



Quarterly National Accounts

Report from a short-term mission 16 – 27 September 2002

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TA for the 'Bridging Support Program to Strengthen the Institutional Capacity of the National Statistics, Mozambique



Instituto Nacional de Estatística

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1. EXECUTIVE SUMMARY

The purpose of this mission was to investigate the possibilities for establishing Quarterly National Accounts (QNA) for Mozambique. In particular the consultant should evaluate the possibility of calculating a simplified QNA based on existing sources and resources and evaluate the necessary steps and improvements to be made in order to establish a sustainable QNA calculation system.

During the mission the consultant had meetings and discussions with representatives from the INE-directorates for National Accounting and Business Statistics, the “Banco de Mozambique” and the long-term consultant, Mr. Timmi Graversen. Furthermore the consultant carried out a pilot study trying to calculate the development of GDP from 2000 to 2001 based on sources that are also available on a quarterly basis. This was done for testing and illustrative purposes.

The report highlights a number of general points regarding QNA:

- QNA should be sufficiently reliable. If this is not the case the users might lose faith in the figures and this can be a serious problem not only for the national accounts division but for the statistical bureau in general.
- QNA should use sources and compilation methods that as far as possible reflect the annual calculations. The quarterly results should later be adjusted so they are consistent with the annual figures.
- QNA should be timely with a delay of no more than approximately one quarter. But they should be based on data – and not on economic modelling.
- In the phase of current production a fixed revision policy and publishing schedule should be established.

Based on the results of the pilot study the report concludes that a quarterly GDP indicator based on existing sources would give results that are too unreliable. It is therefore not recommended to introduce a GDP indicator based on existing sources.

In order to establish a sustainable system for QNA calculation, the report contains the following recommendations:

- Regarding the scope, it is proposed to calculate GDP with a breakdown by major expenditure groups and a breakdown by major industries.
- The methods used for the calculation of QNA should be based on the supply and use tables using the same principles as in the annual accounts. A short description of how the system could work is given in an annex.
- A number of proposals for improvements in the data sources is made. The proposals involve as well the national accounts division as other divisions in INE and institutions outside INE. Improvements in the data sources are proposed for agriculture, the monthly business surveys, price indices and big entities. It is stressed that it is of very high importance to establish a close and active working relationship between the national accounts division and the producers of source data at INE.
- It is recommended that a regular production of QNA does not take place before the above mentioned improvements of the source data have been introduced and after real time test calculations for at least 2 quarters have taken place. Preparatory work should begin a couple of years earlier.
- Based on experiences from other countries it is estimated that the production of QNA will demand extra resources at the level of two full-time persons with a university degree in economics and an IT-expert.

2. INTRODUCTION

Users of national accounts need to monitor the economy more timely and continuously than once a year. While some other economic indicator such as those included in INE's quarterly publication "A Conjuntura Económica" can also be used for that purpose, national accounts aggregates such as the Gross Domestic Product (GDP) are more comprehensive in their summary description of the behavior of the economy.

In view of this, a specific short-term mission on QNA was carried out 16 – 27 September 2002 by Mr. Ole Berner, Head of National Accounts Division, Statistics Denmark. For the terms of reference, see annex 1. The plan was to investigate the possibilities for the implementation of Quarterly National Accounts, which will result at least in quarterly estimates of the national accounts main aggregate, the GDP.

The consultant would like to express his appreciation to all officials and individuals met in Maputo for their interest and cooperation. Special thanks are due to Mr. Saíde Dade, Ms. Monica Magaua, Mr. Firmino A. Guiliche and Mr. Timmi Graversen for their invaluable support during the mission.

3. ACTIVITIES DURING THE MISSION

The main objectives of the mission have been formulated as

- Evaluate annual and quarterly data taking into account what is needed and what is available as minimum requirement for establishing QNA, considering international standards.
- Evaluate the scope and level of details and develop a simplified/reduced format accounting framework for an experimental compilation of Quarterly National Accounts, which could be used in a sustainable programme, taking into account available resources.
- Evaluate the human resources for establishing and maintaining QNA in current production
- Outline international classification system in concepts (based on international standard, and adapted to Mozambique).
- Suggest a list of necessary steps and timetable of activities for compiling and revision of QNA.

During the mission the consultant had meetings and discussions with representatives from the INE-directorates for National Accounting and Business Statistics, the "Banco de Mozambique" and the long-term consultant, Mr. Timmi Graversen. The issues for these meetings were

- The sources and methods used in the annual National Accounts
- The availability of short term quarterly indicators which could be used as sources for the calculation of quarterly national accounts
- The possibilities for establishing a simple GDP-indicator based on existing sources
- The sources needed and the methods to be used for the establishment of a more comprehensive system of quarterly national accounts taking user needs into account

During the mission the consultant carried out an investigative and indicative calculation of the development of GDP from 2000 to 2001 based on sources that are also available on a quarterly basis. The results of this exercise were intensively discussed with the Directorate of National Accounts.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Recommendations for quarterly national accounts in general

The establishment of quarterly national accounts (QNA) is a very important step in the development of the statistical system in any country. It establishes an exhaustive picture of the development of the economy and is as such an important tool for policy makers in their task of planning the economic policy.

At the same time the development of quarterly national accounts poses severe challenges to the statistical institutes. Not only in the national accounts division but also in those divisions that produce the source data for the quarterly national accounts. A number of general considerations are presented in the following (For further information see “Quarterly National Accounts Manual. Concepts, Data Sources and Compilation”, IMF, 2001):

- First of all quarterly national accounts should be sufficiently reliable. Later revisions to first estimates cannot be avoided and is common to all countries producing QNA. However if the revisions become too big – or if they are always in the same direction (implying a systematic under- or overestimation) – the users loses faith in the figures and this can be a serious problem not only for the national accounts division but for the statistical bureau in general.
- The reliability of the QNA depends crucially on its ability to predict the development of the annual national accounts. The reliability of the national accounts as such then in turn depends on the reliability of the level and the growth rates of the annual accounts. The aim of the annual accounts is here to give an exhaustive coverage of the economic activity.
- The quality of the annual national accounts is usually higher than the QNA because the annual accounts use more comprehensive and “final” data-sources and because the methods used are more developed (and time-consuming). In contrast the QNA typically uses preliminary and less comprehensive data-sources and the methods used have to be simpler in order to meet the demands for a short production period. It is however important that sources and the compilation methods used in QNA as far as possible reflect the sources and the methods of the annual calculations.
- Consistency between the annual and the quarterly accounts is important. Therefore when the annual accounts for a new year has been calculated the QNA should be adjusted so that the sum of the quarterly figures equals the annual figures. In this process it is necessary to use advanced mathematical methods in order not to introduce breaks in the time-series between the 4th quarter of one year and the first quarter of the following year.
- Consistency over time is of the outmost importance for QNA, because the interest of the users focuses much more on developments than on actual levels. For example when QNA-figures for a given year has been adjusted to the annual figures, the QNA-figures for the quarters of the following year(s) should be adjusted. Also if data-sources shows developments that are not real but reflects changes in methodology or the like, QNA compilers should do their best to eliminate such effects.
- Timeliness is an important factor in relation to QNA. The efforts of producing quick results should however not lead to the introduction of economic modelling instead of real data. Estimates based to a large degree on assumptions of economic behaviour are

usually better taken care of by other institutions. Estimates by statistical institutions should be based on real data and only to a very limited degree be based on models of economic behaviour. This is actually also the domain in which the statistical institutes have the advantage of knowing and being able to use the detailed statistical information.

- In the phase of current production a fixed revision policy should be established. Usually when QNA for a new quarter is released, the preceding quarters will be revised in order to take account of new information, which could not be incorporated in the first estimate. The revision policy should take into account the user needs, the appearance of new data and the annual accounts. In annex 4 is given an example on a revision policy.
- A fixed publishing schedule should be established and information on release plans should be given to the users. The first QNA-estimates for a quarter should normally be released before the end of the following quarter.

4.2 Conclusions regarding a GDP-indicator

A pilot study on a GDP-indicator is described in annex 2. The purpose of the study has been to estimate the growth rate of GDP from 2000 to 2001 only using indicators that are available on a quarterly (or monthly) basis. The idea behind this exercise is that if it can be shown that the calculations give a good estimate of the GDP-development on an annual basis the indicators could be used to produce a quarterly GDP indicator.

Another purpose of the exercise is to give a simple illustration of how the various short-term information can be used to calculate estimates of the national accounts.

In the study the starting point has been GDP in the year 2000 broken down by 26 industries in both current and constant prices and residually calculated price indices. Each of the 26 branches has been linked to indicators for 2 of the 3 values (current, constant or price index). It has not in all cases been possible to establish indicators, either because there isn't any or because the short time period did not allow the establishment of the indicator. In these cases the official annual national accounts figures were used to indicate the development from 2000 to 2001. The estimates of the study are therefore not totally independent of the official national accounts. For two industries, corresponding to less than 5 percent of GDP, the estimates are based solely on official national accounts, and for a number of other industries the price development is identical to official national accounts.

All though the study is rather simple, only involves one year and could be improved in several aspects it is possible to draw some conclusions.

The estimates at the level of GDP are somewhat higher than the published preliminary 2001 figures (in current prices an estimated growth rate of 32,2 percent (cf. table 3 in annex 2) compared to the published preliminary growth rate of 29,8 percent and in constant prices an estimated growth rate of 16,1 compared to 13,8). Even though this might not seem too bad – although it is not good - the exercise reveals some severe problems regarding the estimates of the pilot study.

At the level industries there are in many cases rather big differences between the estimates in the pilot study and the published preliminary national accounts figures for 2001. Since there is no mechanism that ensures that those differences will be eliminated by aggregation the relatively good GDP estimate must be considered a pure coincidence.

At this background it is proposed not to develop some kind of quick GDP-indicator based on currently available sources. The reliability of such an GDP-indicator would be rather low and the risk of creating severe credibility problems for INE is a real threat. Instead it is recommended to develop a sustainable QNA calculation system.

4.3 Recommendations for a sustainable QNA system

This paragraph will include recommendations regarding scope, methods, improvements of data sources, procedures, establishment and human resources needed for a sustainable QNA system.

In the first phase it is recommended to concentrate on GDP with a breakdown by major expenditure groups, that is consumption expenditure by households, consumption expenditure by general government, gross fixed capital formation, change in stocks and imports and exports. Furthermore a breakdown of GDP is recommended in some major industries, at least primary, secondary and tertiary. All calculations should be done in both in current and constant prices.

As mentioned earlier it is important that the methods used for the calculation of QNA as far as possible reflects the methods used in the annual accounts. It is therefore recommended that the QNA calculations are based on the supply and use tables, which are produced in the annual accounts. The tables used for QNA will have to be more aggregated probably to the level of 26 product groups published in “Contas Nationais 1999”. The quarterly Supply and use tables should only be used at the calculation level – they are not meant for publication. A short description of how the system could work is given in annex 3.

Regarding improvements in the data sources a few points should be made. The points all refer to improvements of supply side data because in the short run the supply side approach seems to be the only possible way to produce QNA. In the longer run the quality of QNA could be considerably increased by also having information on the use side, in particular information on consumption expenditure of households:

- Earlier estimates of the crop production in agriculture have to be obtained from the ministry of agriculture. It is necessary to have an estimate in May year t for the harvest in year $t-1/t$.
- The monthly surveys (conducted by DESE) on manufacturing, construction and some service industries does have a rather low coverage. It would raise the usefulness of those surveys for the QNA if the coverage were increased. On the other hand from the point of view of QNA they don't have to monthly but could be quarterly.
- It is recommended that the monthly (or quarterly) surveys for manufacturing and trade include questions on stocks.
- The quarterly figures for the general government should be speeded up if possible.
- Besides the consumer price index and a number of agricultural prices there does not seem to be available price information. INE should consider developing a producer price index at least for goods. It is always better to make constant price figures by deflating current price figures than by quantity extrapolation of base year values.
- It is important to obtain quarterly information directly from the very big entities like MOZAL.

It is in general of very high importance to establish a close and active working relationship between the national accounts division and the producers of source data at INE.

Timeliness is a very important factor in the production of QNA. This means that that the production period in the national accounts division has to be short. A way to ensure this is to

make as many procedures as possible computerized. It is therefore essential to think carefully about the organization of data, development of databanks and the development of the necessary software.

It is recommended that a regular production of QNA does not take place before the above mentioned improvements of the source data have been introduced and after real time test calculations for at least 2 quarters have taken place. If for example it is assumed that the improvements of the source data have been incorporated from the beginning of 2004 a real time test calculation of the first quarter could take place in June (or July) 2004 and of the second quarter in September (or October). Depending on the evaluation of those test calculations regular production (and publishing) of the results could start in December (or January). The evaluation has to be made rather carefully because when publishing QNA has started there is no way back – you have to go on. On the other hand it is a great risk for INE to have “secret” QNA calculations for a long time.

A precondition for a regular production of QNA from December 2004 is that preparatory work starts in early 2003. This work will partly consist of developing the necessary software systems and databanks and partly of calculating quarterly figures for 2002 and 2003. The calculations for those years will of course have to be based on the non-improved source data but the adjustment of the QNA-figures to comply with the annual figures should ensure a reasonable reliability.

The development and the current production of QNA will demand extra human resources in the national accounts division. Based on experience from other countries at least two full-time persons should be allocated to the QNA-calculations. Those persons have to have a university degree in economics, a good knowledge of the overall economic situation in the country and an ability to understand and use the source statistics from other divisions or departments. It is needless to say that the persons also should be able to create a good relationship to the producers of the source data. Furthermore an IT-expert should be attached to the QNA, in the establishment phase on a full-time basis but in the phase of current production only on a part time basis.

The extra resource requirements should not lead to a reduction of the resources allocated to the calculation of the annual accounts. A reduction of those resources would lead to a decline in the quality of the annual accounts and this could create severe problems. In addition the quality of the QNA depends to a large degree on the quality of the annual accounts.



ANNEX 1: Terms of Reference

TERMS OF REFERENCE FOR A SHORT TERM MISSION ON QUARTERLY NATIONAL ACCOUNTS Within the Scandinavian Programme 16 – 27 September 2002

1. Background

Users of national accounts need to monitor the economy more timely and continuously than once a year. While some other economic indicator such as those included in INE's quarterly publication "A Conjuntura Económica" can also be used for the that purpose, national accounts aggregates such as the Gross Domestic Product (GDP) are more comprehensive in their summary description of the behavior of the economy.

In view of this, INE plans to carry out a specific short-term mission on QNA with the assistance from one expert Mr. Ole Berner. The plan is to embark on the implementation of Quarterly National Accounts, which will result at least in quarterly estimates of the national accounts main aggregate, the GDP.

2. Specific objectives of the Mission

- § Evaluate annual and quarterly data taking into account what is needed and what is available as minimum requirement for establishing QNA, considering international standards.
- § Evaluate the scope and level of details and develop a simplified/reduced format accounting framework for an experimental compilation of Quarterly National Accounts, which could be used in a sustainable programme, taking into account available resources.
- § Evaluate the human resources for establishing and maintaining QNA in current production
- § Outline international classification system in concepts (based on international standard, and adapted to Mozambique.
 - Suggest a list of necessary steps and timetable of activities for compiling and revision of QNA.

3. Expected output

- A simplified/reduced format accounting framework for an experimental compilation of Quarterly National Accounts which could be used in a sustainable programme, taking into account available resources starting in 2003.

- Ideas and recommendations, which can support INE on how to develop and establish the QNA in the long-run.
4. **Agenda for the mission**
 - Work in the office premises of the main counter part at INE (Directorate for National Accounting and Global Indicators, DCNIG)
 - Meetings with identified suppliers of main data sources (if necessary)
 5. **To be done at INE to realize the mission**
 - Prepare ToR for the mission
 - Arrange for the meetings with the identified supplier (if necessary)
 - Provide the consultants with relevant material
 - Arrange necessary working conditions for the consultants
 6. **Consultants and Counter Part**
 - Consultant: Mr. Ola Benner
 - Main counter part: Mss Monica Magaua, Head of department of NA, within DCNIG
 7. **Period for the mission**
 - 16 - 27 September 2002.
 8. **Report**

The consultant will prepare a draft report to be discussed with INE before leaving Maputo. He will submit a final draft to INE for final comments within one week of the end of the mission. Statistics Denmark as Lead Party will print the final version within 3 weeks of the end of the mission.

These Terms of Reference were prepared by (date and name)

/ /

Approved by/in the name of the President of INE (date and name)

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ANNEX 2: Pilot study on GDP-indicator.

During the mission a pilot study on the possibility of establishing a quarterly GDP indicator on the basis of existing sources was carried out. The purpose of the study has been to estimate the growth rate of GDP from 2000 to 2001 only using indicators that are available on a quarterly (or monthly) basis. The idea behind this exercise is that if it can be shown that the calculations give a good estimate of the GDP-development on an annual basis the indicators could be used to produce a quarterly GDP indicator.

The only possible way of constructing this indicator was to use the production approach since the quarterly data on the expenditure side and the income side is far too incomplete.

In table 1 is listed a breakdown of GDP by aggregated industries, and for each industry is proposed an indicator which is believed to develop similar to the national account figures of the respective industries. Each of the industries has been linked to indicators for 2 of the 3 values (current, constant or price index). It has not in all cases been possible to establish indicators, either because there isn't any or because the short time period did not allow the establishment of the indicator. In these cases the official annual national accounts figures were used to indicate the development from 2000 to 2001. The estimates of the study is therefore not totally independent of the official national accounts. For two industries (mining and financial institutions), corresponding to less than 5 percent of GDP, the estimates are based solely on official national accounts, and for a number of other industries the price development is identical to official national accounts.

It is seen that most of the indicators are found in "A conjuntura Económica" (ACE)

In table 2 the annual values of the indicators for the years 2000 and 2001 are indicated. Due to – often rather big – revisions of the series in ACE the latest published figures have been chosen.

In table 3 the National account-figures for 2000 have been extrapolated to 2001 by using the indicators. Both the national account figures and the extrapolated values are shown as well as the growth rates and differences in growth rates.

Special attention should be taken to the figures for manufacturing:

- The detailed industry figures for 1998 did not add up to the total. The difference is shown just under the total for manufacturing.
- The 2000 figures for the detailed manufacturing industries have been constructed by using the growth rate for the manufacturing total from 1998 to 2000 (excl. MOZAL) on all the detailed industries.
- Special estimates has been made for MOZAL in "Metallicos basicos"

Table 1: Indicators

ACE: A conjuntura economica

R: Residually calculated from the identity: value = volume*price

CN: Indicator is equal to the values in the national accounts

In brackets () is sometimes indicated alternative proposals for indicators. They have not been used in this exercise

Correntes

	Total VA	
R01.0	Agricultura etc.	R
R02.0	Pesca etc.	R
R03.0	Mineira	CN
R04.0	Manufatura	Sum
R04.1	Alimentos	ACE: Q11, Alimentacao, bebidas e tabaco
R04.2	Tabaco	ACE: Q11, Alimentacao, bebidas e tabaco
R05.1	Texteis etc.	ACE: Q11, Texteis etc.
R05.2	Couro	ACE: Q11, Texteis etc.
R05.3	Madeira	ACE: Q11, Madeira e Cortica
R05.4	Papei etc.	ACE: Q11, Papei etc.
R05.5	Quimicos	ACE: Q11, Qimicas etc.
R05.6	Nao metallicos	ACE: Q11, Nao Metallicos
R05.7	Metallicos basicos	ACE: Q11, Metallicos basicos
R05.8	Maquinas e equipamento	ACE: Q11, Maquinas e outro produtos
R05.9	Out. Produtos manuf.	ACE: Q11, Maquinas e outro produtos
R06.0	Electricidade a agua	R
R07.0	Construcao	ACE: Q22, Negocios, Construcao
R08.0	Comercio e reparacio	ACE: Q22, Negocios, Comercio
R10.0	Restaurantes e hotels	ACE: Q22, Negocios, Restaurantes (e Turismo(?))
R11.0	Transportes e Comm.	ACE: Q22, Negocios, Transp. E comm.
R12.0	Financeeros	CN
R13.0	Prestados a empresas	R
R14.0	Adm. Publica e defesa	ACE: Q8, Despesas com personel + Bens e servicio
R15.0	Educacao	ACE: Q8, Despesas com personel + Bens e servicio
R16.1	Saude	ACE: Q8, Despesas com personel + Bens e servicio
	Outros Services	ACE: Q22, Negocios, servicos
	Direitos de Importtacao	ACE: Q15, Importacoes
	SIFIM	CN

Constantes

	Total VA	
R01.0	Agricultura etc.	ACE: Q9, Agricultural production
R02.0	Pesca etc.	ACE: Q10, Captura de pescado
R03.0	Mineira	CN
R04.0	Manufatura	Sum
R04.1	Alimentos	ACE: Q12, Alimentacao, bebidas e tabaco
R04.2	Tabaco	ACE: Q12, Alimentacao, bebidas e tabaco
R05.1	Texteis etc.	ACE: Q12, Texteis etc.

R05.2	Couro	ACE: Q12, Texteis etc.
R05.3	Madeira	ACE: Q12, Madeira e Cortica
R05.4	Papei etc.	ACE: Q12, Papei etc.
R05.5	Quimicos	ACE: Q12, Qumicas etc.
R05.6	Nao metallicos	ACE: Q12, Nao Metallicos
R05.7	Metallicos basicos	ACE: Q12, Metallicos basicos
R05.8	Maquinas e equipamento	ACE: Q12, Maquinas e outro produtos
R05.9	Out. Produtos manuf.	ACE: Q12, Maquinas e outro produtos
R06.0	Electricidade a agua	ACE: Q14, Producao Internal
R07.0	Construcao	R
R08.0	Comercio e reparacio	R
R10.0	Restaurantes e hotels	R (ACE: Q21(?))
R11.0	Transportes e Comm.	R (ACE: Q18, 19, 20(?))
R12.0	Financeeros	CN
R13.0	Prestados a empresas	Population
R14.0	Adm. Publica e defesa	R
R15.0	Educacao	R
R16.1	Saude	R
	Outros Services	R
	Direitos de Importtacao	R
	SIFIM	CN
Precos		
	Total VA	
R01.0	Agricultura etc.	CN (IPC, Agricultural products(!))
R02.0	Pesca etc.	CN (IPC, Fish products(!))
R03.0	Mineira	R
R04.0	Manufatura	R
R04.1	Alimentos	R
R04.2	Tabaco	R
R05.1	Texteis etc.	R
R05.2	Couro	R
R05.3	Madeira	R
R05.4	Papei etc.	R
R05.5	Quimicos	R
R05.6	Nao metallicos	R
R05.7	Metallicos basicos	R
R05.8	Maquinas e equipamento	R
R05.9	Out. Produtos manuf.	R
R06.0	Electricidade a agua	CN (IPC, electricada, + price for Lingotes de Aluminio + export-price(!))
R07.0	Construcao	CN
R08.0	Comercio e reparacio	CN (IPC, Total(!?))
R10.0	Restaurantes e hotels	CN (IPC, Restaurants and hotels(!))
R11.0	Transportes e Comm.	CN (IPC, Transp. E comm.(?)) (R(?))
R12.0	Financeeros	R
R13.0	Prestados a empresas	CN (ICP, dwellings(!))
R14.0	Adm. Publica e defesa	CN (ACE: Q22, Remuneracoes Medias + ICP,total)
R15.0	Educacao	CN (ACE: Q22, Remuneracoes Medias + ICP,total)
R16.1	Saude	CN (ACE: Q22, Remuneracoes Medias + ICP,total)
	Outros Services	CN
	Direitos de Importtacao	CN
	SIFIM	R

**Table 2: Indicators
Values**

		1997	1998	1999	2000	2001
Correntes						
Total VA						
R01.0	Agricultura etc.					
R02.0	Pesca etc.					
R03.0	Mineira				206	261
R04.0	Manufatura					
R04.1	Alimentos				2.482	3.094
R04.2	Tabaco				2.482	3.094
R05.1	Texteis etc.				16	17
R05.2	Couro				16	17
R05.3	Madeira				14	51
R05.4	Papei etc.				69	103
R05.5	Quimicos				213	312
R05.6	Nao metallicos				430	560
R05.7	Metallicos basicos				13	15
R05.8	Maquinas e equipamento				20	17
R05.9	Out. Produtos manuf.				20	17
R06.0	Electricidade a agua					
R07.0	Construcao				741	840
R08.0	Comercio e reparacio				397	522
R10.0	Restaurantes e hotels				420	438
R11.0	Transportes e Comm.				746	866
R12.0	Financeeros				2.240	3.148
R13.0	Prestados a empresas					
R14.0	Adm. Publica e defesa				4.825	6.353
R15.0	Educacao				4.825	6.353
R16.1	Saude				4.825	6.353
	Outros Services				366	467
	Direitos de Importtacao				17.546	22.366
	SIFIM				-965	-987
Constantes						
Total VA						
R01.0	Agricultura etc.				7.094	8.240
R02.0	Pesca etc.				18.257	15.701
R03.0	Mineira				162	182
R04.0	Manufatura					
R04.1	Alimentos				410	423
R04.2	Tabaco				410	423
R05.1	Texteis etc.				521	1.621
R05.2	Couro				521	1.621
R05.3	Madeira				729	514
R05.4	Papei etc.				423	473
R05.5	Quimicos				467	561
R05.6	Nao metallicos				546	660
R05.7	Metallicos basicos				541	489

R05.8	Maquinas e equipamento	405	349
R05.9	Out. Produtos manuf.	405	349
R06.0	Electricidade a agua	9.660	11.875
R07.0	Construcao		
R08.0	Comercio e reparacio		
R10.0	Restaurantes e hotels		
R11.0	Transportes e Comm.		
R12.0	Financeeros	1.359	1.489
R13.0	Prestados a empresas	20	21
R14.0	Adm. Publica e defesa		
R15.0	Educacao		
R16.1	Saude		
	Outros Services		
	Direitos de Importtacao		
	SIFIM	-698	-528
Prescos			
	Total VA		
R01.0	Agricultura etc.	108,7	123,6
R02.0	Pesca etc.	108,1	115,4
R03.0	Mineira		
R04.0	Manufatura		
R04.1	Alimentos		
R04.2	Tabaco		
R05.1	Texteis etc.		
R05.2	Couro		
R05.3	Madeira		
R05.4	Papei etc.		
R05.5	Quimicos		
R05.6	Nao metallicos		
R05.7	Metallicos basicos		
R05.8	Maquinas e equipamento		
R05.9	Out. Produtos manuf.		
R06.0	Electricidade a agua	94,3	94,4
R07.0	Construcao	152,0	169,6
R08.0	Comercio e reparacio	124,6	138,3
R10.0	Restaurantes e hotels	193,0	191,5
R11.0	Transportes e Comm.	138,2	174,5
R12.0	Financeeros		
R13.0	Prestados a empresas	105,1	113,2
R14.0	Adm. Publica e defesa	196,7	208,6
R15.0	Educacao	245,1	280,3
R16.1	Saude	272,2	342,5
	Outros Services	136,6	143,1
	Direitos de Importtacao		
	SIFIM	143,3	193,1

Table 3: Valor acrescentado
Actual and estimated

	1997	1998	1999	2000	2001	2001*(est.)	2001, actual growth	2001, est. growth	Growth difference
Correntes									
Total VA	39.819	46.911	51.912	56.919	73.889	75.247	29,81	32,20	2,39
R01.0 Agricultura etc.	12.029	12.756	13.231	12.346	15.556	16.308	26,00	32,09	6,09
R02.0 Pesca etc.	1.566	1.418	1.310	1.378	1.627	1.265	18,07	-8,18	-26,25
R03.0 Mineira	124	143	73	206	261	261	26,70	26,70	0,00
R04.0 Manufatura	3.817	5.113	5.992	6.830	10.492	11.967	53,62	75,21	21,60
		485		575		1.007			
R04.1 Alimentos	1.344	1.706		2.021		2.520			
R04.2 Tabaco	631	926		1.097		1.368			
R05.1 Texteis etc.	570	379		449		483			
R05.2 Couro	49	47		56		60			
R05.3 Madeira	261	303		359		1.308			
R05.4 Papei etc.	69	81		96		143			
R05.5 Quimicos	316	324		384		562			
R05.6 Nao metallicos	244	349		414		539			
R05.7 Metallicos basicos	91	233		1.048		3.701			
R05.8 Maquinas e equipamento	214	226		268		224			
R05.9 Out. Produtos manuf.	28	54		64		53			
R06.0 Electricidade a agua	328	938	1.447	1.281	1.430	1.576	11,63	23,01	11,38
R07.0 Construcao	2.659	3.896	4.021	5.307	6.737	6.017	26,95	13,39	-13,56
R08.0 Comercio e reparacio	9.222	10.447	11.401	12.353	14.745	16.254	19,36	31,58	12,21
R10.0 Restaurantes e hotels	496	534	626	797	785	832	-1,51	4,33	5,84
R11.0 Transportes e Comm.	3.548	4.299	4.924	5.297	8.334	6.147	57,33	16,05	-41,28
R12.0 Financeeros	1.284	1.264	1.045	2.240	3.148	3.148	40,54	40,54	0,00
R13.0 Prestados a empresas	1.493	1.693	1.597	1.533	1.719	1.674	12,13	9,23	-2,90
R14.0 Adm. Publica e defesa	1.006	1.288	1.858	2.118	2.618	2.789	23,61	31,67	8,06
R15.0 Educacao	608	849	1.290	1.564	1.979	2.059	26,53	31,67	5,13
R16.1 Saude	178	245	436	539	781	710	44,90	31,67	-13,23
Outros Services	1.689	1.928	2.246	2.797	3.079	3.573	10,08	27,74	17,65
Direitos de Importtacao	812	957	1.009	1.298	1.585	1.655	22,11	27,47	5,36
SIFIM	-1.040	-857	-594	-965	-987	-987	2,28	2,28	0,00
Constantes									
Total VA	36.341	40.932	44.016	44.687	50.847	51.877	13,78	16,09	2,30
R01.0 Agricultura etc.	10.923	11.964	12.743	11.361	12.588	13.196	10,80	16,15	5,35
R02.0 Pesca etc.	1.337	1.190	1.164	1.275	1.410	1.096	10,59	-14,00	-24,59
R03.0 Mineira	94	113	106	162	182	182	12,35	12,35	0,00
R04.0 Manufatura	3.733	4.271	4.897	5.893	7.692	8.404	30,53	42,61	12,08
		-58		-70		-99			
R04.1 Alimentos	1.629	1.892		2.269		2.341			
R04.2 Tabaco	607	773		927		957			
R05.1 Texteis etc.	350	346		415		1.291			
R05.2 Couro	32	40		48		149			
R05.3 Madeira	217	247		296		209			
R05.4 Papei etc.	54	56		67		75			

R05.5 Quimicos	292	336		403		484			
R05.6 Nao metallicos	236	315		378		457			
R05.7 Metallicos basicos	92	163		967		2.374			
R05.8 Maquinas e equipamento	198	125		150		129			
R05.9 Out. Produtos manuf.	26	36		43		37			
R06.0 Electricidade a agua	214	811	1.446	1.358	1.515	1.669	11,56	22,93	11,37
R07.0 Construcao	2.556	3.226	3.334	3.491	3.973	3.549	13,81	1,65	-12,15
R08.0 Comercio e reparacio	8.425	9.440	9.679	9.916	10.659	11.750	7,49	18,49	11,00
R10.0 Restaurantes e hotels	376	368	388	413	410	434	-0,73	5,16	5,89
R11.0 Transportes e Comm.	3.315	3.473	3.787	3.833	4.777	3.524	24,63	-8,07	-32,70
R12.0 Financeeros	1.586	1.310	957	1.359	1.489	1.489	9,57	9,57	0,00
R13.0 Prestados a empresas	1.321	1.442	1.485	1.458	1.519	1.480	4,18	1,49	-2,70
R14.0 Adm. Publica e defesa	852	876	1.035	1.077	1.255	1.337	16,53	24,13	7,60
R15.0 Educacao	494	531	581	638	706	735	10,66	15,15	4,49
R16.1 Saude	137	150	176	198	228	207	15,15	4,64	-10,51
Outros Services	1.537	1.685	1.853	2.047	2.151	2.496	5,08	21,93	16,85
Direitos de Importtacao	764	876	899	906	821	857	-9,38	-5,41	3,97
SIFIM	-1.323	-794	-514	-698	-528	-528	-24,36	-24,36	0,00
Prescos									
Total VA	109,6	114,6	117,9	127,4	145,3				
R01.0 Agricultura etc.	110,1	106,6	103,8	108,7	123,6	123,6			
R02.0 Pesca etc.	117,1	119,2	112,5	108,1	115,4	115,4			
R03.0 Mineira	131,9	126,5	68,9	127,2	143,4				
R04.0 Manufactura									
R04.1 Alimentos	82,5	90,2							
R04.2 Tabaco	104,0	119,8							
R05.1 Texteis etc.	162,9	109,5							
R05.2 Couro	153,1	117,5							
R05.3 Madeira	120,3	122,7							
R05.4 Papei etc.	127,8	144,6							
R05.5 Quimicos	108,2	96,4							
R05.6 Nao metallicos	103,4	110,8							
R05.7 Metallicos basicos	98,9	142,9							
R05.8 Maquinas e equipamento	108,1	180,8							
R05.9 Out. Produtos manuf.	107,7	150,0							
R06.0 Electricidade a agua	153,3	115,7	100,1	94,3	94,4	94,4			
R07.0 Construcao	104,0	120,8	120,6	152,0	169,6	169,6			
R08.0 Comercio e reparacio	109,5	110,7	117,8	124,6	138,3	138,3			
R10.0 Restaurantes e hotels	131,9	145,1	161,3	193,0	191,5	191,5			
R11.0 Transportes e Comm.	107,0	123,8	130,0	138,2	174,5	174,5			
R12.0 Financeeros	81,0	96,5	109,2	164,8	211,4				
R13.0 Prestados a empresas	113,0	117,4	107,5	105,1	113,2	113,2			
R14.0 Adm. Publica e defesa	118,1	147,0	179,5	196,7	208,6	208,6			
R15.0 Educacao	123,1	159,9	222,0	245,1	280,3	280,3			
R16.1 Saude	129,9	163,3	247,7	272,2	342,5	342,5			
Outros Services	109,9	114,4	121,2	136,6	143,1	143,1			
Direitos de Importtacao	106,3	109,2	112,2	143,3	193,1	193,1			
SIFIM	78,6	107,9	115,6	138,3	186,9				

Valor acrescentado

Actual

	1997	1998	1999	2000	2001
Correntes					
Total VA	39.819	46.911	51.912	56.919	73.889
R01.0 Agricultura etc.	12.029	12.756	13.231	12.346	15.556
R02.0 Pesca etc.	1.566	1.418	1.310	1.378	1.627
R03.0 Mineira	124	143	73	206	261
R04.0 Manufatura	3.817	5.113	5.992	6.830	10.492
		485		502	
R04.1 Alimentos	1.344	1.706		1.764	
R04.2 Tabaco	631	926		958	
R05.1 Texteis etc.	570	379		392	
R05.2 Couro	49	47		49	
R05.3 Madeira	261	303		313	
R05.4 Papei etc.	69	81		84	
R05.5 Quimicos	316	324		335	
R05.6 Nao metallicos	244	349		361	
R05.7 Metallicos basicos	91	233		1.784	
R05.8 Maquinas e equipamento	214	226		234	
R05.9 Out. Produtos manuf.	28	54		56	
R06.0 Electricidade a agua	328	938	1.447	1.281	1.430
R07.0 Construcao	2.659	3.896	4.021	5.307	6.737
R08.0 Comercio e reparacio	9.222	10.447	11.401	12.353	14.745
R10.0 Restaurantes e hotels	496	534	626	797	785
R11.0 Transportes e Comm.	3.548	4.299	4.924	5.297	8.334
R12.0 Financeeros	1.284	1.264	1.045	2.240	3.148
R13.0 Prestados a empresas	1.493	1.693	1.597	1.533	1.719
R14.0 Adm. Publica e defesa	1.006	1.288	1.858	2.118	2.618
R15.0 Educacao	608	849	1.290	1.564	1.979
R16.1 Saude	178	245	436	539	781
Outros Services	1.689	1.928	2.246	2.797	3.079
Direitos de Importacao	812	957	1.009	1.298	1.585
SIFIM	-1.040	-857	-594	-965	-987
Constantes					
Total VA	36.341	40.932	44.016	44.687	50.847
R01.0 Agricultura etc.	10.923	11.964	12.743	11.361	12.588
R02.0 Pesca etc.	1.337	1.190	1.164	1.275	1.410
R03.0 Mineira	94	113	106	162	182
R04.0 Manufatura	3.733	4.271	4.897	5.893	7.692
		-58			
R04.1 Alimentos	1.629	1.892			
R04.2 Tabaco	607	773			
R05.1 Texteis etc.	350	346			
R05.2 Couro	32	40			
R05.3 Madeira	217	247			
R05.4 Papei etc.	54	56			

R05.5	Quimicos	292	336			
R05.6	Nao metallicos	236	315			
R05.7	Metallicos basicos	92	163			
R05.8	Maquinas e equipamento	198	125			
R05.9	Out. Produtos manuf.	26	36			
R06.0	Electricidade a agua	214	811	1.446	1.358	1.515
R07.0	Construcao	2.556	3.226	3.334	3.491	3.973
R08.0	Comercio e reparacio	8.425	9.440	9.679	9.916	10.659
R10.0	Restaurantes e hotels	376	368	388	413	410
R11.0	Transportes e Comm.	3.315	3.473	3.787	3.833	4.777
R12.0	Financeeros	1.586	1.310	957	1.359	1.489
R13.0	Prestados a empresas	1.321	1.442	1.485	1.458	1.519
R14.0	Adm. Publica e defesa	852	876	1.035	1.077	1.255
R15.0	Educacao	494	531	581	638	706
R16.1	Saude	137	150	176	198	228
	Outros Services	1.537	1.685	1.853	2.047	2.151
	Direitos de Importtacao	764	876	899	906	821
	SIFIM	-1.323	-794	-514	-698	-528
Prescos						
	Total VA	109,6	114,6	117,9	127,4	145,3
R01.0	Agricultura etc.	110,1	106,6	103,8	108,7	123,6
R02.0	Pesca etc.	117,1	119,2	112,5	108,1	115,4
R03.0	Mineira	131,9	126,5	68,9	127,2	143,4
R04.0	Manufatura	102,3	119,7	122,4	115,9	136,4
R04.1	Alimentos	82,5	90,2			
R04.2	Tabaco	104,0	119,8			
R05.1	Texteis etc.	162,9	109,5			
R05.2	Couro	153,1	117,5			
R05.3	Madeira	120,3	122,7			
R05.4	Papei etc.	127,8	144,6			
R05.5	Quimicos	108,2	96,4			
R05.6	Nao metallicos	103,4	110,8			
R05.7	Metallicos basicos	98,9	142,9			
R05.8	Maquinas e equipamento	108,1	180,8			
R05.9	Out. Produtos manuf.	107,7	150,0			
R06.0	Electricidade a agua	153,3	115,7	100,1	94,3	94,4
R07.0	Construcao	104,0	120,8	120,6	152,0	169,6
R08.0	Comercio e reparacio	109,5	110,7	117,8	124,6	138,3
R10.0	Restaurantes e hotels	131,9	145,1	161,3	193,0	191,5
R11.0	Transportes e Comm.	107,0	123,8	130,0	138,2	174,5
R12.0	Financeeros	81,0	96,5	109,2	164,8	211,4
R13.0	Prestados a empresas	113,0	117,4	107,5	105,1	113,2
R14.0	Adm. Publica e defesa	118,1	147,0	179,5	196,7	208,6
R15.0	Educacao	123,1	159,9	222,0	245,1	280,3
R16.1	Saude	129,9	163,3	247,7	272,2	342,5
	Outros Services	109,9	114,4	121,2	136,6	143,1
	Direitos de Importtacao	106,3	109,2	112,2	143,3	193,1
	SIFIM	78,6	107,9	115,6	138,3	186,9

ANNEX 3: Proposal for calculation methods for a sustainable QNA

In this annex will be given a brief outline of a method that could be used in the calculations of a QNA in Mozambique. The description only indicates the major lines of the calculation procedures and has to be elaborated further in the course of implementation. Also, of course, new ideas might evolve which could lead to changes in the proposed procedures.

It is proposed to use the framework of the supply and use tables as the basis for calculating the QNA. In the QNA, however, the calculations have to be made at a more aggregated level than in the annual accounts, not only because of the more limited source data, but also in order to meet the short time limits in combination with the fact that not only the latest quarter but also one or two preceding quarters have to be calculated.

The proposed level of calculation corresponds to the level of table 5.8 in “Contas Nacionais 1999”. A few exceptions could be considered: The split of the production value into “Empresarial” and “Familiar” might not be necessary, while on the other hand it could be sensible for some industries to distinguish between own account production and other production.

To have a smooth production process it is important to make it as automatically as possible. This means that the processes should be computerised to a high degree,

It is also a good idea to separate the production process into 4 stages:

1. Gathering and transforming the source data.
2. Making calculations.
3. Evaluating the results.
4. Final treatment including seasonal adjustment and publishing

Regarding step 1: The source data should comprise indicators for production (in many cases the same as used in (annex 2)), data on imports, exports and changes in inventories (if possible). Special data for big projects (like MOZAL) should be incorporated. It might be necessary to transform some of the source data before it is ready to be used as indicators. Some indicators might be calculated on the basis of several kinds of source data.

Regarding step 2: From the indicators it should be possible to calculate the production values (cf. table 5.8) by extrapolation of earlier values with the development of the indicators. Furthermore imports and exports and change in inventories should be calculated using the source data.

The import duties could then be calculated by using earlier ratios on the actual import figures. A better result would of course be obtained if this calculation could be carried out at a more disaggregated level. Special attention is needed if the duty rates has been changed. The trade margins could be calculated in a two-step procedure: initial calculation by using the rates from earlier periods and secondly an adjustment of these values to the production value in the trade-industry.

For each product group it is then possible to calculate the total domestic use (excl. change in invent.) as the total supply minus exports and change in invent. This total could then - for each product group - be distributed on intermediate consumption, government consumption, consumption of households and gross fixed capital formation on the basis of the distribution in the latest annual accounts.

The quality of these distributions could be improved if some relevant disaggregations were introduced. For example if the agricultural products were subdivided in to own account production and other production it would be known that the total supply of own account products would be consumed by households.

All the procedures in step 2 could be carried out automatically thereby reducing the production time for this step to a few hours.

Regarding step 3: The evaluation process is very demanding regarding skills and knowledge. The calculated figures have to be checked against other information, common sense, knowledge in general. It should also be controlled for eventual errors in the calculations (or in the source data). And it should be checked whether the developments compared to earlier quarters is reasonable.

The evaluation process will take about one week for two well trained persons.

Regarding step 4: The publishing of QNA is proposed to be by a short press release on date announced earlier. The press release should focus primarily on growth rates. The figures should of course also be incorporated in "A conjuntura economica".

Seasonal adjustment cannot be done before a time serie of at least 5 years has been established.

The above mentioned procedures in step 1, 2 and 3 should be done simultaneously in current and constant prices, and implicit price indices should be calculated in order to check the results.

ANNEX 4: Revision Policy

Below is an example of a revision policy. The example illustrates the revision policy on QNA followed by Statistics Denmark in the period September 1988 to September 2001. The revision policy was announced to the users so that they always knew how many quarters would be revised.

Revision policy of the Danish QNA, 1988 to 2001

Year	Month of publishing	Year T, Q1	Year T, Q2	Year T, Q3	Year T, Q4		Year T
T	June	P					
	September	R	P				
	December	R	R	P			
T+1	Marts	R	R	R	P		P (SQ)
	June	R	R	R	R		R (SQ)
	September	-	-	-	-		-
	December	R	R	R	R		R (AP1)
T+2	Marts	-	-	-	-		-
	June	-	-	-	-		-
	September	-	-	-	-		-
	December	R	R	R	R		AP2
T+3	Marts	-	-	-	-		-
	June	-	-	-	-		-
	September	-	-	-	-		-
	December	F	F	F	F		F

P: First published

R: Revised

F: Final

-: Figures are published unchanged compared to the published figures 3 month before.

SQ: Sum of quarters

AP1: First preliminary annual calculation

AP2: Second preliminary annual calculation

The revisions of the quarterly figures in December T+1, T+2 and T+3 are made in order to make the quarterly figures consistent with the annual figures.