



Report from a short-term mission on

Time reporting in a Product based accounting system

26 March – 4 April 2003

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

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Table of Content

| | | |
|----------|--|----------|
| 1 | EXECUTIVE SUMMARY | 4 |
| 2 | INTRODUCTION | 6 |
| 2.1 | BACKGROUND AND PRE MISSION EXPERIENCE | 6 |
| 2.2 | THE OBJECTIVE AND OUTPUT OF THE MISSION | 6 |
| 2.3 | THE STRUCTURE OF THE REPORT..... | 6 |
| 2.4 | THE DURATION OF THE MISSION AND THE MISSION TEAM | 7 |
| 3 | ACTIVITIES DURING THE MISSION | 7 |
| 3.1 | GATHERING INFORMATION AND MAPPING..... | 7 |
| 3.2 | PRESENTATION OF FINDINGS AND RECOMMENDATIONS | 7 |
| 4 | TIME REPORTING | 8 |
| 4.1 | TIME REPORTING | 8 |
| 4.1.1 | <i>Distribution of costs</i> | 8 |
| 4.1.2 | <i>Commissioned work</i> | 9 |
| 4.1.3 | <i>Planning, budgeting and follow-up</i> | 10 |
| 4.2 | THE NEXT STEP..... | 11 |
| | Appendix 1 <i>Persons Met</i> | 12 |
| | Appendix 2 <i>Terms of Reference</i> | 13 |
| | Appendix 3 <i>Time report sheet</i> | 15 |

1 Executive summary

The main purpose of the mission is to support INE to continue to develop the time reporting component in a new product based cost accounting system.

Time reporting could be used for:

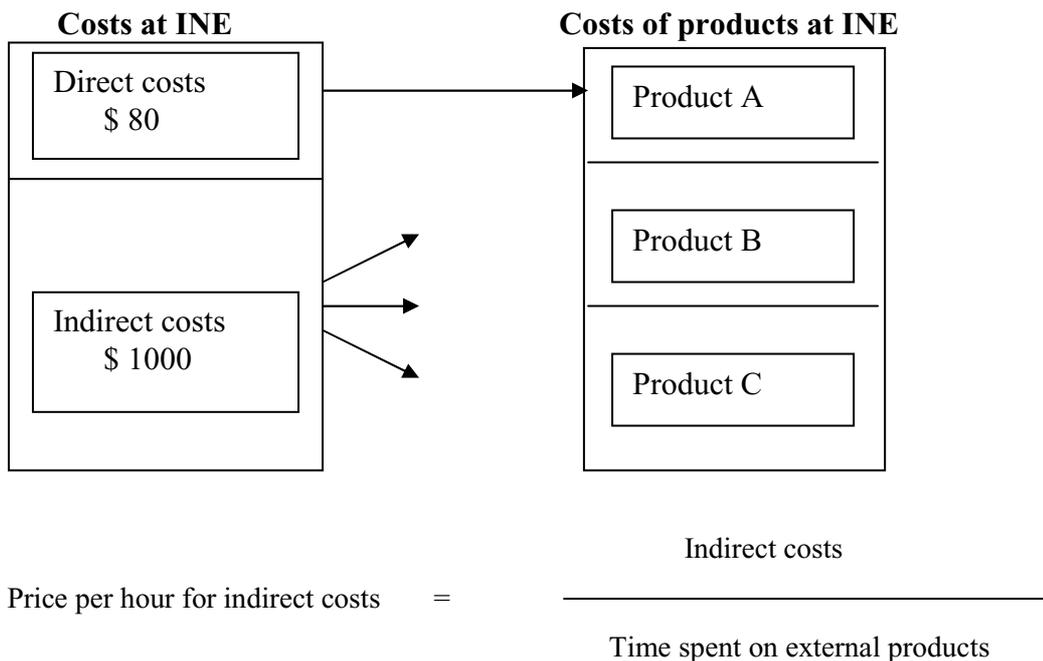
- Distribution of costs to products or projects
- Determining a price per hour which could be used to calculate a price for commissioned work
- Comparing time worked on different products or projects (studies of effectiveness)
- Comparing planned worked time with actual worked time
- Planning work on a product by looking at time previously needed to produce that product.

A time report sheet (Appendix 3) was developed during the mission and is going to be tested in a one week time-use survey covering all employees at INE in Maputo. A Statistics in Action (STAC) course performed at INE in April will then do an attitude survey to find out the employees opinion about time reporting and the time sheet. If INE chooses to start time reporting, the draft time report sheet could be used, perhaps after some modifications based on experiences from the time-use survey.

Distribution of costs to products

Usually a large part of the costs cannot be directly allocated to a specific product/survey (indirect costs), but have to be distributed to the products by some key. The time used to produce a product is one such possible key. Time is possible to quantify and correlates sufficiently well with the costs.

Example



Calculation of price for commissioned work

By calculating a price per hour for indirect costs it is also possible to calculate prices for commissioned work that should cover all costs.

Example:

A customer wants you to do a survey and print the results in a publication. The calculated price for indirect costs is \$ 4 per hour:

| | | | |
|---|---|---------|------------------|
| 250 hours work, \$ 4 per hour | = | \$ 1000 | (Indirect costs) |
| Paper and printings costs for publication | = | \$ 100 | (Direct costs) |
| <hr/> | | | |
| Total price for the work | = | \$ 1100 | |

Planning, budgeting and follow-up

When you are planning a survey the information from the time reports also could be useful. How many hours did we spend last year on the survey? Did we spend less or more hours on the survey this year when we changed the production methods?

By calculating the production cost per hour it is also possible to calculate the costs for a product, department or directorate in advance. When you are planning the work on a new product or perhaps all the work next year, the calculated cost could be used as a budget for the next year, and as the year progresses the actual costs can be compared with the budget.

2 Introduction

2.1 Background and pre mission experience

Within the Scandinavian Bridging Support Programme, INE has requested a short-term mission to develop the time reporting component in a new product-based cost accounting system. Time reporting is necessary if INE in the future wants to allocate indirect costs to achieve accurate costing per product or to calculate the price for commissioned work. It can also be used in planning, budgeting and follow-up. The work is part of INE's efforts to build a modern statistical institution also in the field of financial management and administration.

Another short-term mission within the Scandinavian programme will carry out a Statistics in Action Course (STAC) that includes a survey on attitudes to time use reporting, covering all the employees at INE in Maputo. The results of this survey will be used to further develop the time-use component.

A first mission¹ within the same area has taken place between 16th September and 3rd October 2002. Thomas Kjerf, Robert Jäverlind, Martin Eriksson and Anders Ejdemark then presented a model for a full cost accounting system, designed to provide managers at INE with information about the costs for each cost centre and the costs per product. This model and the definitions presented in that mission report provide the conceptual background for the activities and suggestions of the present report.

2.2 The objective and output of the mission

The general objective of a full product based cost accounting system is to provide managers at INE with information about the costs for each cost centre and each product. Together with other financial and operational information, the managers at INE will then be able to make better decisions regarding the allocation of scarce resources and better evaluations of the organisational performance. The specific purpose of this mission is to support INE in the work to develop the time reporting component in the system, and to explain how the information can be utilised.

The results of the mission are outlined in this report.

2.3 The structure of the report

The report is structured in conformity with DANIDA's reporting structure for short-term missions:

- The introduction provides background information about the mission, the mission team, the objectives and the demanded output.
- The next chapter gives a description of the mission activities and the method used for mapping, analysis and presentation.
- The final chapter provides a presentation of how time reporting is used. It also includes a recommendation for future work and some other issues under consideration.

¹ *A product based accounting system, MZ:2002:8*

2.4 The duration of the mission and the mission team

The mission was conducted by Mr. Robert Jäverlind, Financial Controller, consultant from Statistics Sweden. It started on the 20th of March with preparatory work in Sweden, and continued in Maputo from Wednesday 26th of March to Friday 4th of April 2003.

3 Activities during the mission

3.1 Gathering information and mapping

The first week in Mozambique consisted of meetings at INE with Mr Maringue, Head of Department of Administration and Finance, other employees at the Department of Administration and Finance, and Mr Luis Nhapulo, Accountant for the Scandinavian Support. Relevant reports were studied, needs and expectations were discussed, and ideas were exchanged on how information about time worked on various products could be collected and how the information could be used in a full cost product based accounting system.

There were also discussions with the STAC mission team in Sweden and in Mozambique about the contents of the survey on attitudes to time reporting the course was to perform.

Finally, there were regular briefings with Mr. Hans Erik Altvall, the Coordinator of the Scandinavian Bridging Program, regarding the Terms of Reference, the mission and the expected output.

3.2 Presentation of findings and recommendations

A seminar was arranged on the 3rd of April, with focus on time reporting and how it could be used in a product based cost accounting system. The purpose of the seminar was to introduce the concept to the Heads of Department and other employees intended to work with the new system.

Main issues at the seminar were:

- Explaining the mission objectives
- Explaining how time reporting is used at Statistic Sweden
- Explaining how time reporting could be used at INE.

At the end of the mission a meeting was held with Mr Maringue and Mr Luis Nhapulo to discuss and explain the output of the mission and how INE could add the time report component to the product based cost accounting system

4 Time reporting

4.1 Time reporting

Time reporting here means that each employee reports the time he/she has worked on different products or projects. The time can be measured in hours or days, and the reporting made by an electronic application or by manual registration on a paper form. The reporting could be done once a week or once a month. The costs will be higher if the time is reported every week (more work), but the quality of the reports will be higher.

Time reporting can be used for:

- Distribution of costs on products or projects
- Determining a price per hour which could be used to calculate a price for commissioned work
- Analysing/comparing the amount of time worked on different products or projects (effectiveness)
- Comparing planned worked time with actual worked time
- Planning work on a product by looking at time spent on previous rounds.

A time sheet (Appendix 3) was developed during the mission and is going to be tested during one week in a time-use survey covering all employees at INE in Maputo. The STAC-course will then do a time-use attitude survey to find out more about the employees opinion about time reporting and the time sheet. If INE chooses to start time reporting, the developed time report sheet could be used, perhaps after some modifications based on experiences from the time-use survey.

To be successful, time reporting has to be understood and accepted among the employees. In that introductory process it is important that the management support and participate in the time reporting themselves. It is recommended that the Directors and/or Heads of Departments should be responsible for the collection and submission of the reports. The actual work may of course be delegated within the directorate or department. When all the time reports from a department/directorate have been submitted and collected, the person responsible should send them in one batch for registration.

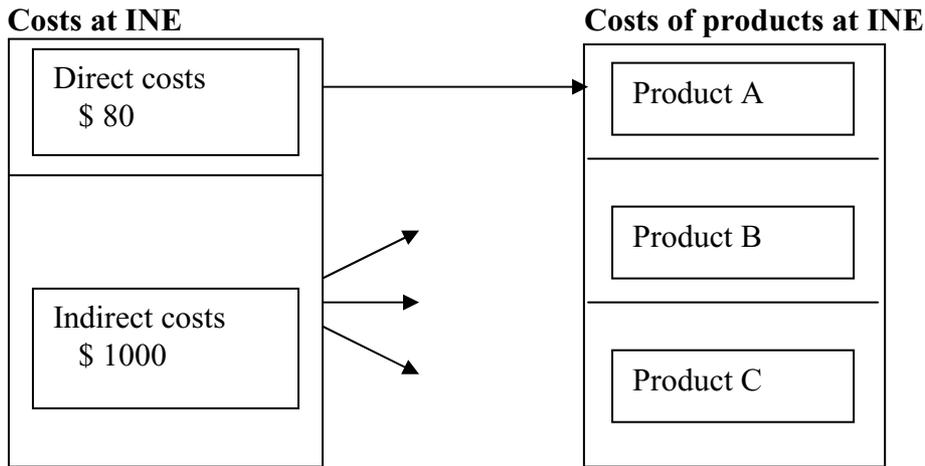
If some employees work with just one product the person responsible for collecting the time reports could fill in their time reports if that is considered preferable.

4.1.1 Distribution of costs

Usually a large part of the costs cannot be allocated directly to a specific product (indirect costs) and has to be distributed to the products by some form of key. The time used for producing each product is possible to quantify, correlates sufficiently well with the costs. Allocation by time use is the most commonly used key in companies with similar activities as INE.

The product codes will give the direct costs related to each product. To estimate the indirect costs that should be allocated to each product to get the total costs, it is suggested that INE uses the number of hours that the employees have worked with each product. This information can be derived from a time reporting system.

Example



Time report, worked hours:

| | | |
|---------------------|-----------------------------|-----------|
| Product A | Annual National Accounts | 30 hours |
| Product B | Quarterly National Accounts | 20 hours |
| Product C | Social Welfare | 50 hours |
| Total hours worked: | | 100 hours |

$$\text{Price per hour for indirect costs} = \frac{\text{Indirect costs}}{\text{Time spent on external products *)}$$

*) The price per hour should be calculated on the time spent on external products (not indirect products).

$$\text{Price per hour is } \$ 10 = \frac{\$ 1000}{100 \text{ hours}}$$

Allocation of the indirect costs of \$ 1000 on the products:

| | | |
|-----------|-----------------------------|---------------------------|
| Product A | Annual National Accounts | 30 hours x \$ 10 = \$ 300 |
| Product B | Quarterly National Accounts | 20 hours x \$ 10 = \$ 200 |
| Product C | Social Welfare | 50 hours x \$ 10 = \$ 500 |

| Cost | Product A | Product B | Product C |
|-------------------------|-----------|-----------|-----------|
| Direct cost | \$ 80 | | |
| Indirect cost | \$ 300 | \$ 200 | \$ 500 |
| Total cost for product: | \$ 380 | \$ 200 | \$ 500 |

4.1.2 Commissioned work

By calculating a price per hour for indirect costs it is also possible to calculate prices for commissioned work that should cover all your costs.

Example:

A customer wants you to do a survey and print the results in a publication. The calculated price for indirect time is \$ 4 per hour:

| | | | |
|---|---|----------------|------------------|
| 250 hours work, \$ 4 per hour | = | \$ 1000 | (Indirect costs) |
| Paper and printings costs for publication | = | \$ 100 | (Direct costs) |
| Total price for the work | = | \$ 1100 | |

4.1.3 Planning, budgeting and follow-up

When you are planning a survey the information from the time report also could be useful. How many hours did we spend last year on the survey? Did we spend less or more hours on the survey this year, when we changed the production methods?

By calculating a production cost per hour, it is possible to calculate the costs for a product, department or directorate in advance. When you are planning the work on a new product or perhaps all the work next year, and as the year progresses the actual costs can be compared with the budget.

Example with a calculated price of \$ 4 per hour and the direct costs added. This table could be used for both planning/budgeting and follow-up.

| Hours worked Name | Product 101 | Product 104 | Product 105 | Product 204 | Product 216 | Product 314 | Total hours |
|------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Jorge da Silva | 150 | 5 | 15 | | 950 | 500 | 1.620 |
| Antonia Utuo | 100 | 50 | 100 | | 800 | 475 | 1.525 |
| Luis Muhaore | | 5 | 450 | 750 | 130 | 275 | 1.610 |
| Manuel Maguare | 150 | 75 | | 1.000 | 315 | 100 | 1.640 |
| Alexandra Utumba | 750 | 100 | 150 | 100 | 215 | 300 | 1.615 |
| Total hours: | 1.150 | 235 | 715 | 1.850 | 2.410 | 1.650 | 8.010 |

| Costs | Product 101 | Product 104 | Product 105 | Product 204 | Product 216 | Product 314 | Total cost |
|--------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-----------------------|
| Worked time | 4.600 | 940 | 2.860 | 7.400 | 9.640 | 6.600 | 32.040 |
| Computers | | | 500 | | | | 500 |
| Transport | | | | 100 | | | 100 |
| Representation | 150 | | | 100 | | | 250 |
| Consultant | | | | | 500 | | 500 |
| Water | 100 | | | | | | 100 |
| Total cost: | 4.850 | 940 | 3.360 | 7.600 | 10.140 | 6.600 | 33.490 |

Calculating a price per hour for the next year, before you know the hours reported on external products and the indirect costs could be very difficult. Especially if the time reporting is recently introduced and the reporting process has not been stabilised (people might change their way of reporting). It is important to check that the calculated price per hour actually reflects the cost per hour during the year and that the deviation is not too large.

4.2 The Next step

The next step is for INE to decide if time reporting should be introduced at INE, and if so, whether the reporting should be done once a week or perhaps once a month.

The time reporting has to be understood and accepted by the employees. In that process it is important that the management support the time reporting. As the Directors could not attend the seminar on 3rd of April due to a two-day meeting, it is important that they also are informed at some later occasion. It is suggested that Mr. Luis Nhapulo and Mr. Domingos Mateus Maringue have a meeting with them.

The developed time report sheet could be used, perhaps after some modifications, if indicated by the STAC-course time-use attitude survey. If the time reporting is to be correct, the list of products in the time sheet has to be finalised and then up-dated regularly to ensure an accurate list of products. New products will appear and some products might be discontinued.

INE also has to decide which persons should be responsible for the collection and submission of the time reports.

In the future (perhaps a couple of years ahead) the employees could be divided into various groups by size of salary, and a price per hour could be calculated for each group. This would give even better cost estimates.

In the future INE could also consider buying an electronic application for time reporting. The application could register the hours worked, and the employees could then report worked hours on different products directly by computer.

Appendix 1 Persons Met

Mr. Domingos Mateus Maringue, Chief of DAF

Mr. Luis Mungamba, Director of DICRE

Mr. Luis Nhapulo, Accountant for the Scandinavian Support

Mr. Hans-Erik Altvall, Team leader for the Scandinavian programme

STAC-course mission team

STAC-course participants

Mr. Antonio Adriano, Chief of Cartografia

Mr. Cristovao Muhaio, Chief of DCI

Mrs. Zuraida Khan, Chief of Estatísticas sociais

Appendix 2 Terms of Reference

for a short-term mission

Within the Scandinavian Bridging Support Programme

To

Continue to develop

A Cost Accounting System at INE, based on products and activities

1. **Background.** INE has adopted a strategy to build a modern statistical institution also in the field of cost accounting with budget and financial results based on products and on time reporting and time budgeting on product level.

A first mission with this purpose took place 16 September – 4 October 2002 and is reported in MOZ 2002:8.

2. **Objective of this mission.** The main objective is to support INE to develop the time reporting component in a new product based cost accounting system and to show how time budgeting can be used. Another short-term mission within the programme with links to this mission will take place on the same time.
The other mission will carry out a Statistical in Action Course (STAC) for INE/SEN staff. STAC will include a fieldwork component and this is planned to cover a survey on time-use for all the staff at INE. The result of this survey will be used to further develop the time-use component in a new cost-accounting system. Hence, the two missions will work close together in planning, implementing and analyzing the fieldwork in the STAC.
3. **Expected results.** The consultant will prepare a report on the mission. This will cover the following main outputs:
 - v A proposal on how time-use at INE can be budgeted and how it may be included and taken into account in preparing INE:s next budget
 - v A proposal on how time-use at INE can be collected, reported and included (registered) in a product based cost-accounting system, using the system for the Scandinavian Support as a base.
 - v A proposal on how output from a product based accounting system at INE can be designed in order to help the managers at INE to improve the budget work and to make regular follow-up of cost and activities linked to the cost.
4. **Activities.** The consultant will
 - v Assist INE and the STAC mission in preparing an adequate form for collecting time-use (as a test) during the STAC. He will also assist with ideas on how the information should be processed and analyzed, with focus on what type of output can be expected from the test and which questions may be answered with the test. It may be motivated to have a follow-up interview with INE staff during the STAC in order to further develop the time-use component.

It should be observed that data processing, analysis and report writing will take place in a later phase of the STAC.

- v Support INE with general ideas on how to improve the cost accounting system used for the Scandinavian Support in order to expand this to cover all costs
- v Support the Heads at INE on product level on how time use can be budgeted and included in a product-related budget and how cost arising from time-use linked to activities on product level can be followed up on a regular basis,
- v He will, for this purpose, have a short seminar with Heads at product level as the target group at the end of the mission to explain use of time budgeting and time reporting time and how budget and the follow-up of financial results are organized and carried out at Statistics Sweden.

5. **Counterparts.** The main counterparts are Mr. Maringue – Head of Department of Administration and Finance – and Mr Luis Nhapulo – Accountant for the Scandinavian Support
6. **Consultant.** The consultant is Mr. Robert Jäverlind Statistics Sweden. He is the financial controller for the Department of Economic Statistics at Statistics Sweden that has about 300 people. He participated in the first short-term mission on cost accounting.
7. **Timing of the mission.** The mission will take place 26/3 – 4/4 2003.
8. **Finalization of the report** The consultant will prepare a draft report to be discussed with INE before leaving Maputo. He/she 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)
/ /

Appendix 3 Time report sheet