Mozambique, there is a strong culture of informed policy debate, which would create a demand for good quality PSIA work and there are good models for such institutions in other countries in Southern and Eastern Africa. It seems likely that a professional staff of perhaps 10 would be required, with varying levels of experience. These should include Africans and other international experts. There should be a strong core capacity in applied economics, but also some wider capacity in social sciences.

289. Such a proposal would avoid many of the problems identified in our review of the various alternatives: competing demands on time if the institutional were located within the MPF, an insufficiently interdisciplinary orientation if PSIA were a mandate of an Economics Cadre, bureaucratic inflexibility if PSIA were located within one university, inadequate consistency, quality and training if it were to depend on *ad hoc* consultancy or even on a loose co-ordinating body, and possible distrust of a purely governmental institution on the part of civil society groups.

290. This new institution could be seen as performing a Secretariat role for the proposed Poverty Observatory. The institution should be guided by a Governing Body chaired by the Minister of Finance, with representatives from the University and civil society. However, it should retain operational independence in the management of work programmes and in all operational matters. It should not have exclusive rights to work on PSIA, but would be expected to undertake the majority of this work.

291. In addition to its analytical work, the institution should provide important training, documentation and dissemination functions.

292. As part of the preparatory process, a two day workshop should be convened in Maputo, to invite the directors of the various similar institutions in Southern Africa. This workshop should involve brief presentations of the constitutional and management structures of each institution, followed by working sessions with the objective of agreeing the critical mass required for a new Mozambican institution, plus any guidelines which can be provided on the structure to apply.

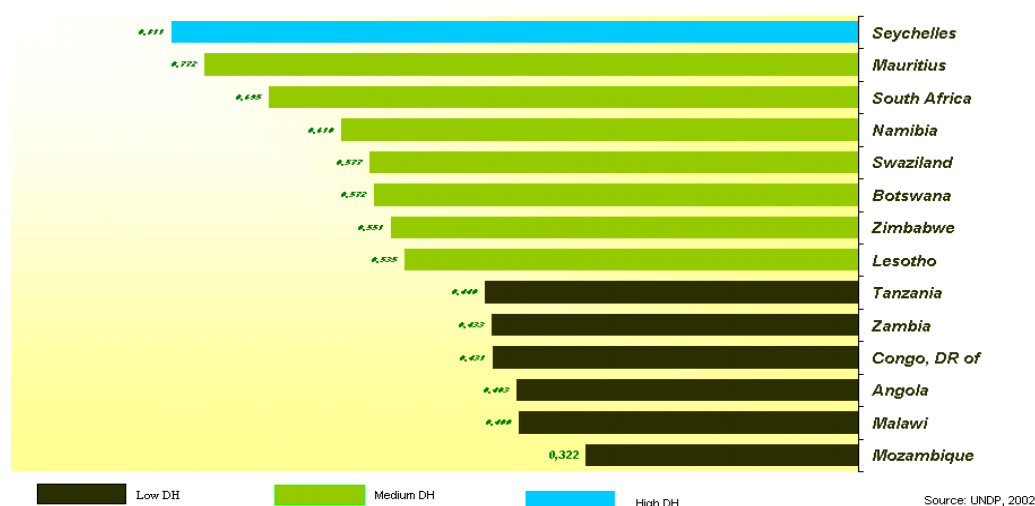
Annexes

Annex 1 National Background

HISTORICAL PERSPECTIVE

Mozambique is one of the world's poorest countries. GNP per capita has averaged US\$167 since 1990, less than one third of the average for Sub-Saharan Africa in the same period. In the past three decades Mozambican population almost doubled, from 9.4 million in 1970 to about 17 million in 2000. In turn, total consumption per capita declined from an average of US\$300 per annum in the period 1975–84 to US\$187 in the 1990s. Gross domestic savings as a percentage of GDP were –10.4% from 1975–84 and –6.6% in the 1990s.³³

FIGURE A ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT..1 MOZAMBIQUE'S HUMAN DEVELOPMENT INDEX 2000

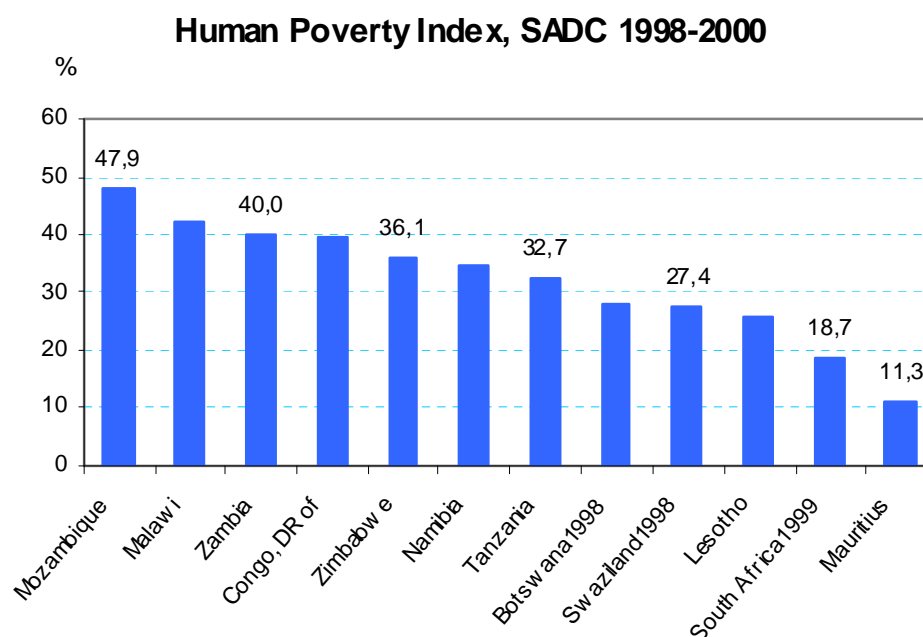


Mozambique's ranking in UNDP's human development index is one of the lowest in the world—indeed, the lowest of all the countries of Southern Africa—due both to its low per capita income and its poor social indicators. In 2000, the life expectancy at birth in Mozambique was estimated to be 39.2 years, against 48.7 years in Sub-Saharan Africa. In the same year, the adult literacy rate in Mozambique was 44.0%, against 61.5% in Sub-Saharan Africa.³⁴ Further important evidence on the weak human development of Mozambique, compared with other Southern African Development Community (SADC) countries, is shown by the poverty indicators. The human poverty index (HPI-1) in Mozambique was 47.9% in 2000, the highest in the SADC region.

³³ World Bank, African Development Indicators 2001, Washington 2001.

³⁴ UNDP, Human Development Report 2001, New York, 2001; World Bank, World Development Report 2002, New York, 2002.

FIGURE A ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT..2 MOZAMBIQUE'S HUMAN POVERTY INDEX 2000



Source: UNDP, 2000, 2001, 2002

The disastrous economic conditions which characterised the Mozambican economy during the war encouraged the new government to commit the country to an extended period of macroeconomic orthodoxy. These policies, combined with strong international support, led to rapid growth in GDP, which reached an average of 10% in the late 1990s. However, the combination of central planning and civil war left the country's institutions and infrastructure in a severely eroded state. As a result, the government continues to face serious challenges in building state institutions, and there are still major problems in the financial sector. Public revenues have been low, by regional standards, and the country is highly dependent on international support. In recent years, there have been some marked improvements in revenue and some major efforts at institutional reform have been introduced.

Demographic Background

Mozambique is traditionally viewed as a country with relatively low population densities and very high levels of fertility and population growth. Mozambique has a population of about 16.5 million, which is expected to rise to nearly 20 million by 2005, before taking account of the possible impact of AIDS. Map 1 shows the distribution of this population, with about 45% of people living in the Central Region.

AIDS is expected to reduce this population growth by about 1.3 million, over two-thirds of which will be in the Central Region. Life expectancy without AIDS was expected to grow from about 42 years in 1997

POPULATION DISTRIBUTION



Source: Antonio Francisco

to 46 in 2005. However, AIDS may now reduce life expectancy to 37 years by 2005 (INE et al., 2002).

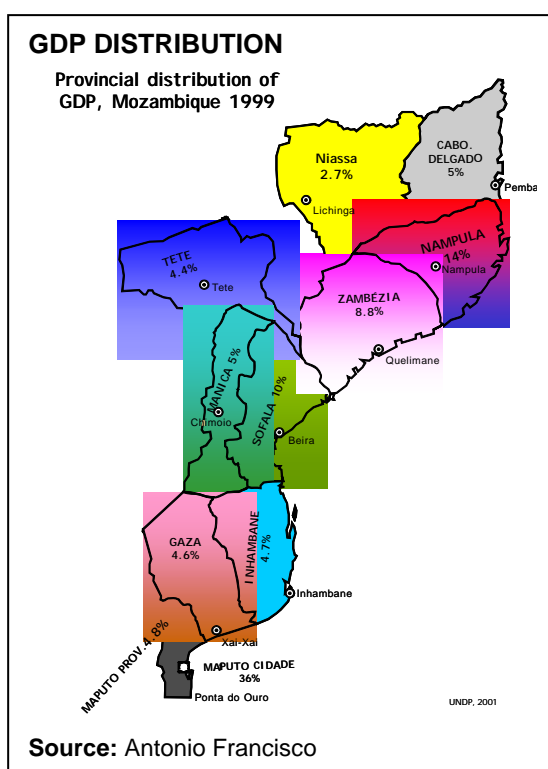
Although fertility is expected to decline from 5.9 children per woman to 5.3 by 2005, Mozambique still has a very young population. Most households have very high dependency ratios, with consequences for the incomes of households, as well as for health, education and other public services. Although it is normal to assume that HIV/AIDS will exacerbate dependency ratios, according to Arndt (2002), the massive orphaning and attendant social problems that are projected to occur due to the HIV/AIDS pandemic may lead to an improvement, rather than a worsening, of the overall dependency ratio.

Macroeconomic Performance

Output. Economic performance since the resolution of the war is generally viewed as being positive. GDP growth has been high, often reaching 10%. Several 'mega projects' have influenced GDP, but the rest of the economy has also grown strongly. The setback created by the floods has been overcome and the country appears to have returned to high growth.

Balance of Payments. The current balance of payments has a substantial deficit, partly as a result of major foreign investment activity. However, the external deficit is fully financed and pressure on the Metical has eased.

Public Finance. The PRGF has a target primary fiscal deficit of 6.2%, which has been largely met. Public expenditure is still relatively low, and dependent on international assistance. However, domestic revenue has been rising steadily, and various programmes are in place to reform revenues and sustain this rise.



Mozambique has received three major loans from the IMF: an ESAF of SDR 115m disbursed between 1990 and 1995; a second ESAF of SDR 76m, disbursed from 1996 to 1999; and the current PRGF approved in 1999, which is due to expire in June 2002, but may be extended for a year, following a review in June. The PARPA serves as a PRSP for the PRGF. In general, the PRGF has been proceeding smoothly and key economic criteria have been met. The country also has a number of large WB sector loans.

Debt Relief. Mozambique reached the completion point of an original HIPC agreement in 1999 and an enhanced initiative in September 2001. The net impact of these agreements was to reduce the net present value (NPV) of debt by 72%, worth more than US\$2,000 million. The table below shows the effect of relief is to reduce debt service and repayment costs from around 13% of GDP (excluding the clearance of arrears) to less than 1% of GDP.

TABLE A ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT..1 SERVICING THE DEBT STOCK FROM 1998 AND THE EFFECT OF DEBT RELIEF

	1998	1999	2000	2001	2002	2003	2004	2005
Debt service without relief								
Interest	150	162	161	146	132	118	105	93
Loan repayment	211	201	307	306	319	326	287	245
Clearing arrears	20	762						
Total	382	1,124	467	452	451	445	392	338
as % GDP	9.6%	27.4%	12.2%	13.6%	12.7%	11.2%	8.8%	7.0%
Effect of relief								
Combined relief (Paris & HIPC)	261	1,044	449	424	411	405	355	298
Debt service after relief	121	80	18	28	40	40	37	40
as % GDP	3.0%	1.9%	0.5%	0.8%	1.1%	1.0%	0.8%	0.8%

Source: BoP for 1998 & 1999, IMF staff projections

	1998	1999	2000	2001	2002	2003	2004	2005
Interest (without relief)	150	162	161	146	132	118	105	93
Loan repayment (without relief)	211	201	307	306	319	326	287	245
Clearing arrears	20	762						
Relief	261	1,044	449	424	411	405	355	298
Net interest and repayment	121	80	18	28	40	40	37	40
as % GDP	3.0%	1.9%	0.5%	0.8%	1.1%	1.0%	0.8%	0.8%

Source: BoP for 1998 & 1999, IMF staff projections

Inflation has been reduced from about 50% in the mid 1990s to less than 10% in 2001. Money supply growth has declined from 42% to 19% from 2000 to 2001.

Economic Strategy

Economic strategy has been guided by the objective of poverty reduction. This has involved the integration of poverty strategy with annual and medium term budgets, supported by a fiscal sustainability analysis.

The first formal Poverty Reduction Strategy was produced in 1995. The National Household Survey of Living Conditions (IAF), produced in 1996–97, followed by the Census, a Demographic and Health Survey and a Participatory Poverty Assessment. This provided the basis for a more substantial first National Poverty Assessment in 1998, followed by Action Guidelines for the Eradication of Absolute Poverty, published in April 1999. The first PARPA, applying to the period 2000–04 was produced in December 1999. This was followed by an elaborated version in 2000. The PARPA provides the overarching statement of national economic strategy.

The PARPA has received some criticism for lacking a clear growth strategy. However, it is clear on the implications for public expenditure, both in terms of fiscal sustainability and expenditure priorities. The plans for fiscal sustainability envisage a primary deficit³⁵ declining from 8.1% of GDP in 2001 to 1.4% in 2010. The projections assume debt service with enhanced HIPC conditions and this creates a very different starting point for public expenditure planning. The reduction in the primary deficit is achieved largely through increased domestic revenue (from 12.4% to 16.7% of GDP).

The PARPA included a wide process of consultation inside and outside government, which has helped to build ownership and refine content. The interim PARPA process had limited consultation with government and donors. In the PARPA itself, the consultation was a wider process including representatives of various civil society groups and NGOs,

³⁵ Defined as the overall deficit less loans and interest payments.

each of which has its own particular area of interest and sometimes of vision. Comments reviewed thus far mainly raised sectoral and primarily evaluative commentary, without presentation of organised evidence. Evaluations made of the process thus far show that parts of the consultation process, such as the seminar, were useful, but that there was simply not enough time for organisations to study the documents closely and develop their own positions.

There are some groups, such as the Mozambique Debt Group and the Independent Unions, that have macroeconomic policy monitoring groups and others, such as the private sector associations, that follow economic policy closely. The Parliament has taken an active interest in the PARPA and budget process, but there does not appear to be much involvement in broader macroeconomic issues, or PSIA, amongst parliamentary groups or party units. There is a capacity among journalists to do some of this kind of monitoring in a way that could inform public debate, but the process was brutally dampened by the murder of the editor of the *Metical*.

Annex 2 History of Past Poverty Analysis

All governments have the issues of poverty reduction, well-being, economic growth and income distribution explicitly or implicitly incorporated into their core social and economic developmental goals and plans. In Mozambique, this is true in today's constitutional multi-party democracy, just as it was before the 1990s under the one legal political party regime, or in the decade before independence in 1975 under the Portuguese colonial regime.

Behind the rhetoric of the political and economic discourses of each period lie different assumptions about the depths and causes of poverty and about the best methods for its reduction and eradication. A long-term consideration of what has been achieved in reducing poverty in each period provides an assessment of the validity and realism of the prevailing assumptions and strategies adopted, as well as the severity of the challenge in each period. None of the periods was dominated by a single or monolithic approach on poverty. However, in all of them one can identify a dominant assumption about poverty in the official discourse of the Government.

The Colonial Regime. In the last decade of colonial rule, the Portuguese Government departed from the old Salazarian belief that infrastructural improvement brought opportunity for natural development, and replaced it with a more urgent concern for politically oriented projects. That change was motivated by the onset of decolonisation in Africa, and Portugal was facing an open challenge from an increasing number of nationalists and democrats to give up its empire. For this reason, Portuguese development plans, since the late 1950s, began to allocate substantial funds for scientific studies of geology, soils and cartography, together with an investigation of the nutrition, education and economic productivity of the African population. The plans became also concerned with developing the massive irrigated farming settlements, transport infrastructures, and for the first time the Second Plan (1956–73) established a programme for health and education. The project for the Fourth Plan (1973–79) established as the core objective for social and economic development “the valorisation of the land and dignification of people” (Newitt, 1995: 462–463; Presidência do Conselho, 1973: 95).

In spite of these last-minute attempts to introduce changes, the Portuguese administration was unable to overcome the demagoguery of the official political discourse. Overall, the Portuguese administration attributed poverty in Mozambique to the backwardness, ignorance, or even laziness and inability of the black population to produce on its own. So, from such a perspective the inevitable recipe for poverty reduction was a gradual, slow and long process of assimilation and modernisation by Western civilization, but always under the Portuguese empire.

This view and, above all, the refusal of Portugal to consider self-determination and independence for Mozambique led to the emergence of a rather radical liberation movement, called Frelimo, eagerly determined to seize power and try to end socio-economic as well as political oppression and the traditional, feudal and colonial-capitalist social relations.

Post-independence One Party Regime. The Portuguese colonial domination had two opposite effects on poverty: on the one hand, the colonial power siphoned off huge resources to its home country; whilst, on the other hand, in order to facilitate this resource transfer, the Portuguese laid substantial infrastructure, including roads,

railways, ports, buildings, communication networks and education and health services. These provided a base for future development and some employment for the Mozambican population. In general, the loss of resources came to dominate the impact on poverty.

The first Mozambican government had an immediate and central concern with poverty. The Mozambican government saw poverty as largely a problem of technological backwardness in peasant agriculture. Their solution was to bring about a radical social revolution, expecting to create a new and developed society free from the ills of the traditional, feudal and colonial-capitalist society. Attention was focused on poverty reduction through growth and improving social indicators, by expanding health and education and improving rural water access.

However, the experience of newly independent Mozambique was problematic for several reasons: a deep economic recession immediately after independence; the massive exodus of white settlers and skilled black and Indian workers and professionals; the nationalisation of land, health, education and housing; the declining cash incomes from migrant workers laid off by South Africa; the collapse of Mozambique's service industries (such as tourism and construction) with its large employment of domestic labour; and the increasing lack of foreign exchange. At the beginning of the 1980s Mozambican society was about to suffer a renewed disintegration (Newitt 1995).

These social and economic aspects were exacerbated by the political and military conflicts with the neighbouring former white-ruled regimes in Zimbabwe and South Africa and the rise of the politico-military opposition of Renamo. The effects of seasons of drought added to the destruction of the economy, which the administratively planned economy, the policies of peasantry communalisation and the priority given for the state farm type of production failed to reverse.

After the deep recession that followed independence, the numbers for production and income per head seemed encouraging. However, they were soon revealed to be rather misleading. Economic growth in the first decade of independence reflected more appearance than reality, for it stood on economically unfeasible and unhealthy market mechanisms, as well as massive and uneconomic inputs of investment. In the particular case of rural areas, several researchers found that "Frelimo wholly neglected the peasant family sector, believing that it would in time be fully absorbed into the system of cooperatives and state enterprises" (Newitt 1995, Wuyts 1985, Geffray 1991). In this period, analysts could not accept a deterioration in poverty incidence and depth in the country.

The Multi-party Regime. Reform measures under ESAF were introduced gradually, reflecting the political and economic context of war. Devaluation was done in steps. State farms were privatised and laid off large numbers of workers, but many of them had not been receiving wages. Urban subsidised food rationing was ended and prices liberalised, but poverty effects were partially mitigated by ample credit for consumer goods imports that undercut parallel market prices. As liberalisation and privatisation quickened, income differentiation widened, urban unemployment increased and the real wages of the lowest paid workers fell. Terms of trade generally improved for agricultural producers.

Understanding of the causes of poverty changed, with greater responsibility assigned to errors of government policy and the effects of prolonged war. After the first ESAP in 1987, was there more specific concern with identifying the poor and estimating the extent of poverty.

In the conditions of war, it was impossible, however, to carry out extensive survey research. The first reliable national household survey was carried out in 1996–97, when most displaced and refugee populations had returned to rural areas. The survey focussed principally on income and consumption, though it also includes some social indicators. The IAF 1996–97 survey showed that almost 70% of the population lived below the absolute poverty line, most of them residing in rural areas. It also showed that poverty as measured by income or consumption indicators was higher than if measured by social indicators. Although these indicators express different concepts, the analysis suggests that, compared with international norms, the Mozambican poor have greater problems with income than with social services.

Since the first economic liberalisation policies were implemented by the Mozambican Government, as far back as May 1985, the analysis of intended and unintended consequences of policy interventions has usually been *ex post*, aiming at fixing unintended or unexpected consequences of policy interventions.³⁶ Over almost two decades of broad and comprehensive economic reforms countless macro, sectoral and micro studies have been undertaken, as part of the close work between the IFIs and Mozambican government, with the objective of continually informing policy dialogue, choice and implementation within the specific objective of containing and reversing economic decline.

³⁶ For example, one of the first *ex post* studies was undertaken two years after the Government decided to deregulate a limited number of commodity prices. The completion of the Report (Francisco et al. 1987), presented to the Mozambican Government and the World Bank by an independent team, was a condition for the release of the Second Rehabilitation Credit to Mozambique by the World Bank.

Annex 3 International Assumptions about Poverty

Approaches towards poverty reduction are currently in flux in the international policy context.

Defining Poverty. There is a movement away from narrow economic or income definitions of poverty to approaches that include the social, environmental and political dimensions of well-being. This is evident in the UNDP's multi-faceted approach to human development, the livelihoods approach of DfID and other bilateral donors, in the World Bank poverty net's 'social capital focus' and in the Organisation for Economic Cooperation and Development (OECD) Development Assistance Committee (DAC) guidelines on poverty, which emphasise the enhancement of 'capabilities', including rights and voice, security, dignity, decent work, health and education as well as better basic consumption and food security.

Economic Causes of Poverty. There is increasing emphasis on responding to pervasive poverty in the poorest countries rather than targeting measures to protect the poorest of the poor. Thus there is renewed consensus on the importance of economic growth for the reduction of poverty.

The international debate on links between poverty and macroeconomics has focused on the links between poverty and three macroeconomic issues: economic growth; structural adjustment; and inflation. The analysis relies on broad comparative studies which examine trends in macroeconomic aggregates and indicators of the depth of reforms. Whilst these studies can provide a useful basis for occasional stock-taking, it is not surprising that they produce widely varying conclusions, since the available macroeconomic aggregates are not adequate to capture the variation in circumstances between countries at different periods in their histories.

A recent review by Agenor (2002) suggested that the relationship between growth and poverty is complex, with varying growth paths resulting in divergent implications for income distribution. Agenor's empirical analysis suggested that economic decline causes increased poverty but did not find that growth reduces poverty. Other studies suggest that growth in countries with high starting income inequality tends not to reduce poverty, suggesting that growth does not reduce income inequality as a general rule.

Several comparative reviews have been undertaken to assess whether structural adjustment has had a positive effect on poverty alleviation. Early studies appeared to be optimistic in supporting the expectation that a greater rural bias would help to reduce poverty. Demery and Squire (1996) found a positive relationship between macroeconomic stability³⁷ and poverty alleviation. However, Easterly (2000) uncovers a more complex relationship in which the poor are less likely to benefit from growth if adjustment programmes are in place, but are also less likely to suffer from economic decline with adjustment³⁸. Easterly speculates that the poor are likely to be less able to take advantage of the opportunities created by adjustment, whilst also being less likely to be affected by the austerity measures required under adjustment. To confirm this hypothesis it would be necessary to examine a number of countries in more detail. For

³⁷ Demery and Squire use the composite index of macroeconomic balance prepared by the WB in 1994.

³⁸ If Easterly had found evidence that adjustment promotes growth, his conclusions would have been rather different. However, he failed to find any such evidence.

the purposes of partial PSIA, Easterly's conclusions are important in suggesting that caution needs to be exercised in relying on expected poverty alleviation effects to justify adjustment measures which are clearly anti-poor.

Various more detailed studies have been undertaken, with varying results. For example, Agenor (2000) found that devaluation was strongly linked with poverty reduction, supporting the expectations proposed in the early days of adjustment that devaluation would dramatically improve incomes for poor farmers.

It is frequently reported that inflation is anti-poor³⁹. Clearly, if prices rise, then all other things being equal, the poor will have a lower purchasing power. However, there are several reasons to question whether inflation is anti-poor at modest levels of inflation, where growth may not be affected. Firstly, the claims often state that the poor do not have assets to protect themselves from inflation; but this does not appear to consider the full range of coping mechanisms used by the poor, many of which are unaffected by inflation. Secondly, the net effect of inflation depends on the reasons for inflation, and whether these generate other effects. If public expenditure can be increased at the expense of moderate levels of inflation, without harming economic growth⁴⁰, then it is likely that poverty will be lower with moderate inflation. The empirical evidence of inflation–poverty links does not provide clear conclusions, with various studies reaching very different conclusions.

With such widely varying empirical results, there has been increasing concern that the type of growth fostered by liberalisation does not necessarily reduce poverty. The recent UNCTAD report *Escaping the Poverty Trap*, for example, criticises the PRSP approach for assuming that openness to global trade and capital flows fosters growth in a situation of generalised poverty.

Some commentators believe that the debate on growth versus poverty reduction is a meaningless debate that diverts attention from the real questions of: what works, how, and under what circumstances? For example, Rodrik (2000) argues that the operational question of interest is not whether growth is good for poverty reduction, or vice versa. These questions tell us nothing of interest as far as policy is concerned. For Rodrik, "The real issue regarding priorities is whether the well-being of the poor should enter as a separate determinant of policy choice, in addition to the usual focus on macroeconomic stability, microeconomic efficiency, and institutional quality". Should economic reform strategies have a poverty focus? Do priorities matter? How much do we know about policy impacts?

Equity. Although the word 'class' remains a taboo in much of the poverty policy literature, there is a renewed concern with equity, both within households and among different socio-economic groups. It is recognised that gendered power relations within the household shape both work and consumption.

Governance. There is consensus that strong, transparent and accountable governments are necessary for the reduction of poverty. This contrasts with the distrust of the developmentalist state and emphasis on cutting back of the role of the state in the 1980s

³⁹ For example, Agenor (2000) claims that the poor are more vulnerable to inflation because: a) they are dependent on income which indexed; b) they have few assets; c) what assets they do have tend to be in cash which loses value with inflation.

⁴⁰ Most reviews find that high inflation damages growth. However, some recent reviews claim that the link between inflation and growth does not exist at inflation rates of less than 10%.

and early 1990s. Decentralisation is still considered important, but not in opposition to strong central institutions.

Consultation. There is consensus that broad-based consultation on strategies for poverty reduction—both within government and with civil society—is crucial. This marked the consultation process around preparation of the *World Development Report* in 2000 and is evident in the emphasis on *partnership* in donor poverty strategy documents (cf. DfID White Paper, SIDA, OECD). For some in the IFIs, consultation is mainly a matter of assuring participation or legitimating of strategies of market reform; for others, however, participation is also a way of bringing alternative visions to the production of better strategies.

Annex 4 Tax Theory

The principal reason governments levy taxes is to raise revenue to provide resources for the provision of various public services, motivated by the wish to promote outcomes such as reduced poverty, maintenance of law and order and higher living standards. Other reasons include redistribution of income and wealth, economic regulation, macroeconomic stabilisation, adjusting for externalities and promotion of special goals.

Taxes are usually assessed according to the criteria of economic neutrality, efficiency, equity, administrability, simplicity, stability, and sufficiency. Among these criteria, tax neutrality appears to play a key role, in that it refers to the influence, or lack of it, that any particular tax measure has on economic behaviour. Tax systems should aim to be neutral, thereby avoiding interfering with the efficiency of the economy. In the particular case of this study, it is important to assess whether a fuel tax increase imposes any distortion on the economy likely to aggravate the incidence or the depth of poverty. The more a tax is perceived to be neutral, the less the identifiable distortions it imposes on the economy.

To achieve tax neutrality, it is generally agreed that a good tax system should rely on a range of different taxes. However, it is also accepted that there are a range of possible reasons for diverging from a purely neutral tax system. However, it is also accepted that there are a range of possible reasons for diverging from a purely neutral tax system. These are summarised in the table below.

TABLE A ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT..1 REASONS TO DIVERGE FROM TAX NEUTRALITY

	Company Tax	Income Taxes	Trade Taxes	Sales/ VAT	Excise Tax	Licences	Property Tax
Income distribution	y	y	?	x	y	y	y
Excessive profits	y						y
Protecting infant industry			y				
Collection efficiency	y		y		y		y
Consumption patterns			y		y		
Environment & externalities					y	y	
Public service efficiency						y	

International comparisons suggest that fuel tax is one of the main sources of revenue in most developing countries and can contribute as much as 30% of domestic revenue. The high share of the fuel tax is largely due to the fact that it is easy tax to collect and most developing countries have few options for raising domestic revenue. Also, significant tax can be collected without creating major incentives for evasion and without creating major social hardship. As countries develop, the scope for broadening the tax base also develops, and fuel tax typically declines to less than 5% of total revenue.

Annex 5 The Household Survey

One of the earliest statistical priorities of economic management after the reforms of the late 1980s was to start obtaining information on households. The first household survey (IAF) was undertaken in 1991 in Maputo City. In 1992–93 the survey was extended to cover the other provincial capitals and included 3,616 households. Surveys in rural areas were not possible until the end of the war in 1994, and planning started for the first national IAF in 1995. Fieldwork was undertaken between February 1996 and April 1997 and involved collecting data on 8289 households, residing in 182 urban areas and 671 rural villages.

The survey followed international conventions for households surveys involving a hierarchy of different questionnaires applied to different proportions of the full sample. Sampling weights were calculated by reference to the Census. The issues covered by the survey include:

- household's location, members and relationships
- individual's age, sex, language, birth location, migration
- individual's illness problems and treatments
- information on fertility, contraception, maternity and child care
- individual's literacy skills, education, occupation and employment
- daily, monthly and quarterly expenditures
- farming land, livestock, equipment, techniques, production
- transfers and income
- housing conditions and household equipment

A final report was produced by INE in December 1998, which presented the main conclusions. The original data has been used in MPF and by research organised at the University, to produce Provincial Profiles.

In common with most household surveys, utilising the IAF is not straightforward. For example, data on expenditure was recorded in three different questionnaires applied to daily expenditure (actually collected over a one-week period), monthly expenditure and quarterly expenditure. Adjustments are required to ensure that the data from these various sources are consistent. For example, expenditure on durable goods needs to be imputed to annual or daily equivalent expenditure. In addition, although there has been extensive cleaning of the data, there are a number of problems which affect small numbers of households (for example, some households reported no consumption of any kind of food, whilst several others reported very high expenditure on a few items, notably chapas).

Because of these issues, and the need to ensure anonymity, dissemination of the original data requires some care. However, selected key variables have been extracted from the files and organised in a spreadsheet format, and these could be made available publicly, subject to INE approval of the format and explanations.

Annex 6 The Social Accounting Matrix (SAM)

The SAM for Mozambique was initially prepared for 1994 and subsequently updated to 1995. It was based on the available macroeconomic statistics, with some additional evidence taken from the partial household surveys in the early 1990s and from case studies and special surveys. After entering the available data, the final balancing was undertaken using a standard algorithm which forces balance with minimum changes to existing data. The SAM has not been updated using the IAF survey.

Many economists in Mozambique have criticised the SAM. It was prepared by a small group of people, with strong involvement from foreigners. The preparation of a SAM is always a delicate activity requiring considerable judgement. It is common for 'outsiders' to the SAM process to pick on specific elements of the SAM, which they feel do not reflect reality. However, critics of the SAM must recognise that any one change involves a range of compensating changes, if the SAM is to remain in balance.

For example, the proportion of costs due to fuel in different sectors is low, compared with figures quoted during discussions. In fishing and transport, the SAM has about 10% of costs from fuel. Discussions with industry representatives suggested that the correct figure could be as high as 50%. However, this could have been overstated because of a natural tendency to concentrate on the short-run financial situation (possibly compounded in some cases by a tendency to overstate fuel dependency in order to press more effectively for lower fuel prices⁴¹). International comparisons for transport and fishing are also relevant, as many of the most important costs are dominated by foreign exchange elements. Bearing in mind these considerations, it might be argued that the share of costs comprising fuel should be increased for fishing and transport to at least 30%.

However, the value of fuel imports in the SAM is already over 2.5% of GDP, which is higher than suggested in the balance of payments (BoP). So increasing the share of fuel in some sectors' costs would need the share to be reduced in other sectors. Furthermore, estimates of transport must be consistent with overall trade margins. In the SAM, trade margins are informed by analysis of producer and consumer prices and therefore include all forms of transport, including bicycle and foot transport.

The explanation for problems with the SAM may relate partly to the level of aggregation. Thus, in the case of transport, this will include private transport, and public air, rail and sea transport, as well as the various different forms of public freight and passenger transport operating in the country. The inevitable temptation to compare aggregate figures with expectations for particular elements (such as the highly visible chapa operations) could cause some of the problems with interpretation of the SAM.

Forward and Backward Linkages

The SAM can be used to calculate forward and backward linkages in the economy, through standard matrix operations. This is done by defining an activity matrix, **A**, which contains the cost shares for each sector.

⁴¹ In some cases, it seems likely that there would have been a greater emphasis on servicing capital costs, if discussions had focussed on possibly changes in the interest rate.

Forward linkages can be used to estimate the knock-on effects of a change in one sector, such as the increase in fuel price. The forward multipliers are presented in Table 4.2 of the main report. Forward linkages are calculated simply by multiplying **A** by sectoral changes. This is done to calculate the knock-on price effects in the economy which are presented in Section 4 of the Draft Report⁴².

Backward linkages provide an indication of how changes in demand might work backwards through the economy. They are therefore useful in estimating how a reduction in demand from reduced purchasing power might be multiplied. Backward linkages are more complex and require some matrix manipulation to derive a matrix of multipliers. Specifically, $(I-A)^{-1}$ gives the backward multipliers, with **I** being the identity matrix. Multipliers can be calculated as partial multipliers, excluding the linkages through households demand, or full linkages, including this link. The following tables present partial and full backward multipliers.

(I-A) ⁻¹ Partial	Agri	Fishing	Mining	Manuf	Fuel	Transport	Services	Public	
Agric / Forestry	1.096	0.038	0.017	0.075	0.007	0.034	0.034	0.075	
Fishing	0.000	1.003	0.002	0.006	0.000	0.003	0.001	0.010	
Mining	0.000	0.001	1.000	0.002	0.000	0.000	0.000	0.000	
Manufacturing	0.040	0.154	0.152	1.171	0.021	0.361	0.098	0.322	
Fuel	0.009	0.101	0.035	0.023	1.005	0.127	0.021	0.057	
Transport	0.041	0.075	0.058	0.074	0.037	1.163	0.173	0.159	
Services	0.217	0.223	0.188	0.288	0.236	0.219	1.104	0.189	
Public	0.011	0.073	0.034	0.041	0.009	0.174	0.043	1.045	
Back linkages	1.414	1.668	1.487	1.679	1.315	2.082	1.473	1.858	
(I-A) ⁻¹ Full	Agri	Fishing	Mining	Manuf	Fuel	Transport	Services	Public	Hhold
Agric / Forestry	1.525	0.348	0.173	0.229	0.053	0.236	0.247	0.389	0.684
Fishing	0.017	1.015	0.008	0.012	0.002	0.011	0.009	0.022	0.026
Mining	0.002	0.002	1.001	0.002	0.000	0.001	0.001	0.002	0.003
Manufacturing	0.571	0.539	0.345	1.362	0.077	0.611	0.362	0.711	0.847
Fuel	0.042	0.125	0.047	0.035	1.008	0.142	0.037	0.081	0.052
Transport	0.157	0.159	0.101	0.116	0.049	1.217	0.230	0.244	0.185
Services	0.471	0.407	0.280	0.379	0.263	0.338	1.230	0.374	0.405
Public	0.081	0.124	0.060	0.067	0.017	0.208	0.078	1.097	0.112
Labour	0.992	0.719	0.361	0.357	0.106	0.466	0.494	0.726	1.583
Links	3.858	3.438	2.375	2.559	1.576	3.230	2.689	3.646	3.897

⁴² Matrix operations can be performed efficiently in Excel using the Array commands {MMULT ()} and {MINVERSE()}. Detailed instructions are available in the Excel Help facility.

Annex 7 Road Transporter Profiles

The following table summarises differences among transporters.

Type of transport activity	Type of vehicle	Legal status
Urban commuters	Combi, pickups, bus	Licensed and unlicensed
Short-distance town-country and intra-rural	Own-use or hired bicycle, pickups	Unlicensed
Long-distance rural-urban and interurban (intra and inter-regional): passengers and cargo	Buses, pickups, small trucks, lorries	Licensed and unlicensed for passenger transport
Rural-rural cargo	Bicycle, tractor, pickup	Unlicensed
Long distance cargo transport	Lorries	Licensed for cargo transport, or owned by enterprises or government for own use

In the large urban centres—Nampula, Beira and particularly Maputo—workers, traders and secondary school students come into the city by foot or by road transport. Combis (*chapas*) currently cost 5000 MT. Public buses, which cover only a few routes and are limited in number costs 3000 MT. Transporter associations are strong in urban areas, negotiating both with government and unlicensed competition to assure that fares are profitable. Cumulative cost increases are eventually pushed on to the consumer. Because of productivity declines associated with absences and lateness, some of the larger and more enterprises have reintroduced transport for workers, which smaller firms cannot do.

Public transport between rural and urban areas and between provinces mainly combines passenger transport with cargo hauling: urban-based vendors going to buy produce (fruit, vegetables, staples, charcoals, roofing material...) in rural areas; rural traders bringing staples in and returning with consumer goods, urban people sending goods and visiting family in the countryside; rural people coming in with food to visit family or go to hospital in rural areas. NGOs and some government services have their own transport, but district government services that distribute school materials and provision health posts must hire or borrow (paying fuel costs) vehicles. Fares are paid according to distance for passenger and by sack.

Some of those doing longer distanced transport of passengers and cargo are licensed for transport and belong to provincial transporter associations. Many are, however, traders, farmers, civil servants, or kin of well-paid migrants who are not licensed as transporters but have a multi-purpose pickup that is used for transport. They compete with licensed transporters on the same well-travelled and better maintained routes, bidding prices down. Nonetheless fares have risen spasmodically in line with fuel rises on most routes. Fares are highest for short-term trips off main roads.

Transport of produce to main roads in rural areas is done by foot, by bicycle, by tractor and occasionally by pick-up. There are some specialised cargo haulers moving fuel, crops and goods long distances. They lease space to traders and trade themselves. They compete with coastal shipping and rail, providing greater speed and security (Muendane *et al.*, 2001). Much of this transport is owned by enterprises, however. Off-

loading by drivers is one of the sources of parallel-market fuels in rural areas; some will also take occasional passengers and transport along the way.

Despite their differences, there were some commonalities among the transporters we interviewed.

- They were all concerned about competition, fighting to maximise volume by controlling the most travelled and best maintained roads.
- Only a few relied entirely on transport as their capital base. Other activities included vehicle maintenance and repair, trading, farming, salaried employment, operating car-parks.
- The cost structure of fuel favours transporters based in the port cities of Beira, Nampula and Maputo. This is in part a reflection of fiscal policy, the levying of VAT on the transport charges for fuel.
- They are concerned with immediate operating costs. They consider fuel to be at least 50% of their costs, and thus feel pinched by every rise in fuel prices. Within maintenance costs, they focus on tyres. Estimates of costs for fees and taxes (low) did not vary much between licensed and unlicensed transporters⁴³. Only a few made any provision for vehicle depreciation in their costs. The reason for this was not simply weak management skills; they did not expect transport profit to finance a new vehicle. Vehicles had been purchased from savings or credit based on the other activities they were involved in. The typical transporter looks at the ratio of fuel to total revenue rather than at the underlying real structure of costs.
- Transporters felt some pressure from government guidelines for limits to fare increases, but practically no regulation of vehicle safety.
- Their vehicles mainly use diesel. After independence, the government continued the colonial practice of subsidising agriculture and industry by applying a lower tax rate to diesel, thus providing an incentive for diesel-based transport. The gradual reduction of the diesel subsidy has been environmentally friendly, but meant an increased cost for operators who have not the capital necessary to finance a rapid switch to petrol-using vehicles. The following table shows the reduction of the relative tax forgiveness for diesel between 1987 and 2002:

Date	2.2.87	15.5.02
super petrol	120	11307
normal petrol	100	
paraffin	38.5	
diesel	67.4	9117
ratio diesel/super petrol	56.17%	
ratio diesel/normal petrol	67.40%	80.63%

Fuel prices 1987 and 2002 MT/l.

⁴³ The head of the Zambezia transporters' associations is convinced that unlicensed pirates pay as much in fines and bribes to the police as they would pay for licensing fees and taxes.

TABLE A ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT..1 PROFILES OF TRANSPORT USE BY TRADERS - ZAMBEZIA⁴⁴

Type of trader	Livelihoods base	Goods traded	Use of transport
Shop-owner in town	Full-time trade, may do unlicensed cargo and passenger transport, hires market vendors	Consumer goods, rarely markets crops	May own pickup, leases transport in port-cities
Rural cross roads stand-operator	Owner or employed, farms, may have maize-mill	Crops and consumer goods	Hires motorised passenger with cargo transport
Inter-regional (women from Maputo) or international (Malawi) mobile trader	Full time trader or employee men and women, but family has other livelihood activities	Crops and consumer goods	Hires motorised passenger with cargo transport, pickup and lorry May hire bicycle-traders to cross borders
Intra-provincial rural mobile trader	Full-time trader or employee, usually young man but also depends on family farming	Crops, fish and consumer goods	May use bicycle, but hires motorised transport - passenger with cargo or tractor
Town market-stall operator	Full-time trader or employee	Consumer goods	Bicycle or hires passenger with cargo transport
Casual market or foot vendor	Part-time trader, depends on family farming	Buys goods from other traders for resale	Bicycle or no transport

In Zambezia, bicycle transport is used by traders for short-hauls, but motorised transport is needed to attain the scale required for profitable full-time trading. Traders' experience has been that any increase in the cost of fuel eventually leads to an increase in transport cost and that a fall in the price of fuel has never led to a reduction in transport cost. Mobile traders dominate both crop and consumer marketing in Zambezia currently. Trading is highly competitive along the main commercial circuits with highest volume of sales. Very few mobile traders pay VAT (or import duties) and they have no installations; thus transport cost is a crucial determinant of their profit margin. It is thus not surprising that traders, both mobile and shop-based, see any sharp rise in fuel prices as a threat to the survival of their commercial activity.

⁴⁴ Rapid appraisal in Zambezia (Quelimane, Mocuba, Ile, Gurue, Lioma) complemented the excellent research done by Bowen [2000] on mobile trade in Zambezia.

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Daniel Wetava	Peasant farmer, Mocuba
Sr. Yassine	Bean trader, Quelimane
Antonio Rafael	Tobacco trader, Malema-Quelimane
Sr. Boaventura	Fruit trader, Ile-Quelimane
A. Pedro	Maize trader, Morrumbala-Quelimane
Sr. Inacio	Driver, Gurue
Manuel Alfaiate	Pump employee
Alvaro Sequeira Martins	Trader/transporter, Mocuba
Sr. Mussafar	Trader/transporter, Mocuba
Francisco Jackson	Mill operator, Lioma
Pedro Morris	Part-time transporter, Gurue
Custodio Abel	Driver, Gurue

WASHINGTON

Country Officials: David Andrews, Caroline Kende-Robb, Peter Moll, Michel Moylle, Wilfried Engelke, Paulo Carlos, Lynn Aylward

PREM/PDR: Jehan Arulpragasam, Sharon White, David Ames, Brian Ames, Sukhwinder_Singh, Karen Ongley, Damoni Kitabire

IFPRI: Ken Simler, Sherman Robinson, Hans Lofgren.

Separate discussions with Caroline Kende-Robb and Luiz Pereira da Silva

Thanks for research assistance:

Fausto Mafambisse, Leonardo Lourinho, and Momade Cesar

Thanks for Liaison with Producer Associations in Lioma:

Armando J. Ayuba and Maria de Fatima Uala, Monitors, World Vision

Annex 10 Terms of Reference

The consultants will provide the following services:

GENERAL BACKGROUND ON PSIA PILOTS

The IMF and the World Bank (WB) have agreed to work together to carry out poverty focused social impact analysis (PSIA) of macroeconomic and structural policies in recipient countries. Guidelines for PRGF and PRSC supported programmes state that the associated documentation will include **ex-ante** analysis that considers how poor people are likely to be affected by these reform programmes and, when necessary, show the steps that have been taken to mitigate adverse effects and enhance positive ones.

In April 2001, the Joint Implementation Committee (JIC) of the World Bank and IMF produced a Concept Note outlining an approach to how PSIA could be undertaken. According to the JIC Concept Note, the World Bank and IMF have a responsibility to report on the social impact of key policies in Bank and Fund programmes, as well as to refine policy recommendations and support on the basis of such analysis (Concept Note, page 5).

The Concept Note suggests that, ideally, the IMF and WB will be able to draw for these reports on a government-led PSIA that analyses the likely impact on the poor of the macro/structural reforms being planned or undertaken in the country. However, an issue arises in situations where a government-led PSIA is either non-existent or deemed inadequate. In such circumstances, the WB and IMF have indicated that they will ensure that PSIA is undertaken for relevant policy measures (Concept Note, page 5).

Key paragraphs of the JIC concept note include the following:

- PSIA refers to the analysis of intended and unintended consequences of policy interventions - ex ante, during their implementation, or ex post - on the well-being of different social groups, with a special focus on the vulnerable and the poor (page 1, paragraph 4).
- PSIA is undertaken with the immediate objective of continually informing policy dialogue, choice and implementation within the broader objective of promoting sustainable poverty reduction and social inclusion (page 2, paragraph 7).
- Countries themselves have the main responsibility for conducting PSIA...with the support of donors and the World Bank...Policies for PSIA should be selected by countries, in consultation with relevant stakeholders, including the Bank and the Fund (page 3, paragraph 8-9).

PSIA is an important feature of the new environment for international development assistance, reflected in the Poverty Reduction Strategy principles (PRS). The PRS process has raised expectations that macro and structural policies will be developed and designed in a way that is significantly different to ESAF and previous World Bank supported structural reforms programmes. Undertaking PSIA which is government-led, discussing its findings with a wide range of stakeholders, and clearly laying out the implications of alternative policy choices for poverty reduction are necessary steps toward meeting these expectations.

Internationally, DFID is working closely with the WB and IMF on how to take PSIA forward in line with PRS principles. The JIC is undertaking an initial stocktaking exercise in some 12 countries. The stocktaking: (a) reviews the main reform programmes of the Bank to date; (b) examines how the social/poverty impacts of these programmes have been assessed; and, (c) looks at what methodologies have been used by Bank/Fund country teams. Follow-up activities will include more substantive discussions between Bank Working Group members (situated within PREM) and Bank country teams in a select number of countries, in order to develop guidelines for how to undertake PSIA, and the operational support that may be needed from headquarters.

Complementary to these activities, DFID is supporting a number of country PSIA pilots. These will be carried out in direct collaboration with national governments, and will be part of the effort to build capacity to broaden and deepen the poverty assessments that inform policy making in the context of the PRSP. This approach is underpinned by the view that:

PSIAs should be conducted in a manner that reflects serious commitment by donors to strengthening partnerships through developing a more informed and substantive dialogue on alternative macroeconomic and structural policies for poverty reduction.

In the autumn 2002, the JIC will host a workshop in Washington to take stock of progress in developing PSIA. The event will focus on lessons learnt from both the DFID and World Bank piloting exercises. It is anticipated therefore that the work under the pilot PSIAs will be completed by July/August 2002. It is envisaged that at least one government and/or non-government interlocutor from the DFID country pilots will attend this event.

BACKGROUND TO MOZAMBIQUE PSIA PILOT

Arising from interest expressed by GoM (MPF) for Mozambique to be selected as a PSIA pilot, a DFID mission visited Maputo in December 2001 to assess how a pilot could be taken forward in the Mozambique context. The mission met with government, IMF and WB country staff, bilateral donors and a range of non-government actors, including academics, NGOs and advocacy groups. The mission served to reaffirm key government, IMF & WB, and donor interest in PSIA, and its importance in relation to consistency in implementation of the PARPA (PRSP). Particular interest was expressed by government with regard to building up analytical capacity within and outside of government to conduct PSIA on a routine basis to inform the macro economic and structural policy-making process.

These consultations served also to generate a range of suggestions from government, non-government and donor stakeholder for PSIA to focus on. The elements of the macroeconomic/structural policy framework suggested for scrutiny were: financial sector reform; judicial/legal reform; mega growth projects; incidence of tax on poor districts; sugar industry reforms; income inequality trends; interest rates and private sector development, especially in rural areas; salary policy/corruption; agricultural growth priorities. It is proposed that initial work by the consultants will focus down on key areas, identifying the available secondary data to facilitate sufficient analysis.

In February 2002, the IMF and GoM conducted an Article IV and PRGF review of the macro programme. This review has provided additional impetus to the importance of undertaking timely PSIA to ensure analysis is available in the next round of PRGF analysis. The IMF Mission Chief cited the importance of starting with policy instruments, the poverty impact of which GoM wishes to better understand. It was also stressed that

selection of policy instruments for PSIA would hinge on the quantity and quality of available secondary data.

It is anticipated that the PSIA pilot in Mozambique will commence as soon as the consultancy team is contracted. It is expected that the work will take place between April-July 2002. The pilot will proceed (as described below) in a number of overlapping stages, each generating concrete outputs. At the outset, further consideration will be given to how the pilot will be managed locally.

PURPOSE

The overall purpose of the PSIA pilot in Mozambique is:

- To support GoM towards over the longer-term generating PSIA on a routine and sustainable basis to inform understanding of impact, and selection, of macro economic/structural policies.
- To generate country specific lesson learning on piloting PSIA (types of analysis, methods, guidance) to contribute to the JIC stock taking workshop in autumn 2002.

The key objectives of the PSIA pilot study in Mozambique are to determine the best ways:

- To strengthen the poverty reducing dimensions of macroeconomic and structural reform programmes, through the development of viable ways to analyse of the social impact of reform programmes on identifiable groups of the poor, and the discussion of alternative policy choices;
- To maximise the policy impact of analytical work, by enabling government to take the lead in setting the strategic agenda for policy analysis, and embedding analysis within national policy making processes;
- To strengthen national government and non-government capacity for social analysis of the impact of macro/structural policy choices on the poor, and use of this analysis in policy dialogue, including with IFIs;
- To ensure that, in situations where national capacity is weak, donor agencies support undertaking PSIA in a manner that reflects PRS principles of comprehensiveness and national ownership;
- To develop guidance in carrying out effective but practical PSIAs in different policy environments, especially when conventional data are weak/unreliable.

OUTPUTS

The consultancy team will generate the following outputs in the course of the pilot study:

- Production of a short report (maximum 10 pages) with the findings of the Policy identification work (5.5-5.9). This will explain why the particular policy was selected for analysis with reference to the views and priorities of government and other stakeholders. It will be shared and discussed with key stakeholders, and the IFIs, in order to agree the priority policies chosen for analysis and the forward work plan.

- Production of a main report, detailing PSIA analysis, documentation of approach & methods, and recommendation on how to build capacity for routine conduct of PSIA.
- Presentation of PSIA report findings in a national stakeholder workshop or similar dissemination event to be defined.
- Presentation of PSIA report findings to IFIs staff teams and/or through participation in JIC workshop in autumn 2002 (one researcher and one government interlocuter).

SCOPE OF WORK

The PSIA pilot activities will cover four main areas of work, at times sequential, at time concurrent: policy identification; policy analysis; documentation/assessment of methods deployed in conducting the pilot; definition of recommendations on how to build capacity for sustainable conduct of PSIA. Guidance notes on PSIA are set out in 0.

From the outset, the consultancy team will agree a work plan and division of labour for the duration of the pilot with GoM, DFID and other donors. This will be based on an approach that will maximise a synthesis of economic and social analysis.

From the outset, determine with GoM and DFID a suitable institutional arrangement for managing the progress of the PSIA pilot; and identify preferred dissemination modalities to ensure relevant stakeholders are apprised of findings from the pilot work

From the outset of the research, establish contact with IMF and World Bank country teams (in Washington and in country)

Policy identification

Assess the past record and approaches to drawing links between the goals of macroeconomic and structural policies and poverty reduction, including their effects on specific groups among the poor.

Examine the nature and content of the dialogue between government and the IMF and World Bank, and other development partners, making explicit the assumptions that have been made by both the government and the IFIs about the nature of poverty, the identity of poor groups (including the dynamics of their livelihoods, gender and other social relations) and how the macroeconomic and structural policies will benefit the poor.

Address the following research questions guiding tasks 5.5 and 5.6:

- How can previous approaches, analysis, results and the dialogue on establishing poverty impact of macro and structural policies be characterised?
- What are the key assumptions (stylised facts) and underlying conceptualisations about the poor?
- Economic paradigms and their implications for analysis.
- What assumptions are made about the relationship of the poor to market structures?
- How are key other institutions characterised ? E.g. what is assumed about how households work?

- Are the implications of important economic and social relations considered e.g. exclusion, gender, discrimination. What is assumed about them?
- Who are assumed to be the key socio-occupational groups among the poor?
- How are these assumptions related to the data and other knowledge available about the poor and the dynamics of poverty?
- Has the analysis of poverty been politically contextualised? Have histories of discrimination, exclusion, power and conflict been considered?

Undertake a brief summary of the nature of the information available and outline what previous research on macro-poverty links has been conducted.

Identify specific policy (or policies) of focus in consultations with GoM as well as other key stakeholders, including stakeholders outside of government.

Policy analysis

Develop an analysis that can inform government and other stakeholders how a key element(s) of the macro/structural policy framework to be supported by the PRGF (PRSC) impacts on the different socio-economic groups, including groups among the poor.

The analysis should relate the livelihoods of men and women belonging to the different occupational groups of the poor to the structural characteristics of the economy and, the impact of policy changes on them.

If appropriate, make recommendations in the analysis about policy alternatives and/or changes in policy design.

Documentation/assessment of methods deployed in conducting the pilot

Elaborate the approach used in conducting the pilot in such a way that it can be duplicated by others, setting down the methods and thinking when addressing the stages of conducting PSIA

Highlight the key methodological problems that were faced and how these were addressed them, pointing out any steps that could have been taken along the way to make their task easier.

Identify particular recommendations for how PSIA can be carried out in conditions that typify many low income countries (poor data, low capacity).

In considering the approach and methods, adopt as a starting point that PSIAs will have to be produced in a relatively short time period; and will have to reflect the policy priorities of the moment and be directly relevant to the nature of the dialogue between governments and the IFIs.

Specific questions to address include:

- How was the analysis done—decision tree?
- How did the researchers approach the problematic?
- What information and knowledge did they draw on?

- How did they produce the analysis in a short period of time with the information and knowledge to hand?
- What judgements, short cuts, etc were applied?

Recommendations on how to build capacity for routine PSIA

Provide recommendations on how to build capacity for poverty and social impact analysis within the context of the PARPA process in Mozambique.

In general, the starting point should be how to build a sense of national ownership and leadership of the analytic agenda that underpins macroeconomic and growth programmes.

The recommendations should analyse the key features of the policy context, noting for example what can be learnt from past precedents about how analysis has informed policy choices.

Research questions will include:

- What institutional arrangements are needed to be able to transfer ownership to government? What are the opportunities and what are the constraints? What is the role of non government institutions e.g. think tanks, universities, civil society organisations?
- What are the issues regarding a wider stakeholder engagement in debate about macro policy trade-offs?
- How could PSIA contribute to meeting expectations raised by consultative and other PRS processes and principles? What should the IFIs be doing differently?

INPUTS

The PSIA pilot will be undertaken by a team of four researchers: one international economist; one national economist; one international social development specialist; one national social development specialist. Each researcher will be allocated 40 days consultancy time for this work. The need for additional research assistance, for instance in identifying materials and arranging meetings, is likely.

The PSIA pilot will be managed locally by GoM (Ministry of Planning and Finance) and DFID Mozambique. An institutional mechanism for management will be agreed in the early stages of the pilot, and will likely include the identification of a focal point on the government side and the provision of coordination/administrative support. OPM (Oxford Policy Management) will act as the international coordinators for the pilot in close collaboration with DFID Mozambique

Additional provision will be made to cover the following; participation by international researchers in a preparatory conference in London; administrative costs (e.g stationary; communications; research assistance); car hire and internal flights; participation by some of the research team in dissemination events in Washington (1 or 2 trips); dissemination events in Mozambique (e.g workshops). An indicative budget is attached at 0.