



CONSULTING ASSISTANCE ON ECONOMIC REFORM II

DISCUSSION PAPERS

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The Role of the Central Bank In Economic Reform: The Case of Madagascar

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Acknowledgments

This program of reform has been the result of many individuals and organizations in Madagascar and internationally. Credit for the reform of Malagasy monetary policy and oversight of the banking system belongs fully with the Governor of the BCM, the several Directors of the BCM, and their staff. This report attempts to describe their reforms, but particularly the contribution made through the actions and results of a project financed by the USAID Mission to Madagascar through a buy-in to the Consulting Assistance for Economic Reform project led by Harvard Institute for International Development and implemented by Development Alternatives, Inc. and Interamerican Management Consulting Corporation. The initial identification study was performed by Clive Gray with the participation of the Directors of the BCM. Guidance, advice technical assistance and training were provided by Elisabeth Almy, Jean-Paul Azam, Philip Berlin, Robert Dressen, Lloyd Freeman, Clive Gray, Alexander Korns, Harold Lubell, Eric R. Nelson, Juan Carlos Protasi, Josée Randriamamonjy, and Kurt Schuler. Significant assistance was provided by Alain de Maynadier and Richard Morin, while several Malagasy economists including Jean Robiarivony participated in special presentations or training, and provided informal advice to the team. The BCM's own workgroups, particularly the working group in treasury bill market development, were essential to the advancement and the achievements of the activities. This report is a compendium of the individual reports of these experts.

Teams evaluating the experience of other countries undergoing reforms were given significant assistance by the Bank al Magrib, Banque Centrale de la Tunisie, Bank Indonesia and Bank Negara Malaysia, and the extensive, highly detailed, competent, and often self-critical presentations made by the staffs of these central banks. The staff members willingly offered their time despite the foreign exchange crisis (in the case of Malaysia and Indonesia) spreading even hourly as the 1997 "baht crisis" during the BCM visit. The visiting teams were also aided in these countries by constructively critical appraisals by financial systems experts Ezzedine Larbi, Fouzi Mourji, and Anwar Nasution. Constant oversight and intellectual contributions were made by Amelia Knight, Frank Martin and Mary Norris and Frank Martin of USAID, and resident coordinator Pieter Brakel of DAI. Computer training to the BCM staff was provided by Blanche Birger S.A., and extensive administrative support was provided by Ramantra Rakotomavo, project administrator, to make this possible.

By late 1997, however, the BCM, which initiated the process with a discussion with Dr. Clive Gray in early 1996, had taken over ownership and advancement the process completely, with the expatriate assistance service as resource persons. We both congratulate and thank the BCM and its individual staff members for the successful transition.

This report was drafted by Eric R. Nelson with extensive contributions by all team members.

CHAPTER 1 BACKGROUND: THE ENVIRONMENT FOR REFORM

In the context of economic liberalization in Madagascar in the 1990s, BCM statutes were rewritten to give it autonomy in the pursuit of a non-inflationary monetary policy. The USAID-funded Financial Market Development (FMD) project was initiated to help BCM adjust to its new role in a liberalized market economy. It began in the context of the PRODIF (le Projet de Developement des Institutions Financieres), a project for upgrading the BCM, funded by a World Bank loan signed in 1994.

Economic reform and liberalization requires both policy changes and the development or reform of the institutions required for the supervision and implementation of policies. The Government of Madagascar (GOM) chose a market-oriented policy regime after two decades of economic stagnation and decline. To reform its policies and procedures to correspond to this regime, it has devoted resources to training and technical assistance to develop market institutions as a small country in a large international market.

Madagascar is one of the poorest countries in the world, with an income per capita of US\$ 230 in 1995. Seventy-five percent of its largely rural population—which is growing at 3 percent per annum—has an income below the poverty line. However, the workforce is relatively well educated by African standards, with a female enrollment rate in secondary education of 14 percent in 1993. Despite a diversified resource base, like many low income open economies with an agricultural base Madagascar is subject to frequent and severe external shocks (Figure 1)¹: it lost about 60 percent of the international purchasing power of its exports between 1987 and 1991, when commodity prices fell on world markets. This was followed by a positive shock, a boom of nearly 50 percent in purchasing power from 1991 to 1996 which preceded yet another negative shock exceeding 25 percent the following year.

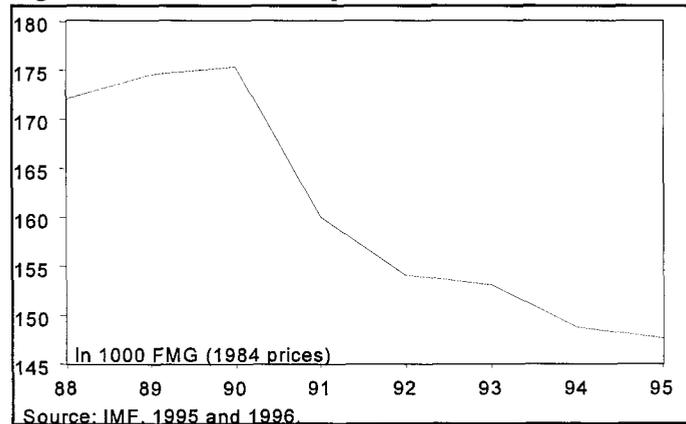
Figure 1: Terms of Trade (logarithmic scale)



¹ The analyses and charts used in this study were entirely developed by BCM staff using BCM data unless otherwise stated. The explanatory text of this chapter was developed in seminar discussion under the tutelage of Jean-Paul Azam.

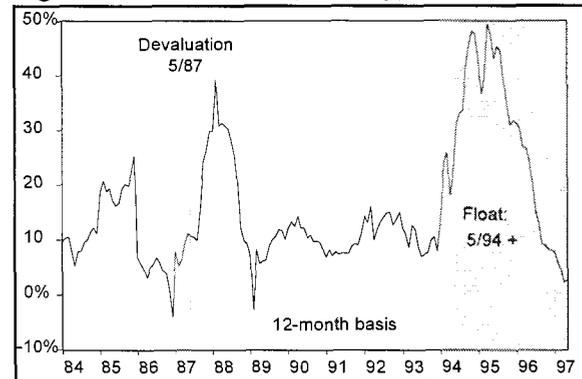
Under a post-independence socialist political regime which supported extensive government ownership of economic assets, direct control of the economy, and a large public investment program, the country declined into a crisis with consumer goods in short supply and a fall in agricultural production — cash crops in particular (Azam, Berthélemy and Morrisson). Real per capita income declined by more than 40 percent between 1970 and 1995, and liberal policy regimes did not stop the declines. With private savings falling to a level fluctuating around five percent of GDP, gross investment of 11 percent of GDP was insufficient even to maintain existing infrastructure and social services. The Malagasy economy has never really recovered from this shock, in which real per capita income declined more than 40 percent from 1970 to 1995, half of that decline occurring since 1990 (Figure 2).

Figure 2: Real GDP Per Capita



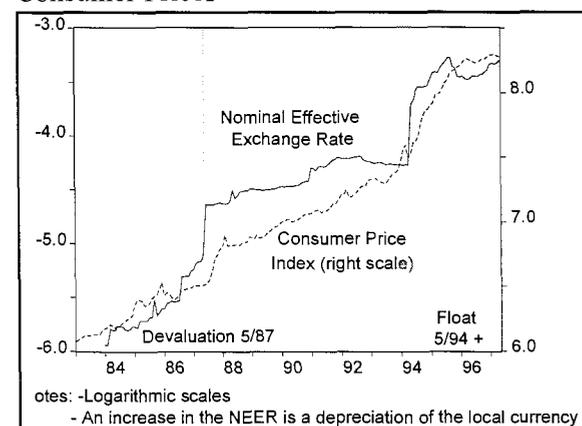
With external shocks and fiscal mismanagement, every six or seven years has seen an inflationary crisis in which the rate of inflation jumped over 20 or 30 percent (IMF, 1996). This occurred in 1974, 1981-83, 1988, and 1994-95. This last inflationary episode saw the inflation rate stay above 45 percent for about a year. Otherwise, the rate of inflation fluctuates around 10 percent (Figure 3). The inflationary episodes affect the competitiveness of the economy, and entail some macro-economic instability, which is described below.

Figure 3: Inflation rate (monthly)



The surges in inflation are strongly correlated with major changes in the nominal and the real exchange rates (Figure 4). The latter is a key variable in the structural adjustment process, as it is the main determinant of competitiveness and current account performance. This close relationship between inflation and competitiveness shows that the monetary and exchange rate policies have a determinant impact on the performances of the real economy in this country. The present section is devoted to the joint analysis of the changes in the rate inflation and its relationship with the real effective exchange rate, which is a trade-weighted index of the price level of the main trading partners, relative to the domestic price level, all expressed in FMG at the ruling exchange rate. This index is an imperfect indicator of the theoretical concept of real exchange rate, in that the possible over-valuation of the currency of any of the main

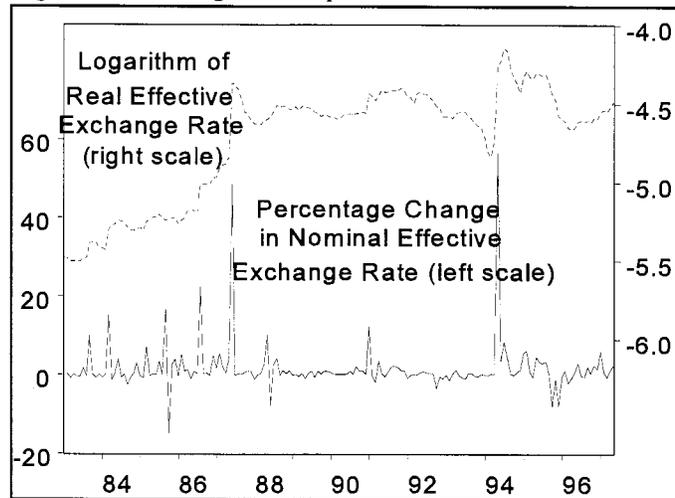
Figure 4: Nominal Effective Exchange Rate and Consumer Prices



trading partners of the country would entail an under-estimation of the over-valuation of the domestic currency. Nevertheless, this indicator is very convenient to use, because it is available at the monthly frequency, and it is the favorite indicator of competitiveness used by the IMF.

The exchange rate history of the Malagasy franc over the last 15 years is that of a continuing depreciation, interrupted by two large step devaluations, one in June 1987, and one in May 1994 (as the market response to a shift to a regime of free floating). The former resulted in a depreciation of the nominal effective exchange rate of 48.5 percent, and the latter of 56.5 percent. The nominal effective exchange rate series is represented in Figure 4, together with the consumer price index series. Each of these devaluations has been followed by a period of rather high inflation, against a background of low inflation, hovering most of the time about 10 percent per annum. Several other more moderate step devaluations occurred, in

Figure 5: Exchange rate depreciation



March 1984 (15.2 percent), June 1986 (22.4 percent), and January 1991 (12.2 percent) (see also Figure 5).

The surges in inflation (Figure 3) are strongly correlated with major changes in the nominal and the real exchange rates. The latter is a key variable in the structural adjustment process, as it is the main determinant of competitiveness and current account performance. This close relationship between inflation and competitiveness shows that the monetary and exchange rate policies have a determinant impact on the performances of the real economy. The real effective exchange rate which is used to measure competitiveness is a trade-weighted index of the price level of the main trading partners relative to the domestic price level. It is an imperfect indicator of the theoretical concept of real exchange rate, in that the possible over-valuation of the currency of any of the main trading partners of the country would entail an under-estimation of the over-valuation of the domestic currency. Nevertheless, this indicator is very convenient to use, because it is available at the monthly frequency, and it is the indicator of competitiveness used by the IMF.

The inflationary episodes were clearly triggered by the two devaluations. It is not so clear that the more drawn out inflation episode of 1985, which remained roughly about 20 percent per annum, was the consequence of the March 1984 devaluation of the FMG, because it seems to have occurred with a longer lag than the other two. However, this more lagging response might result from the smaller rate of change of the parity, which might have dampened the speed of the inflation response.

Because of the large inflationary response of the consumer price index to the large devaluations, their degree of effectiveness vanished relatively quickly. This can be seen from Figure 4, which shows the real effective exchange rate and the rate of change of the nominal effective exchange rate. Examination of the former series suggests that it returned to its trend value within less than a year after the 1987 devaluation, while the impact of the 1994 devaluation lasted about two years, before the real effective exchange rate returned to its pre-devaluation value.

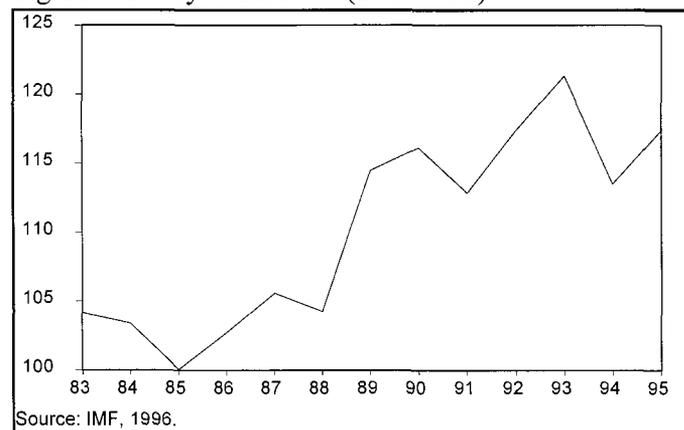
Beside these two devaluation-cum-inflation episodes, Figure 4 also shows that the time profile of the real effective exchange rate can be described as comprised of two periods. Before the first massive devaluation, one observes a steady real depreciation of the FMG, followed by a period of rough stability of the real effective exchange rate. In particular, between 1988 and 1990, the exchange rate was managed, under a system of crawling peg, with a view to stabilize the real effective exchange rate. During most of 1993, and the beginning of 1994 before the devaluation, the FMG shows a clear tendency to appreciate in real terms, which played a part in determining the choice of moving to the float in 1994:05. The latter was in fact the government response to a speculative attack.

This speculative attack did not come from the international community. The paddy market played an active role in the attack, as it often does in many African countries. Paddy is a highly speculative market, as inventories of paddy are the main inflation-proof asset held by a large number of people in Madagascar (Azam and Bonjean, 1995). The price of paddy has a clear seasonal pattern, with a low point usually in May, just before the beginning of the next harvesting season. During the year preceding the 1994 devaluation, paddy has been the star performing asset: those who bought paddy in June 1993 and sold it in March 1994 made a record real return of 49.8 %. This suggests that the real price of paddy, deflated by the CPI, can serve the central bank as an early warning device for speculative attacks against the FMG.

The transition

The country entered into a wide ranging program of structural adjustment and economic liberalization in the 1980s. The rice market was liberalized, with a stabilizing impact on the real price of rice (Berg, 1989, Azam and Bonjean, 1995). Output responded to the reform, with paddy output increasing by about 20 percent between 1985 and 1993 (Figure 6). Despite a modest decline after 1993, reform of the rice market appears to have contributed to an increase in paddy production of about 15 percent.

Figure 6: Paddy Production (1985=100)



Initial attempts in 1987-1991 to implement stabilization and adjustment programs with

World Bank and IMF support encountered or created social unrest, the expression of which constrained the government's resolve to continue the stabilization and adjustment effort. Political turmoil in 1991 led to a change in government, with free elections held in 1993. Reforms have been carried on since.

Nevertheless, implementation has been less transparent, and at a deeper level the political environment has been uncertain and not conducive to generating the political or popular will to maintain decisive and consistent policy reforms. Madagascar remained in arrears on its international debt throughout the period, with the outstanding rising to SDR 1.454 billion by September 1996.

In early 1994 the GOM established a strategy for economic liberalization, concentrating on the petroleum products, food, transport and telecommunications sectors but also beginning privatization of state enterprises and banks, and followed by a sweeping reform of the exchange and trade system in May. Fiscal measures included reducing the maximum import duty from 50 percent to 30 percent and establishing a value added tax. Monetary measures undertaken beginning in 1994 included floating of the

Malagasy franc (FMG), creation of an interbank market in foreign exchange, and lifting foreign exchange controls (particularly allocation ceilings for travelers and prohibitions on domestic bank accounts denominated in foreign exchange). In 1995 all specific tax exonerations were abolished, and petroleum taxes greatly increased as stabilization measures. However, domestic political concerns weakened resolve for efficient enforcement of the new measures.

The GOM has prepared an Economic Policy Framework for 1996-1999 in September 1996, in consultation with the World Bank and IMF. This policy document addresses the decline in the standard of living and seeks to restore growth through a market economy characterized by an environment favorable to private sector development, attracting foreign investment, disengagement of the State from productive sectors of the economy, and fighting poverty in effective manner. The strategy is based on reform of Public expenditures (including civil service and public investments), decentralization, development of the private sector (fiscal and regulatory constraints), and disengagement of the state from parastatal enterprises. Sectoral policies and strategies address poverty (access to health services, education and training, internal security, and complementary measures, environment, infrastructure, and sectoral reform in agriculture, oil and mining, and tourism. Monetary, foreign exchange and financial reform must be harmonized with these policies for the real economy.

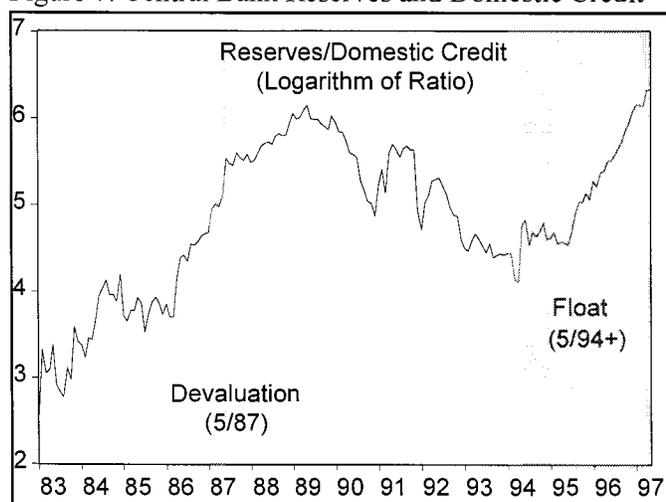
The Role of the Central Bank

This section looks in more detail at the role of the central bank in the determination of these results, showing the determinants of the real effective exchange rate and of its volatility, and the determinants of the inflation rate, estimated using monthly data. Inflation and competitiveness, which are jointly determined, are affected by the behavior of the central bank. This section presents some aspects of the central bank portfolio behavior, that will be shown to affect these two variables.

As others long ago pointed out, BCM thinking before the FMD project was shaped by its earlier experience in a command economy, in which market forces were not given free play and in which the BCM had little autonomy or responsibility for economic policy.

Figure 7 represents the (log of) the ratio of reserves to domestic credit. This is a good indicator of the stance of the central bank policy towards foreign exchange. One can see three contrasted periods. Until the beginning of 1989, the amount of reserves held by the central bank is clearly rising, relative to domestic credit. Standard macro-economic theory suggests that this can be interpreted as a policy aiming at preventing any real appreciation of the exchange rate. This period was mostly characterized by a continuing depreciation, except at the end of 1987, when some temporary appreciation occurred, as inflation started to respond to the first massive devaluation. In other words, this period is one of fairly aggressive monetary policy in favor

Figure 7: Central Bank Reserves and Domestic Credit



of external competitiveness, which achieved the sustained and substantial depreciation of the real effective

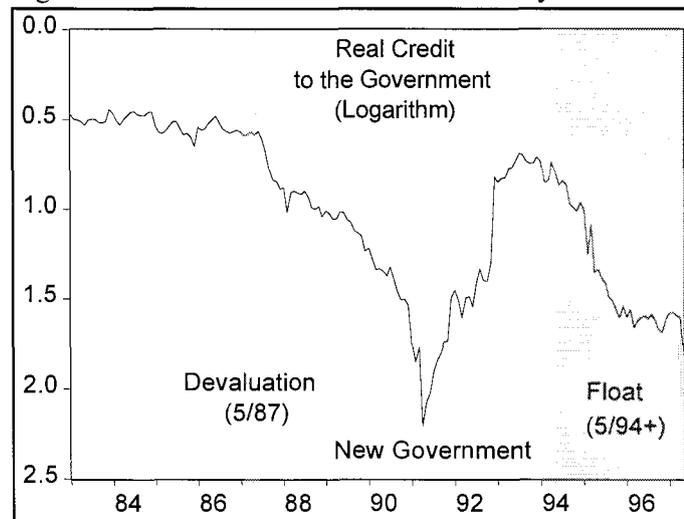
exchange rate shown for the early period in Figure 4. However, it ended up in the strongly inflationary episode that was described above, after the massive devaluation of 1987.

After the devaluation the Central Bank of Madagascar (BCM) began a period of declining reserves (relative to domestic credit), which was not associated with any appreciation of the FMG until 1993. On the contrary the FMG depreciated slightly during a period marked by a remarkable stability of the real effective exchange rate (partly due to the crawling peg policy) and of the inflation rate. However, a period of appreciation beginning in 1993, ended in the speculative attack described in the previous section which induced the BCM to adopt the regime of free floating in May 1994.

Since after about a year of floating, reserves started accumulating again, the BCM had reverted without announcement to an active foreign exchange market policy, accumulating reserves. This was probably aimed at preventing the real exchange rate from appreciating, relative to some target. Both the nominal effective exchange rate and the real effective exchange rate had a slight tendency to depreciate during this period (Figure 4). This policy was adopted after the episode of sharp real appreciation that marks the end of the post-float inflationary episode. However, the determination of the exchange rate remained market-based, without administrative fixing.

The other crucial element of the central bank portfolio behavior is its credit to the treasury. This is the channel by which the government extracts some seigniorage from the private sector, via the inflation tax. This is often regarded as the main cause of inflation in developing countries. Figure 8 shows the real value of the stock of credit to the treasury. Four different phases can be distinguished. (1) Before the 1987 devaluation, this stock was high and steady; this is probably the root of the problem that led to this devaluation. (2) Then, the government pursued a drastic policy of reducing its indebtedness to the central bank, which lasted until the political turmoil of 1991. (3) The new government abandoned the austerity policy, and the stock of real credit to the government rose at a brisk pace. (4) This led to the switch to the floating exchange rate regime that was adopted in 1994, after the appreciation period and the speculative attack described above.

Figure 8: Central Bank Credit to the Treasury



Then, the Treasury began reducing its indebtedness towards the central bank again, in real terms. This means that the surge in inflation that followed the 1994 devaluation played probably a part in reducing the real value of the central bank credit to the government. The accumulation of reserves seen above played also a part in bringing about this result.

Econometric analysis performed in Chapter 2 below show that this portfolio behavior of the central bank had a significant impact on inflation and the real effective exchange rate. This underlines the intimate links that exist between the real and the monetary sides of the economy. This suggests that monetary policy, and more generally the portfolio behavior of the central bank, should be regarded as an integral part of the

structural adjustment program, and, more generally, of the development strategy. In Madagascar's shift toward a market-oriented economic policy, the BCM plays a critical role. Its statutes have been recast to give it independence in the pursuit of a non-inflationary monetary policy and its role as advisor to the Government has been strengthened.

The BCM has continued to improve its auction of reserves to provide (or subtract) liquidity, while a team has been working to develop a transparent, regular, competitive primary market for treasury bills and then, together with the Treasury and with the assistance of the training and technical assistance under this project and parallel assistance from USAID, France and other donors, to develop a secondary market in public or private debt which will permit the BCM to manage the internal balance through open market operations. The BCM also is interested in developing the market institutions—dealers and clearing mechanisms—to make such a market-based approach to monetary control a workable one.

The 1996 Government policy matrix requires an active role for the BCM in macroeconomic and financial sector management. It calls for an inflation rate of 3 percent by the end of 1999, with investment reaching 15 percent of GDP by that year and the domestic savings rate surpassing that. The current account on the balance of payments (excluding official transfers) is targeted to fall below 7 percent of GDP. However, even with rescheduling of official debt under the Paris Club, foreign debt is expected to remain at 286 percent of exports at the end of 1999, down from 500 percent at end 1996 but imposing a substantial management burden on the Central Bank (in reality, the skills to manage foreign debt have virtually been lost at BCM since this level of debt has been unmanageable in the recent past).

This is not the only constraint facing the BCM despite its commitment to moving to market-oriented techniques. The staff of the BCM were well acquainted with the workings of monetary policy in a centrally planned economy. The senior staff of the BCM have generally been working there for more than 10 years, and received a university education not particularly oriented towards market economics. Their education and working experience until recently have left them unfamiliar with some ideas important for making monetary policy in a market economy. Many of the newer staff are accountants rather than economists by training, in accordance with recent bank policy to upgrade its supervisory capability to function in a market economy. For all, normal career training has emphasized first implementing rules, and later establishing rules that the BCM staff can enforce. Now they must learn how to set broad guidelines. As a result, many staff had difficulty in understanding the role of a central bank monitoring and guiding a market economy, rather than directing a financial system. The remainder of this report is devoted to measures to utilize that independence and advisory role to assist in national development.

One such idea was credibility. All central bankers have some appreciation of the importance of credibility from experience. But the idea that credibility or lack of it can influence the effectiveness of monetary policy for quite a long time did not seem to be widely appreciated at the BCM. Nor were the staff of the BCM acquainted with ways of measuring credibility, so that they could see whether the central bank was gaining it or losing it as time went by.

A related idea was expectations. Like credibility, it is something of which all central bankers have some appreciation from experience. But until recently the expectations of market participants had comparatively little effect on the BCM's behavior. The BCM set the interest rates it charged to state-owned commercial banks, and pegged the exchange rate, without considering the long-term effects of its policies on "the market," because Madagascar was not a market economy. The pervasive influence of expectations in determining interest rates and exchange rates, and in limiting the scope of action of the central bank, were unfamiliar ideas to most staff of the BCM. For example, the staff were unaware that even without an

explicit forward market in foreign exchange rates, in a financial system open to the outside world, the difference between domestic and foreign interest rates on assets of similar quality implicitly measures market expectations of the future course of the exchange rates.

Still another idea not as well appreciated as it is in central banks with more experience operating in a market economy was the close connection between exchange rate policy and credit policy. Before the Malagasy franc became convertible for current-account transactions, exchange controls aimed to make a watertight separation between the exchange rate and domestic credit. Now that such a separation is no longer possible, the staff needed to understand that exchange-rate policy and domestic credit policy are like two sides of a coin. Both affect the monetary base: if the central bank increases the monetary base by lowering its discount rate so that commercial banks borrow more from it, the exchange rate will depreciate, other things being equal.

Finally, because Madagascar had been isolated from international financial markets for so long, the staff of the BCM were unfamiliar with many kinds of financial instruments and markets that have recently begun to appear in other African countries and might also appear in Madagascar in the not too distant future. Many of the staff were unfamiliar even with something so basic as reading the stock tables in foreign financial newspapers. (That is not really surprising when one considers that a single issue of a foreign newspaper can cost a couple of hours' wages even for a comparatively well paid Malagasy.)

The BCM is being assisted in its transformation by the World Bank, Swiss Cooperation and USAID. To implement the current project, five working groups established by the BCM requested assistance from USAID/Madagascar in achieving their objectives of creating functional "projects" which cut across organizational lines in order to reform the operations of the BCM in line with the recently liberalized financial system. For some topics the Project for the Development of Financial Institutions (PRODIF) of BCM has produced specific terms of reference (*Fiches de projet*). BCM and USAID agreed on each of the selected "sub-project" objectives which form part of the team's scope of work. Examples included developing methodologies to produce quarterly BOP estimates, improve monetary programming, develop a forecasting model for price/money, etc. BCM set up interdepartmental Working Groups (WG) for each of the sub-projects. These were:

1. Improving operation of the money market and its contribution to market development;
2. Reinforcing information systems on financial institutions and credit;
3. Improving collection and management of macroeconomic data for all main departments;
4. Improving macroeconomic analytical, forecasting and reporting capacity; and
5. Improving understanding of macroeconomic approaches to the problems of exchange rates.

It was the intention of the BCM management that Groups 4 and 5 were to be non-specific training to upgrade staff capability, whereas the other assistance would be applied to specific teams.

CHAPTER 2 THE TRAINING COMPONENT

The training organized was largely on the job site, either in the divisions, in BCM's fourth floor conference rooms (one of which was outfitted as a computer laboratory with 10 PCs) and sometimes on the job itself, though some classes were held nearby at the Chambre de Commerce. Work on the TOFE was performed in the DET and at INSTAT. The principal constraint on training was the need for the BCM that training pose the least possible disruption on the day-to-day activities of the Bank. The PRODIF Unité de Coordination requested specifically that the BCM Training project not remove too many staff from their jobs at once, since the BCM with a total staff of 600 (over half of which are support staff) cannot afford to have a large number of trained staff off site at once. Beyond that requirement, this program attempted to improve the performance of BCM staff in their day-to-day activities while teaching new approaches and techniques.

The five working groups and the training proposed are closely linked. The organizational principle is monetary programming. While many BCM staff members would benefit from training in academic economics and more specialized courses offered abroad, that was not the purpose of this project. This project is targeted at creating the skills necessary to guide the Bank through its transition from direct to indirect monetary control.

For monetary programming, BCM staff and management need to understand the elements of economic policy and what needs to be done to develop and implement a coherent policy. They need to know how to forecast credit volumes, interest rates, deposit levels using existing data, and similar policy variables. They need to know about money invested in the economy that doesn't enter the formal banking system. They need to learn how to apply statistics. They need to know how to gather information from formal and informal sources. They must develop the credibility which the Central Bank must have in local and foreign markets for its monetary policy to be effective. While this could not be done both in breadth and depth under this assistance, the CAER activity was designed to establish an environment for all intervention and training, to provide the initial training within that environment, and to assist selected staff of the BCM in developing a strategic framework for the BCM in the market environment.

The courses proposed and the rationale are given in the text with follows. They included:

Core courses: Computer training; Economic intuition; Institutions and terminology of the market economy; Monetary programming; and Statistics, forecasting, and surveys.

Specific courses: Money market on-the-job training; Transitions in other countries; Financial mathematics; Credit & risk analysis (Classroom, On-the-job training, and identified projects); Collection and management of macroeconomic data; Modelling and forecasting; Macroeconomic approaches to foreign exchange; Exchange rate policy and strategy; and Financial derivatives.

Other courses: E-Views for the general user; E-Views for modelling; Internet resources for central bankers, Web site design, introduction to Visual Basic Applications. These courses were taught in a format of "micros à midi" workshops with voluntary attendance to any interested members of the BCM staff by Mssrs. Nelson and Schuler.

Complementary assistance: Technical assistance to identify methods for obtaining and managing information for macroeconomic and financial sector management (Alexander Korns); assistance to the launch of the primary auction market in *bons de trésor* (Richard Morin).

Study tours: Central Banks of Malaysia and Indonesia for English-speakers; Central Banks of Morocco and Tunisia for non-English speakers, facilitated by Mssrs. Berlin and Nelson with assistance by local experts in the financial system, and integrated into a seminar style of discussion and analysis of the experience during the visits themselves to maintain focus and critical review.

Policy framework: The work concluded with an intensive seminar led by the trainees themselves with the technical assistants serving only as resources and facilitators. In this seminar the BCM staff assumed ownership of the policy development process, and with the assistance of the technical assistance the BCM staff itself developed strategic options for BCM management in its transformation. While their final report was not available for the present study, their preliminary results are relied upon for the policy recommendations of this report.

COMMON TRAINING

All participants in the training undertook a set of core courses designed to develop their problem solving skills, to introduce them to techniques used in central banks in market economies, and to provide a common basis for the specialized work of the five working groups. Course evaluations show that some participants already understood the concepts taught and found these courses unnecessary. However, experience demonstrated that most BCM staff were not used to a problem-solving approach to learning and the course served to dynamize many of them which improved later learning. The greatest problem with this part of the course, according to course evaluations, was the lack of correct French terminology for several of the modern banking concepts, due to the unfamiliarity with French terminology by the American and Uruguayan instructors.

The common training was not sufficient, however. In one later class Dr. Berlin performed an internal evaluation (in the form of an unannounced quiz which permitted notes) indicated that trainees were not becoming comfortable working through the implications of the tools of monetary policy, for example the impact of central bank measures to absorb bank reserves first directly on inter-bank markets and then via these markets on interest rates. They understood the theory that absorbing liquidity (for example through negative auctions of reserve money), would bring about a rise in the interest rate, but with this theoretical knowledge they were unable to work through the mechanisms through which this would take place. As a result, even the advanced training had to continue practical applications and link these to the theory.

The project began with training (performed by a local contractor, Blanche Birger Madagascar) in computer usage, including Microsoft Word and Excel upon which BCM has standardized its operations. This training established a common floor of computer literacy and additionally upgraded the skills of those who most needed training. The computer lab continued to be used for the remainder of the training, and BCM employees were observed using the computers during non-laboratory hours which served both as additional practice and as a convenient locale for computer work and peer-based learning.

The project director established a competition for the computer training course among local contractors. Most contractors who bid provided a per-trainee fee multiplied by the numbers of trainees. The winning contractor selected offered a competitive technical package of training (with which we believe the BCM was very satisfied) combined with a highly competitive cost proposal built up from his costs of providing service with his desired profit rate on the package, rather than the per-unit cost. This training is essential for the BCM as it hires new staff and upgrades its existing staff, which is probably a fairly large number of trainees over several years. **We recommend** that with this scale of operations that it is effective for the BCM to establish a competitive bidding procedure to establish annual competitions for private sector provision of BCM staff computer training, subject to technical standards for the content of that training as were performed by this project. **We do not recommend** that BCM establish its own in-house training on computers at the basic level, for cost and efficiency as well as because of the rapidly evolving technology. However, BCM internal training in higher level programs such as E-Views (discussed later as part of CAER project training) will contribute both to the skills of the trainer and the specificity of the training to BCM needs and is recommended as an alternative to out-sourcing such training.

In the course on Economic Intuition, the staff of the BCM learned how to draw and interpret the yield curve, a connect-the-dots graph of interest rates for loans or deposits of various lengths of time. Though simple, the yield curve is the best way we have of summarizing information about interest rates in a form that is easily understandable and useful for monetary policy. Other central banks use the information in the

yield curve to gauge market expectations about future interest rates and the effect of monetary policy on interest rates. The shape and slope of the yield curve indicate whether market participants think interest rates will increase or decrease, and how fast. In combination with trends in commodity prices and inflation, the yield curve can give some indication of whether the central bank is expanding the money supply too fast (threatening higher inflation) or too slowly (threatening a recession). Because interest rates in Madagascar were until recently set administratively, with the state-owned commercial banks simply adding a premium to the rates the central bank charged or paid to them, the staff of the BCM were almost entirely unfamiliar with the yield curve and techniques of analyzing it.

The staff of the BCM learned some techniques for extracting from the yield curve measures of the credibility of monetary policy. They learned how to calculate market expectations of future inflation rates and nominal and real exchange rates. One can calculate market expectations of future inflation rates by analyzing the components of nominal interest rates and making certain assumptions about the size of components that cannot easily be measured in a country where financial markets are still rudimentary.

Deriving market expectations of inflation is a way for the central bank to see whether market participants believe its pledges to reduce inflation. A big gap between the central bank's own forecast and market expectations indicates a problem in credibility that the central bank needs to fix by appropriate changes in policy or institutional structure. And even where no explicit market for foreign-exchange futures exists, one can calculate market expectations of the course of the exchange rate by using the idea of uncovered interest-rate parity. (In practice, this has not been a particularly accurate predictor of actual spot exchange rates in the future, but it is an accurate indicator of current expectations of future spot rates. Economists have not yet developed an accurate way to predict future spot rates.) As with the inflation premium, the central bank can compare its own forecasts of the future course of the exchange rate with market expectations to see whether market participants consider its exchange-rate policy credible. This also can give it some idea about the future course of the real exchange rate, calculated using market expectations instead of (as the BCM had been doing) using only parameters from a model. Market expectations about the future real interest exchange can help the central bank assess whether market participants expect monetary policy to reduce the competitiveness of export industries or not.

In connection with calculating the expectations of market participants, the staff of the BCM learned the importance of using good data for the calculations. Under central planning gathering data for monetary policy is not as difficult as it is in a market economy. The number of important actors is small, and the central bank itself has the leading role in determining interest rates. A market economy is not so monolithic, so the number of important actors is larger; the actors are also more dispersed. To find out what market participants expect a central bank needs an accurate idea of how much business is being done at what prices in financial markets. We discussed why the interest rates on loans and deposits that commercial banks reported to the BCM showed little or no variation from month to month despite large changes in inflation rates, whether there was still an extensive black market for foreign exchange, and so on. This was relevant to all groups, but specifically addressed a theme of WG 3, which focused on improving the collection of macroeconomic statistics.

The course on Economic Intuition stressed the link between exchange-rate policy and domestic credit policy, a topic that Juan-Carlos Protasi also discussed in his course on monetary programming. The staff of the BCM gained a greater appreciation that exchange rate policy and domestic credit policy are two sides of the same coin. Only in a closed economy is it possible to separate them, and not even there is the separation complete, for black markets arise despite efforts by governments to suppress them. In an open economy exchange rate policy and credit policy are closely linked, and inconsistent policies can have quite

painful consequences, such as speculative currency attacks that exhaust the foreign reserves of the central bank.

In the course on the Institutions and Terminology of a Market Economy, the staff of the BCM acquired skills that will enable them to compare aspects of monetary policy in Madagascar with monetary policy in other countries. We spent considerable time discussing how to read the stock, bond market, and foreign exchange tables of leading financial newspapers such as the *Wall Street Journal*, *Financial Times*, and *La Tribune* (Paris). Foreign newspapers reach Madagascar with a lag sometimes of days, making the financial information they contain sometimes only of historical interest. However, because Madagascar is now linked to the Internet, it is possible to obtain the same information with little or no lag. The staff of the BCM now have the knowledge to compare, for example, the yield curve in Madagascar with the yield curve in France to see if along various points the curves are converging (usually implying a convergence of inflation rates) or diverging (usually implying a divergence of inflation rates).

The course on Institutions and Terminology also acquainted the staff with financial instruments and markets that do not exist in Madagascar currently, but may in time. For example, commercial paper (short-term corporate bonds) does not exist in Madagascar now, but it is beginning to be issued in Tanzania and some other African countries that have recently liberalized as Madagascar has. The course also stressed the importance of the payments system and the risks involved in different payments arrangements, a subject that has come to public attention in a number of countries in recent years because of bank failures.

The first seminar on monetary programming by Mr. Protasi provided an introduction to the basic principles of modern central banking. BCM staff were introduced to internal and external balance and the unavoidable links between the two in monetary policy. Monetary programming is the core upon which all other training is based. This course was originally scheduled to last an additional four days and cover an initial introduction to debt management as part of programming, but this was curtailed due to obligations of Mr. Protasi.

These were followed by a course in statistics, forecasting, and surveys by Ms. Josée Randriamamonjy. This course was an applied course in how to collect, manipulate, analyze statistics. Staff were helped to understanding projection, its methods and limitations. The course covered the theory and practice of sampling, and provided an overview of survey techniques (e.g. non-response; coverage of informal sector). This was designed as an applied course addressing the immediate needs of the BCM, since most BCM staff had already studied statistics as a formal academic subject but had difficulties applying it to their work or understanding limitations of the techniques. The course included computer laboratory workshops to apply the skills learned using modern software.

Following this, each working group had its own specific set of training and technical assistance. These are discussed in the following sections, followed in turn by analysis of the study tours to East Asia and the Maghreb.

Working Group 1: Improving operation of the money market and its contribution to market development

The CAER scope of work for WG 1 was based on the extensive work which was in progress at the start of the activity, by a Working Group including staff of both the BCM and the Tresor to improve the operation of the market for Treasury Bills, (*bons de trésor*). This working group was already well advanced, with several studies already having been performed before the technical assistance began with a view to launching the Treasury Bill market. The assistance provided by Eric Nelson and Philip Berlin was complemented by technical assistance provided by Richard Morin (at the time of the project, President of the Stock Exchange of Mauritius) under a parallel CAER activity to assure a smooth start of the auctions. Training and assistance combined the study of questions relating to money market development (including, most importantly, relating the launch of treasury bill auctions to the later development of secondary markets required for financial intermediation and for fiscal purposes) with how these matters were dealt with in other transitional economies.

The BCM must move quickly to establish the market infrastructure required to support a smoothly-functioning money market, and continue research for next steps to make the market broader and deeper, and to assist the BCM to make the money market an effective instrument of monetary policy. Members of the working group continued this development with assistance from the project.

Topics covered included money markets, beginning with treasury bills and Central bank certificates, but eventually including unsecured overnight loans, commercial bills, and repurchase agreements—of less than a year to maturity. Information needs include prices and from this the yield curve, which affects the pricing of forward foreign exchange deals and long-term bonds, and should also respond to changes in central bank policy that are signaled by changes in the level of reserve money.

The group studied the supply side, an adequate supply of new bills in the primary market to support an active secondary market, and/or developing BCM Certificates. Steps include standardizing the government issue, issuing enough of each kind of instrument to create tradability, and publicizing the likely future issue schedule. From that they reviewed controlling the quantity of excess reserve money. BCM behavior has a large influence on the way banks manage their own liquidity risk. Currently banks auction their excess liquidity directly to the Central Bank. To help the market develop, the BCM needs to manage excess reserves in a way that encourages banks to trade with each other to meet their liquidity needs.

Encouraging trading and market depth requires supervision of excess reserves. If these are consistently greater than required to meet operations, less trading will occur because most participants will be on the same side of the market. If excess reserves fluctuate too much above or below the level desired by the market, excessive volatility in interest rates will result.

Other countries have undertaken various strategies to develop market makers. Agents must be developed and the proper supervisory regime established so that the public and non-financial institutions can participate in the money market through the specialists. In return the specialists must be prepared to trade on both sides of the market to profit from interest spreads; for this to occur the BCM must assure that excess reserves are close to market levels. Finally, the BCM group studied regulatory impediments such as differing tax treatment of different assets or restrictions that limit the ability of banks and others to use the money market.

The Direction des Etudes (DET) has a longer-term viewpoint and can benefit from this activity by studying the sequencing of market development, for instance the development of open market operations by the BCM and the creation and development of private credit rating organizations.

In the end, and particularly after long discussions following study tours and talks with the central bankers of Indonesia, Malaysia, Morocco and Tunisia, participants had become very willing to discuss critically with other central bankers the various measures, their defects, the reasons for the defects, and the implications for Madagascar. One participant said, “before the course we wouldn’t have challenged them; now we feel more comfortable in doing so.” The final week’s workshop to develop a consistent program of policy and program reforms for the BCM showed a level of discussion and debate which demonstrated a new willingness – or effort – to work out the various implications of different policy measures.

The courses emphasized that there is often a considerable cost associated with direct instruments of monetary control, particularly as these instruments are themselves inevitably associated with the imposition of quasi-fiscal activities onto the normal tasks of central banks, i.e., the management of the money supply (as an intermediate target) congruent with an acceptable rate of growth of GDP. Thus direct regimes almost always involve setting sectoral goals for commercial banks or targeting privileged borrowers, e.g., through the rediscount process. All of these phenomena were recognized by the participants, but they had been less clear how much these outcomes were an inevitable outcome of direct or dirigiste regimes.

Trainees understood that it was not always true that market-based systems led to ideal results, but that methods of dealing with various forms of market failure had to be closely examined to ensure that they did not conflict with financial deepening, a long-term target for the reform effort. In addition, having discussed the concept of “financial deepening” and its value at some length, the team was able to explain that the development of financial markets and instruments was often a natural outcome of indirect regimes of monetary management but quite difficult to achieve through direct regimes.

The concept of financial deepening as a necessary adjunct of the mobilization of financial savings as well as a facilitating vehicle for investments seemed to be well understood by the participants. In this context the staff appreciated that the supply of structural reserves over time through central bank credit auctions (as opposed to conjunctural resources) tended to dampen financial savings mobilization. This emerged clearly in their recommendation (Chapter 4) to phase out credit auctions, among others because they inhibited the development of money markets and savings mobilization.

Several sessions were devoted to the various components of money markets (e.g., the interbank market, Treasury bill market, markets for central bank bills (as they existed in a number of transitional economies) and the markets for other instruments such as CDs, commercial paper, bankers’ acceptances and foreign currency swaps. The approach was from the standpoint of portfolio theory but also covered the necessity of developing these markets as tools of open-market or open-market-type operations (the latter being necessary where secondary markets were too thin to be operative for pure open market operations as found in the advanced economies). In this context considerable discussion was also directed to the development of repurchase (and reverse-) repurchase operations (*prises en pension*) as an instrument of monetary policy.

Unlike repos, Malagasy *pensions* involve individual commercial bank loans which are deemed to be “mobilisable,” as opposed to money market paper. They also do not share the same rationale, which for repos is to leave the capital value of the instruments unaffected by the operations. Particularly following the “reunion de syntheses” it became clear that the Malgasy understood that the so-called “credit

mobilisable”not only short-circuited the development of money markets (in particular of bankers’ acceptances) but also represented a danger to the Central Bank’s balance sheet.

The group discussed ways in which apparently innocent regulations could work to impede the development of money markets. Liquidity requirements obliging commercial banks to hold a certain percentage of liquid assets were an important case in point. Another was allowing banks to hold a certain percentage of their required reserves in T-Bills which even the IMF accepted as a means to lower the cost of financing the deficit. The trainees came to understand that different prudential regulations should be examined with reference to their impact on financial market development following the lines of cost-benefit analysis. We emphasized this point strongly in discussions of other transitional economies, this occupying the second half of the five weeks course.

Transitional economies: A second course for WG1 covered transitional economies, and their deepening and money market development. This was followed for some participants by the study tours. In particular, none of the economies we analyzed – which included some relatively rich ones like Malaysia and Korea – had been able to develop their secondary markets (not without considerable effort) sufficiently to permit the carrying out of pure open market operations. This the discussion turned more to other forms of indirect instruments and intervention techniques (e.g., foreign currency swap operations, repos, auctions of central bank bills, Government deposits, etc.), in the absence of secondary markets (in T-Bills) which were sufficiently developed so as to permit T-Bill auctions for monetary purposes without serious impact on the capital value of existing debt.

Study of the transitional economies also brought home the need for bank restructuring if indirect instruments of monetary control were to operate effectively, particularly if insolvent institutions represented a considerable percentage of total banking assets, good and bad. The Malagasy participants had no difficulty being convinced of this, but some residual concern about the need for development banks – which would clearly lose out in the restructuring and eventual privatization -- remained. But it was agreed that if such banks continued to carry out a “development” mandate it should not be with private sector deposits.

Discussion of the Korean case (another “Asian miracle”) noted that Koreans were continuing to do virtually everything contrary to what had been taught. While this appears to support such an interventionist strategy, statistics indicate that Korean directed and subsidized lending policies, apart from seriously crippling financial market development, were also costing the Korean economy upwards of 3% of GDP in efficiency costs.. This was perhaps negligible for an economy managing to save 35% of GDP, but wouldn’t work as well in a situation where such policies could absorb over half of GDS (i.e., in Madagascar, where savings amount to less than 5% of GDP.) Also, the fact that the problem of excessive indebtedness of many of the large combines financed by cheap credit was coming home to roost also found some resonance among course participants. This despite Korea’s superior growth record.

Thus the BCM trainees learned both the theory and the practice in other countries of transition (more complete cases, failed cases, and cases replete with “local exceptions”) which can provide guidance for monetary policy and regulation in Madagascar and for the development of debt markets.

During this period the launch of the market in T-bills took place with the first competitive auction.

Working Group 2: Reinforcing information systems on financial institutions and credit.

This training was conducted by banking expert Mr. Lloyd Freeman, according to a syllabus developed by Robert Dressen. A second course in financial mathematics was taught by Prof. Elisabeth Alma. The information systems course followed its intensive syllabus, which was a combination of classroom discussion, computer laboratory sessions, case studies and on-the-job training.

Introduction

- Role of commercial enterprises (CE) and financial institutions (FI) in the economy.
- Relation of Central Bank to CE and FI within the context of the general economy.
- Profile of CE including financial statement characteristics, categories of risk, sources of problems.
- Profile of FI including financial statement characteristics, categories of risk, sources of problems.

1. Bank Analysis

Financial Information

- Review of financial statements of banks.
- Review of monthly reports submitted to CB by banks.
- Survey of key numbers, ratios, characteristics.
- Preparation of abbreviated spread sheets for bank financial statements and monthly data.

Commercial Banks' Activities

- Overview of the operations of a commercial bank; what are the objectives, what are the dynamics and inter-relationships, what are the causes of success/failure, what is their view of regulation/controls.

Ratios

- Ratios: how to select key ratios, how to calculate them, how to analyze them, what are the norms, how to apply them in CB analyses.

Risks

- Risks: kinds of risks, how to identify them, how to analyze them, how to weigh them, how to mitigate them, how to determine their consequences.

Non-Financial Information

- What other information should be requested from banks? e.g. Portfolio data, product profiles, delinquencies breakdowns, risk rating changes, business volumes, sources of income/expenses, controls, competition.

Monthly Report Analysis

- How to analyze monthly information received? How to organize findings? What uses for the information?
- Case study.

Bank Comparative Analysis

- How to compile and analyze comparative data on banks?
- How to use the comparative information?
- Case study.

Synthesis

- What information is already available? What additional information should be requested? How should it be gathered? How should it be analyzed? How should findings be organized and exploited?

International Standards, New Technology & Methodology

- What are the Basel Convention requirements? What are standards in other countries?
- What are new trends, products, technologies in the financial services industry?
- What are new analytical tools used in credit and risk analysis at commercial banks and central banks?

Commercial Enterprise (CE) Analysis

Non-Financial Information

- Review of financial statements of commercial enterprises.
- Review of information available to CB on CE.
- Survey of key numbers, ratios, characteristics.
- Preparation of abbreviated spread sheets for CE financial statements and other available data.
- Overview of the use of information on CE by CB.

Ratios

- Ratios: how to select key ratios, how to calculate them, how to analyze them, what are the norms, how to apply them in CB analyses.

Risks

- Risks: kinds of risks, how to identify them, how to analyze them, how to weigh them, how to mitigate them, how to determine their consequences.

Synthesis

- What information is already available? What additional information should be requested? How should it be gathered? How should it be analyzed? How should findings be organized and exploited?
- How will the informal sector be integrated in the data base?

How to organize CE data base

- Case study.

Ratings & Scoring Systems

A workshop on developing a risk rating system for the BCM

Ratings

- Role of risk rating systems in the financial sector, at commercial banks and the CB.
- Review of the existing system at CB.
- Review of other rating systems such as Moody's and Standard & Poor's.
- Differences in ratings for refinancing at CB, for investment ratings, for risk ratings of loans.
- Workshop.
 - Develop a rating system for CB.
 - Application of system to a sampling of existing financial institutions and commercial enterprises in Madagascar.

Scoring System

- What is a scoring system? What are its uses?
- Evaluate various scoring systems for CE & FI.
- Is a scoring system appropriate for the CB? If so, what kind and how should it be applied?
- Develop a scoring system, if appropriate.
- Apply it to a sampling of companies.

Other Financial Institutions

Overview

- Overview of other kinds of financial institutions, e.g. leasing companies, consumer finance companies, mutual savings banks, merchant banks, offshore banks.
- What are the risks associated with each kind of financial institution?
- What are the relevant issues for the CB?

Informal Sector

- What is the role of the informal sector in the economy?
- What are the issues of the informal sector for the CB?
- What should the CB do?

The course on financial mathematics was intended to cover sophisticated financial topics for use by central bankers and securities analysts. However, Prof. Alma found that the mathematical capabilities of the BCM staffers were less than she had expected and she restricted her work to less sophisticated mathematical techniques. This was another problem with the planned course. It is recommended that the BCM plan and implement regular courses to upgrade its staff in financial mathematics. This is a standard subject and does not require the activist training used by this project, though an approach based on applied problems is recommended. A possible agenda is:

1. Basics: net present value, internal rate of return
2. Economics of bonds and instruments of foreign exchange: yield to maturity of bills sold at a discount, with and without coupons; yield curves; ALCO; interest rate risk and simple hedging methods. Forward-forward transactions.
3. Asset pricing: Black-Scholes. Margin sales and leverage. Contingent liabilities and their pricing. Measures of volatility.
4. Statistics: sampling, regression, correlation of risks.

This course should be offered to all BCM staff as part of staff development, not just members of Working Group 2.

WORKING GROUP 3

Improving Collection and Management of Macroeconomic Data

In the context of economic liberalization in Madagascar in the 1990's, BCM statutes were rewritten to give it autonomy in the pursuit of a non-inflationary monetary policy. As others long ago pointed out, BCM thinking before the FMD project was shaped by its earlier experience in a command economy, in which market forces were not given free play and in which the BCM had little autonomy or responsibility for economic policy. As a result, a major goal of FMD was "to break down bureaucratic barriers whereby members of the Bank's different Directorates scarcely talk to one another, and to re-orient the staff towards functional objectives of a central bank." A related goal was to develop the "economic intuition" of staff. Both goals required accessing a wider range of data, especially for the real sector.

One obvious result of all this effort has been a growing demand on the part of the directors and authorities for data with which to inform policy making, including data on the real sector. However, they have been disappointed to discover that it is one thing to ask for data and another to get it.

To improving its collection and management of macroeconomic data for all main departments, the BCM and Working Group 3 require advice in the organization and management of data. The data systems expert would assist the BCM through the following tasks: (1) assess BCM data needs for macroeconomic management and supervision; (2) produce guidelines for the sources, timing, and required timeliness of financial and economic data, and for the use of estimated or provisional data when these are not available in a timely manner; and (3) specify responsibilities and procedures for data collection and management which are transparent and which maintain incentives for timely and accurate data collection. This assignment addressed implementation of data systems as an incidental element of the data systems investigation but this was not the primary output.

Currently the BCM lacks simple methods for organizing its information and data flows. Individual researchers and staff members within various divisions keep their own data sets and sometimes multiple data sets, whether computerized or on paper. Non-computerized information is maintained individually, with the staff member responsible for particular supervisory or research activities keeping non-computerized and computer records required for his or her personal responsibilities. Though the BCM has its an internal computer network, there are few centralized databases, and there are no consistent systems for updating provisional data or determining when provisional data should be maintained in a permanent database. As a result, deaths, vacations and other absences from post which are not accompanied by a clear transition process lead to serious lapses in the BCM's ability to analyze, to present and to manage its data and to provide projections.

Among other problems, no clear procedures exist for determining 1) when to use estimated data rather than awaiting the arrival of reports, 2) how provisional data should be determined as definitive and so recorded, 3) what criteria are required for data to be maintained in provisional Department-level databases or to be contributed to a central database or databases for use by all staff and by others, or 4) who best should have responsibility for collection of data from different origins and its organization and control. Finally, some collection methods remain poorly structured, so staff may file duplicate requests for similar data. Since there will often be a time lag between requests, even official BCM data series based on the same official source may disagree.

Mr. Lubell began the analysis with presentations (described below) on the American Federal Reserve and the Bank de France, he continued with the integration of financial institutions into national accounts, and

the analytical use of the tables of the TOF. However, while the skills in developing and using the TOF correctly and efficiently were developed, the team believes that the motivation for the TOF and its use in monetary analysis is still insufficiently understood at the end of the assignment.

The old attitudes and "bureaucratic barriers" led to the need for specialized assistance from Alexander Korns. He was asked to address two specific data problems: (1) the improved management of existing databases, and (2) the upgrading of real-sector data available to the BCM. At the root of both problems is a widespread reluctance or sluggishness in sharing data: either within sections of the BCM, or between other agencies and the BCM. The BCM staff often are caught in the middle between demands of higher-ups for better and prompter data for policy making on the one hand, and data sources which are often not as cooperative as they ought to be.

In another sense, the old attitudes are still active as well in shaping how the BCM tries to solve its problems today. The various *Directions* do not much of a role in making decisions about how to obtain the resources they need to solve their problems, in particular, how to upgrade their own computer hardware and procedures. SIMA, a Belgian consulting company implementing PRODIF, has been given a large role in re-designing BCM operations. SIMA, which considers the needs of the "Group 3 *Directions*" to be relatively low priority, has focused on other issues such as improving the BCM accounting system.

Although the work of the Group Three *Directions* is clearly hampered by an insufficiency of computers, PRODIF leaders exhibit considerable distrust towards the PC needs of the three *Directions*, as if uncomfortable with the spontaneity of the growth in PC demand. One PRODIF director asked if these *Directions* couldn't do their jobs just as well with passive terminals; another asked the consultants if PC demand would ever be satisfied. Neither showed any sense of the potential of PC's for enhancing the ability of junior staff to take initiative and solve problems which is the core of the CAER approach. Nor is BCM senior management very keen on the information sharing potential of the World Wide Web. One Directeur stated what the team believes through its several months of work with BCM, that management is skeptical of the Web's value, and worries that it will waste time.

The workplan developed in December 1996 included three specific tasks and five outputs to be sought by this program of assistance to the Direction des Etudes and for the general data management needs of the BCM. Under this plan, Harold Lubell, Josée Randriamamonjy, and Alexander Korns performed the following tasks:

1. Develop macroeconomic series;
2. Support the correct and efficient use of macroeconomic statistics; and
3. Create a macroeconomic database for use by all bank divisions

The combination of formal instruction, on-the-job training and consultancies used to achieve this are described as part of the history which follows. To the extent possible, local consultants were used in this work to institutionalize local capability. However, budgetary limitations still remain as a serious impediment to the updating and management of macroeconomic data.

Table 1: Macroeconomic data produced or consumed

<i>Direction des Etudes (DET)</i>	
<i>Relations Exterieures.</i>	Prepares worksheets for exports, imports, the balance of payments, inter-bank operations, and foreign exchange rates. It requires voluminous data from other services, particularly DCR and DSE.
<i>Etudes Financieres</i>	Prepares the TOF. For the moment, they don't have a finished table, so they don't have a lot of data to display, but expect to have one by next year. In addition, they already have tables for particular sectors, especially public finance. Overall this service is more a user of data from other services than a provider to them.
<i>Direction de Credit (DCR)</i>	
<i>Marches et Instruments de Politique Monetaire</i>	Produces many worksheets covering treasury bills, obligatory reserves, BCM interventions in the money market, and interbank market operations. Many of the files cover periods of a month or less. A few summary files exist for periods of a year or more.
<i>Gestions des Lignes Exterieures</i>	Maintains worksheets on the disbursement of various lines of credit from international agencies or foreign governments (scheduled for abolition in 1998).
<i>Centrale de Bilans et Cotations des Entreprises</i>	Tasked to evaluate the credit-worthiness of various establishments and industries. It has prepared thick reports on the credit-worthiness of only a few industries and establishments, based on data for 1994 and 1995. The BCM obtains annual financial reports for the establishments with a delay which reduces their usefulness.
<i>Renseignements sur les Entreprises.</i>	Prepares monthly summarizing cash flow and indebtedness by establishment and industry group.
<i>Direction des Services Etrangeres et Dette Extereur (DSEDE)</i>	
<i>Exploitation</i>	Department with six services -- <i>Tresorerie, Comptes speciaux, Changes, Statistique</i> (Back-Office), <i>Cambistes</i> , and <i>Importations</i> -- each maintains data files documenting foreign exchange transactions. <i>Statistique</i> records foreign exchange outlays for imports by five-digit commodity code (very useful in tracing outlays for services), monthly summaries of inflows and outflows of foreign exchange, and daily summaries of foreign exchange operations.
<i>Dette Exterieur</i>	Department with services-- debt to international organizations, debt to members of the Paris Club, and debt statistics -- manage voluminous files concerning the amount of the debt, repayments, and repayment schedules. Much of this is managed by way of a "dumb terminal".
<i>Administration et Comptabilite.</i>	No effort was made to survey data from this department, as it will be covered by PRODIF's priority efforts to computerize accounting.

Develop macroeconomic series

The BCM participates with INSTAT in the development of the national accounts. These, however, have been delayed by the recent fiscal problems of the Government. Despite (donor-supported) assistance from project MADIO, the accounts are not usable by policy makers, particularly the flow of funds analysis (TOF) for which the BCM is responsible. Most accounts had not yet been completed for 1993.

Mr. Lubell followed the common training with presentations on the concept of national income in the system of national accounts, and a review of growth models since 1945, and presented his documents to the BCM for future staff development. He next presented the flow of funds analysis and its use by the United States Federal Reserve Bank and the Banque de France, and provided the BCM the background documents on these techniques. To assist in the integration of financial institutions in the national accounts, he trained the BCM staff in the techniques of the UN System of national accounts and developed templates to use the 1993 update (SNA 1993), using the only textbook available in French, by Michel Serusier. Ten copies of this text were left with the BCM and INSTAT for their future training and reference needs. He was assisted by Josée Randriamamonjy and a presentation by André Andriamiharisoa on balance of payments.

By August 1997 the real accounts of the BCM and the deposit banks had been updated by the DET for the years 1993-1995, and balance of payments accounts had been completed for the same years based on DET statistics arranged by the SNA 1993 developed by Mr. Lubell. The central government accounts on a cash basis were obtained from the Service des Etudes du Budget and the series updated 1993-95 based on the SNA 1993 and a framework developed by Mr. Lubell on a previous assignment. The TOF had been updated for the same years for the financial transactions of the BCM and deposit banks, while Mr. Jean Robiarivony established a framework for analyzing government expenditures by linking the TOF to the *Compte général d'exécution de la Loi des Finances*. The analysis of nonfinancial enterprises was undertaken, with 13 balance sheets for 1993-95 entered into the database for analysis by Ms. Josée Randriamamonjy.

Important gaps which remain in the balance of payments component of the national accounts at the end of this assistance include tourism receipts (for which the team provided a draft questionnaire for a quarterly survey to be conducted with hotels and tourist agencies) and investment by foreign venture capital firms which must be surveyed directly. In each case the surveys are designed both to obtain current information and to assist in projection. To contribute to this development Mr. Lubell interviewed several non-bank financial institutions to clarify their operations and the timing of availability of their accounts: the *Caisse d'Épargne*, the risk capital companies FIARO, SONAPAR, and SIPEM (the last no longer operates as a venture capital firm but as the financial arm of an NGO), and the credit union movement (*mutuels d'épargne et du crédit*), and provided this information to the BCM/INSTAT team.

At the end of the assistance the national accounts and TOF had been largely brought up to date and the staff trained in the methodology to continue the process. This must continue to bring the accounts completely up to date and to continue their timely generation, in collaboration with INSTAT. The greatest shortcoming of the assistance provided is that the team was unable to improve the institutional coordination among the BCM and the ministries which generate the national accounts and TOF data, particularly Industry and Agriculture. Producing these data are not among the first priorities of these line ministries with their limited budgets and pressing immediate needs, so they do not allocate sufficient funding to them to satisfy the requirements of macroeconomic forecasting. The team recommends that BCM make a special effort to improve this coordination, since the incentive structure generated by the Malgasy fiscal (budget and

expenditure) process does not support coordination and even favors slow- or non-compliance by underfunded line ministries concerning generation of data vital for macroeconomic forecasting.

Support the correct and efficient use of macroeconomic statistics

This is key to the operation of any central bank, and led to considerable differences between the PRODIF and the CAER team as to the requirements of the assignment. Mr. Lubell provided overall training and identified data needs in industrial production and in the currency of statistics. Mr. Kornis provided more detailed analysis.

To get a better sense of the volume of data exchanges between sections, each section was asked to prepare a list of the data files which it could display in a network. The volume of data they reported was considerable, especially for the *Directions* of credit and foreign services, as shown in Figure 8. To document the flows of data among services, each *Direction* contribute data to two "round-robin" forms – one showing the services to which they provided data, the other showing the services from which they obtained data. A single round would have been insufficient, as the technique demonstrated. At the suggestion of Mr. Many of PRODIF the two tables were compared to highlight discrepancies between the two reports. These were eventually reconciled, with the results given in the consultant's report to BCM which is available to those with a technical requirement for the data but not given here. The tables show a considerable volume of data exchanged among services. In addition to providing data to the "authorities," fully 9 of the 12 services/departments represented there provide data laterally to three or more services; two of the others provide data to two services. Much of it is monthly data. The volume of circulation of data among services is substantial.

Discussion with each service also revealed that the **shortage of computing capability** in the three *Directions* creates major bottlenecks in their work and thus in the ability of the BCM to respond to the market environment. Part of this is attributable to the BCM unwillingness to distribute computers to its staff while computer technology is evolving rapidly and making obsolete the computers held in reserve, another is a lack of budget for routine upgrading of computer technology at a price which would be a fraction of the annual price of maintaining a 4-wheel drive vehicle (to put the cost in a framework understood by managers). The following list is reported by the BCM Directions themselves; it does not represent CAER team recommendations but is the problems facing the policy groups based on their training under the CAER program and their perceived needs to implement their training and our technical assistance.

1. **Computer access:** some services lack any access to a computer or rely on borrowed time on others' computers. These services keep their data manually, and such data are not available to others.
2. **Standardization on Microsoft software:** Some of the computers are not Windows capable. Hence, although Excel has been set as the BCM standard, many files are still maintained in non-Windows versions of Lotus and Multiplan. BCM should upgrade or sell these computers to achieve standardization on computers compatible with its chosen software standard.
3. **Use of Microsoft Windows:** A cadre who was trained by CAER in econometric modeling and given the E-Views econometric modeling program cannot use the program in certain *Directions* for lack of access to a Windows-capable computer.
4. **Disk storage:** In the DEC, some data files are created and erased monthly, for lack of storage space on the hard disk and lack of network access to a server hard disk. Hard disks currently sold surpass 2 gigabytes of storage, while those on the machines owned by the BCM hold a fraction of that space.

5. **Disk storage and memory:** Also in DEC, many small files are kept on the hard disk. It is recognized that the files would be more conveniently combined into larger workbooks, but memory limitations prevent that from happening.
6. **Computer memory:** Forecasting of the money supply is hampered by memory limitations. A single run of a simulation in Excel can take five minutes. Often the computer hangs in the middle of the computation.
7. **Computing power:** Two services in the Direction of Foreign Services have access only to dumb terminals for entering data into non-Windows databases managed by the Direction of Organization and Informatique. As a result, they are obliged to manage their data through job requests to the DOI. Their statistical outputs are in the form not of worksheets but of print files. Print files are satisfactory for final output for decision-makers but are not available to other researchers.
8. **Printers:** In DET, a single printer serves all the computers in the *Direction*. It is somewhat obsolete and jams frequently.

While the CAER team did not include a hardware and software specialist, the concerns of the *Directions* are those of firms worldwide and must be addressed through a BCM program of software and hardware upgrade. The BCM policy of withholding computers from staff use in the past has been unfortunate because of the rapid increase in computing capability and decline of computing price during the time they have held these computers, with the result that machines which cost the BCM or a donor \$2-5,000 each and were kept in reserve are now technically obsolete, incapable of running the latest software which requires Windows 95. Such machines still have a market value and the BCM should develop a program (and budget) for routine upgrade of its hardware and software. Mr. Korn highlighted these bottlenecks in his analysis of management of macroeconomic data, inasmuch as the availability of more computers is also a prerequisite to data sharing among the various services by way of the existing BCM network.

On the job training in the use of macroeconomic data was carried out by Mr. Lubell (national accounts and TOF), and Mr. Freeman (financial statistics), Ms. Randriamamonjy and Ms. Almy and Mr. Nelson provided training sessions containing analysis of financial and economic data. Mr. Azam (monetary and foreign exchange assets), and Mr. Protasi (modelling and financial programming) provided statistical work specifically related to tasks of the BCM. Their work is described elsewhere in this chapter.

Create a macroeconomic database for use by all bank divisions

The data management problems identified in the December 1996 mission included: (1) individual researchers and staff members within various divisions keep their own data sets and sometimes multiple data sets; (2) non-computerized information is maintained individually; (3) as a result, deaths, vacations and other absences from post which are not accompanied by a clear transition process lead to serious lapses in the BCM's ability to analyze, to present and to manage its data and it remains unclear what criteria are required for data to be maintained in provisional Department-level databases or to be contributed to a central database or databases for use by all staff and by others.

At the technical level, most of the data required for macroeconomic statistics exist, but they are stored and transmitted within the BCM on diskettes. The new computer system is forecast for 1998, and the CAER team was requested to provide data assistance to make the new network useful for research and supervision. Outside the BCM, the bank must handle information transmitted to and from the Conseil de Supervision des Banques et des Institutions Financières, deposit banks, other financial institutions, the Ministry of Finance, and INSTAT.

Finally, it remains unclear who best should have responsibility for collection of data from different origins and its organization and control. Some collection methods remain poorly structured, so staff may file duplicate requests for similar data. Since there will often be a time lag between requests, even official BCM data series based on the same official source may disagree.

BCM specifically requested assistance in storing the data for all *Directions* in a centralized database. The team in its December report believed that a centralized database is called for only for the most central of data. It also stated that storage requires a doctrine concerning the estimation of preliminary data and its replacement with final data. As the Korns expert consultancy developed, the difficulties of a central database and the CAER team idea of a differentiation between preliminary and final data in a central database both became clear. The data, which are distributed among dozens of files, are simply too variegated for a centralized database. The relationship of preliminary and final data depended very simply on the availability of data from the source; as long as one piece was not available while others were, the missing piece was estimated.

The original idea of the BCM to improve a central database was not supported either by the CAER policy team or by the dedicated macroeconomic systems database. We continue to stress that the databases must be established at a level according to the needs of the users and the permanence of the data sets. That does not call in most cases for centralized databases. Where it does call for centralized databases it requires strict protocols for what may or may not be included in that database. Since these protocols take time (to verify data, to agree on various uses, and for other purposes) we encourage the use of databases disaggregated according to their use wherever possible, but seldom or never available to only one researcher unless they are for his or her personal, experimental research. The proposed solution is a package of hardware and institutional arrangements. It requires each service to post its data sets in the network to make them available to others. It requires an increase in hardware, providing more PC's to the three *Directions* (the consultant's report called for 11 units). It calls for a system of upgrading of hardware and software which is not a one-time upgrade but will continue into the indefinite future.

Under the proposed system each service will have the responsibility to post its data on time. So this is a decentralized action in the context of a LAN, that is to say, a centralized technology. The more computer-literate services would be expected to prepare communicative presentations of their data; over the long run other services will emulate their example. Considering how fragmented and uncommunicative are the files prepared by some of the services, much remains to be learned in this regard. A committee should oversee the whole matter of posting data on the network to ensure that it really is posted and to set certain standards for software (e.g. Excel), updating schedules, safeguarding confidentiality, and ensuring effective communication.

It is also recommended that each service post schedules for both its expected and actual receipt of data as well as its expected and realized target for data release within BCM. This kind of transparency would help to reduce delays and to focus attention at once on the causes of the delays.

Special arrangements would be needed for data sets which are presently obtained from outside parties (e.g., commercial banks) by more than one BCM service. The most efficient way would probably be to designate one service as the lead service for each data file and then require that service to quickly post the data in the network for use by the other services. This will require considerable self-discipline and cooperation. Otherwise, the dependent services may be tempted to go out and collect the data themselves if they feel they can't rely on the lead service.

Eventually, as the standard computer in use at the BCM became sufficiently powerful, data providers could easily create internal WWW sites for presenting their data. This would obviously be more user-friendly than a long list of Excel files with a single index file explaining what's in each worksheet. In recent years, the BCM has published a quarterly *Bulletin d'information et de statistiques*, which is mainly a statistical compendium. There is no reason why the same data sets and more could not be updated from day to day at an internal web site within the BCM network.

Finally, the CAER team presented models for posting BCM data on the WWW for external distribution, as other Central Banks are increasingly doing as part of their transparency required for market confidence in Central Bank policies and their implementation. As data become more updated, this posting is highly recommended. The models of other central banks are available on WWW sites demonstrated to BCM staff. This creates a budgetary problem, the responsibility of posting such information. Since under the current fiscal problems of the Government there is a pronounced unwillingness to devote resources to the data needs of others, some means must be found to encourage BCM management to post such information *as an integral part of its monetary programming strategy*.

Certain PRODIF managers, perhaps serving as testers for BCM management, question the need for more computers. This was after the August termination of the project and reported only through our consultant Mr. Kornis. Since previously we had heard that there was a strong pressure to dismantle the compute laboratory to issue the machines to the various *Directions* since the computers are important post-training, this is a difficult question to which to respond and we risk responding to the wrong question. The Director of PRODIF asked the consultant to write an additional short note explaining why BCM needs PCs instead of "dumb terminals" (his term). A representative of *Direction de l'Informatique* confirmed later that dumb terminals are only suitable for massive databases with fixed structures, not for the multitude of small worksheets kept by the various services in the three *Directions*; under a passive terminal system it would be a big hassle to revise the structure of any databases once they had been set in stone. As developers and users of systems elsewhere, including other central banks, we concur strongly with this expert analysis. We do not recommend the purchase of "dumb" terminals for the uses planned under this training, given the current computer network of the BCM.

The consultant's final presentation to PRODIF mentioned the support his position receives from *Direction de l'Informatique*, and reiterated his view that increasing the number of PCs was a prerequisite for the realisation of data exchange through the network. He believes that the PRODIF management reserved judgment. This has been a constant source of difference between the PRODIF and the CAER team concerning the use of central databases as compared to local or personal databases, and the protocols for tying one to the other. We support the consultant's recommendations and propose that the BCM not attempt to tie all data to a central database which will be unwieldy, expensive, instantly outmoded, and inappropriate for the needs of the staff of BCM who are concerned with projection rather than audit or recording of historical information. We have stated that several times during the course of the project, we have had to debate it with the staff of PRODIF on each occasion, and we reiterate it now.

Macroeconomic indicators

The CAER team perceived that acquisition of data from outside the BCM was an integral part of its internal data management. In fact, the two turned out to be very different, determining which data were needed, then how to get them promptly and manage them according to source. "Data needs" must be addressed in the context of availability: unlike academic research, policy analysis has no use for data which are available and aren't likely to become available anytime soon.

This is based on the consultant's empirical work. For his first week he focused entirely on the data management issue because first, BCM staff seemed ambivalent about the data collection issue, (saying there had to be some way to get hold of the needed data, while conceding it was not the BCM's role to become a data collection agency), and second, it was clear that investigating all data collection was an unnecessary and impossible task given the national role of INSTAT as main agency for collecting data. More specifically, Mme. Chlotilde, the DET director, expressed priority needs for prompt real sector data for both production and prices, and for improved data collection as regards foreign direct investment (FDI); this issue is far more limited than that for real sector data.

As regards the relative importance for BCM of price and production data, price data are more important. Both kinds of data are needed by the BCM chiefly for estimating the demand for money; however, likely fluctuations in prices far exceed those in production. GDP growth has averaged about 3 percent per year and is unlikely to vary greatly from that average; price changes have fluctuated far more than this in recent years.

BCM has not had success with a long-standing effort by the DET to collect real-sector data through branches and agents of the BCM. Only the BCM branch in Toamasina, provides good data; "agents" in other regions were inferior and the results of all but three branches were either nonexistent or of very low quality. Also, despite the need to keep the questionnaire simple, DET has produced questions on production of a long list of commodities. Such "shopping bag" lists of data collection without a target need for the data have two effects. They reduce the number of items collected and focuses the enumerators on the reason for collection, in order to stay within a budget and to receive useful information. Based on international experience:

1. DET must contract with the agents and pay them for the specific task of collecting data plus provide funds for travel, for them to have any incentive to do the research.
2. The DET must prepare an extensive manual explaining in great detail the procedures for choosing suitable "informants" and interviewing them. To prepare the manual, DET cadres must write a manual based on the methods which worked for them. The more variables it is wished to collect, the bigger the task of preparing the manual.
3. Agents would need to be trained, based on this manual.
4. Because the conduct of such informal surveys involves a large degree of judgment, formal training must be supplemented by regular "coaching" on how to improve research methods. The DET would need cadres who have time to visit the agents, review their work, and coach them.

As the DET has learned of the methodology from the Bank of France, it might be useful to try to obtain forms and manuals from that bank. However, the methodology is not, to our knowledge, a well-tested one or common one in developing countries. Even if the BCM puts resources into the survey, there is no guarantee that useful results will be obtained. The basic weaknesses in the methodology have to do with: (1) The bank's lack of choice over who (which individual) will collect the data in each region, (2) The high degree of judgment and initiative required from each agent in order to do a good job, and (3) The lack of appropriate educational backgrounds on the part of the agents. It may be impossible to overcome these weaknesses, no matter how much resources are put into the effort.

The limited BCM resources should be devoted to tracking the indicators he proposed in @@@ and in attempting to get better and quicker data from INSTAT and other agencies in the ways he recommended, rather than using BCM staff to obtain such information which would be expensive and would not assure policy-useful results..

More generally, BCM requires data which it can obtain itself, or it can ask/pay INSTAT to collect for it. It must do both. For surveys which involve collecting data from many respondents, INSTAT has the experience and extensive work force. For readily available data which needs to be collected promptly from one or two or three respondents, BCM staff may be better suited to obtaining the data: this is a task which partakes more of lobbying than it does of conducting a statistical survey, but which can focus clearly on the need for limited amounts of prompt data with which to obtain a glimpse of the current economic situation.

If BCM collects on its own it must provide the necessary resources. After the transition to a market economy, the sources which BCM approaches are under no further obligation to provide data (we will not join the debate whether previous data were accurate and prompt). They will only provide it if they feel a bond of trust and mutual sympathy with the BCM. Creating such bonds can be very costly in terms of the time of BCM staff. Staff may need to visit the source in question several times in order to create a relationship. Once this has been done, it may be possible to obtain the data by phone, or through lower-level employees for a time. Once this has been done, staff may also learn that certain data are more easily, accurately or immediately available than others and provide input into reforms of the BCM reporting system. However, it may be necessary from time to time to refresh the relationship, particularly if there is a change of personnel at the source. Thus, the method is feasible, but it is not easy or cheap and thus it should be directed at "leading indicator" sources rather than a broad-based survey.

Where the required data are not readily available, further necessary costs may be entailed in collecting it. If the data is very important, the BCM may need to help raise some funding for the work. This will take both money and the time of a cadre to prepare a proper budget. The personnel available to BCM for collecting the data directly are very limited. For example, Mme. Emilienne, who works at this task, already devotes about 40 percent of her time to data collection, and it may be difficult for someone such as her to increase this share very much in view of other responsibilities. If the bank wishes to increase its data collection efforts, it will need to add one or two more cadres or, better yet, a small service specifically dedicated to this task which can also have the discretion to determine less staff-intensive means of obtaining the required information.

Data collection does not require technicians; rather, it needs lobbyists who are not afraid to knock on doors, get acquainted with strangers, learn to understand the problems that these strangers face, and try to obtain some data in the process. It would also be helpful if they had enough understanding of the data to be able to address data discrepancies from time to time. Except for the largest firms, this can well be obtained on an as-needed basis from the private sector.

Interagency conflicts in macroeconomic data collection and management

Difficulty in cooperating among agencies, sharing data, and providing the incentives and rewards to encourage sharing are problems common to most countries. This problem seems to be at the root of some of the BCM's difficulty in obtaining data from outside agencies. It is unclear whether these difficulties can be linked to a history of central planning. Possibly they are broadly reflective of cultural values instead of the economic system, but these can be resolved by the establishment of a correct incentive system within BCM.

For example, in DET the problem of obtaining data from other agencies is delegated to a staff member who attempts to obtain data but often becomes discouraged but is articulate about her frustrations. For example, she has failed for three years to obtain data on industrial sales of electricity from the JIRAMA (a parastatal). She had sent many letters and made a number of calls but never visited the JIRAMA – although the JIRAMA official who has the data she needs sits in an office about 200 meters from the BCM, and she could not recall the name of this Jirama officer. By walking into the an office of the JIRAMA the CAER consultant received data that had eluded the DET staffer for three years, showing electricity sales to high-voltage customers by quarter and by one-digit industry group. The JIRAMA official stated he would give the data as easily to the DET as he had to CAER, but BCM staff suspected this responsiveness to an expatriate “expert” would not be accorded a Malgasy bureaucrat. For complicated reasons we were unable to test this (reasonable but perverse and unsatisfying) explanation for BCM non-performance.

As regards INSTAT, INSTAT had made a series of promises to collect additional data for the BCM, none of which had been fulfilled. The consultant asked for a brief memo summarizing what had happened, in which the BCM staffer related three agreements none of which had been fulfilled. On investigation, none of the agreements had been funded, suggesting problems of coordination between the working level of BCM and the working level of INSTAT, through their respective administrative levels and without our ability to pinpoint the problem. The director of this study designed a field survey for a central bank in Southeast Asia which maintained the cumbersome but impossible-to-change legal relationships between the highest levels of institutions but which permitted direct functional oversight of research groups under the contracting institution by the contractor several layers below the Central Bank management. Such contracts would be useful here.

BCM is unwilling to take a realistic view of the data collection problem sd an issue of two kinds of resources. One is money. The other is the allocation of “qualified staff” to the task of lobbying for the data. By "qualified staff" is meant extroverted "can-do" (and possibly) non-bankers to lobby to release available data without getting too easily discouraged. Although this view was expressed to several persons at BCM, it only seemed to resonate with one Director who she seemed relieved by the view that the BCM would have to make up its mind to pay for the data one way or another if it was serious about getting it.

Priority data items for collection of prompt indicators for the real sector

In view of both the BCM's recent record of failure in collecting real-sector data and the scarcity of resources that might be applied to that task, the team proposes a *minimal* program of data collection for prices and production which can be summarized by Figure 8 and described in this section.

Table 2: Priority BCM Objectives for Data Collection

Data item	Frequency	Source	Availability and Cost, if Any
Price data			
Wholesale indexes:			
Basic consumer goods (10 items)	Monthly	INSTAT	BCM should request small survey; need continuing budget .
Basic raw materials (10 items)	Monthly	INSTAT	- " -
Major export commodities (6 items)	Monthly	INSTAT	- " -
Major import commodities (10 items)	Monthly	INSTAT	- " -
Retabulation of consumer prices All traded goods, all nontraded goods	Monthly	INSTAT	- " - INSTAT can tabulate routinely. No budget needed.
Composite index of import prices			
Unit price data, homogeneous goods	Monthly	Customs	Available for the asking, with variable delays.
Foreign price indexes for heterogeneous goods	Monthly	France, US, etc.	Available for the asking, with lag of one month.
Production indicators			
Index of industrial production	Monthly or quarterly	INSTAT BCM needs to request:	Can be prepared from data already collected from 150 establishments. (1) Presentation in index form, (2) Adjustment for nonresponse; (3) Efforts to reduce nonresponse. Efforts to reduce nonresponse will require one-time funding.
Electricity consumption by industry	Monthly or quarterly	JIRAMA	Available for the asking, 3 months after reference month.
Diesel sales at pump	Monthly or quarterly	SOLIMA	Available for the asking.
Cement sales = sum of: Shipments by 2 factories	Monthly or quarterly	Cement factories	Available for the asking.
Imports of cement	Monthly or quarterly	Customs	Available from national office with delays. May be obtainable more quickly for Tamatave only.
Indicators of rice production in major areas— Lac Alaotra, Maravoy, Antanarivo, Antsirabe, Fianarantsoa, Antsohihy	4 times per year	Min. of Agriculture	BCM needs to ask Min. of Agriculture to organize survey with small sample of respondents and prompt results; continuing budget needed.

Data item	Frequency	Source	Availability and Cost, if Any
Other possible agric. production indicators, provided not too costly.		Min. of Agriculture	BCM and Min. of Ag. need to study the additional costs for collecting data for other crops as well as rice.
Data for Foreign Direct Investment			
Imports of capital goods by FDI projects	Annual	Customs	Available fom Customs records. Unclear whether some budget needed to fund the work or whether BCM needs to provide list of projects.
Tax rebates for re-investment of profits by FDI investors	Annual	Min. Finance	Available fom tax records; however, some budget needed to fund the work. Unclear whether BCM needs to provide list of projects.
List of FDI investors	Cumul.	Various	Can be collected by BCM by combining data from Exchange Control, ministries and newspapers, however, no one has had time to try this.
Stock of FDI investment	One time	INSTAT	Would require a special one-time survey of the investors, with budget. Survey could not take place until list had been prepared by BCM.

For prices, BCM requires the collection of some very limited wholesale price data, plus the retabulation of certain existing price data. Inasmuch as the only available price data are for retail prices, some wholesale price data is needed.² Although collecting wholesale price data would require a new survey by INSTAT, the survey does not need to be very extensive for a start. It would be sufficient to collect wholesale prices for limited numbers of consumer goods, producer goods, export goods and import goods, with priority in the selection going to homogenous goods for which wholesale data is relatively easy to collect.

For production, Mr. Korn's proposed a minimal 4-part system of indicators.

1. From JIRAMA, collect the monthly industrial consumption of electricity by branch, which would serve as a good indicator of overall industrial production, because for each branch the consumption of electricity is highly correlated with production. This will be a very important variable at least until BCM is able to get a more up-to-date index of industrial production from INSTAT.
2. From SOLIMA, continue to collect the monthly sales of diesel motor fuel, which serve as a fairly good indicator of activity in transportation and trade.
3. From the two cement factories in Madagascar, collect monthly sales of cement. Add cement imports, and one has a measure of consumption, which would serve as a very good indicator of construction activity.
4. Using informal methods to be discussed below, attempt to develop a rough indicator at each harvest-time of commercialized rice production by observing changes in the production of rice in the few areas which supply the bulk of commercialized rice.

² It is reasonable to suspect (as M. Honore says) that wholesale price measures might be more sensitive indicators of inflation than the consumer price index, although this cannot be confirmed until the data are available.

Of the four items recommended in the minimum program for production, only the fourth seems to require substantial new data collection activity.

It would be unrealistic to hope for a good index of industrial production from INSTAT anytime soon. The monthly industrial production data collected by INSTAT is in a mess, with nonresponse rates of 50 percent, with no adjustment for nonresponse, and with no methodology for aggregating the data into an index.

Roles for data collection: The prospects for solving the data collection problem in the near future appear less promising than those for solving the data management problem. Data management depends entirely on the BCM itself, while data collection requires the cooperation of several other agencies, principally INSTAT. In principle, the BCM governor could play a major role in resolving this problem by raising the issues with INSTAT and the Ministry of Finance (in connection with the provision of budget for statistical needs). However, it is unclear whether the BCM views the problem as sufficiently important to warrant intervention by the governor. The institutional incentives do not exist for other agencies to do this collection as part of their routine operations or to assure the quality of data which they already gather.

Several well-informed persons believe that prompt indicators were more readily available some years ago than at present. BCM staff were not very specific about why this had been the case or who it was that had ensured the availability of data. Current officials of the *Secretariat Technique à l'Ajustement* share this view, based on their own roles in the 1980s and early 1990s. The knowledge and experience of these two STA officials could perhaps one day provide support for improving prompt indicators. Unfortunately, the STA until now has interpreted its mandate as limited to the collection of qualitative data concerning "la conjoncture," such as whether businessmen feel things are getting better or worse. The two STA officials expressed interest in appropriating some funds in support of the development of quantitative indicators, but expressed the hope that the BCM would take the lead in raising this issue within the government.

In the long run, resolving the problem of prompt indicators requires cooperating among (at a minimum) the BCM, INSTAT, the Ministry of Agriculture, the STA, and the *Secretariat Permanent pour la Prévision Macroéconomique*. Developing such cooperation lies outside the capability of the CAER Team.

The problems of data sharing/management and of data collection are not ones that frequently engage the attention of senior BCM management. Nor do these problems pose major technical difficulties requiring an external consultant or a training workshop to solve. It is perhaps only on the context of PRODIF, by analogy with the complex systems being created for accounting, that BCM management might fall into the error of thinking that a database system is needed for managing BCM's macroeconomic data.

These problems represent cultural values of non-cooperation among *Directions* or among government agencies, as well as non-transparency. Solving these has never become a priority for BCM management. No Director or Service head wants to waste valuable time tackling these problems of data collection, so they toss the problem to a staff member who lacks authority to obtain compliance, who flails at it and then walks away from it in chagrin.

These are basically not technical problems. Data management on BCM's computer network not only presents certain practical advantages, but also encourages the various services to display their data transparently. It remains to be seen whether this vision will actually be realized. The risk is that the services they will never get the necessary PCs; or perhaps they will get them but not post their data

As regards data collection, the CAER team repeatedly posed the question whether it is worth the cost and effort to obtain this data. BCM and PRODIF seek a system to provide the needed data that could be operated by a low-ranking cadre with little effort. No such system can be found in Madagascar or elsewhere. To obtain data, BCM must allocate additional attention and required resources to the task? Even still, the institutional incentives outside the BCM (interaction with other government agencies such as INSTAT and the Ministry of Agriculture) and major private firms is weak for creation of such data collection. Since it has functioned in the past, there is hope for recreation of such a database.

Working Group 4 **Improving Macroeconomic Analytical, Forecasting and Reporting Capacity**

The seminar on forecasting prepared by Juan Carlos Protasi based on his experience as Central Bank Governor treated the major tools of forecasting and their relation to monetary programming. Mr Protasi finished the course with a manual of estimating tools which was presented to the BCM.

The seminar was based on the applications of the forecasting tools, as the participants supplied the data from their own work needs. Mr. Protasi worked with each participant to relate his or her job to monetary programming, so the laboratories and courses related directly to the needs of the BCM in its transformation. The training and technical assistance covered the following major topics:

1. Standard methods of forecasting including regression analysis, time series analysis, and Box-Jenkins models.
2. Different methods (moving means, X11, and others) for removing seasonality from time series and estimating the seasonal correction factors.
3. Different methods (simple, double, Holt-Winters) for exponential smoothing of a series and afterwards use the result for forecasting or projection.
4. Special topics in regression analysis: least-squares, properties of different estimators. The results were used for prediction using an estimated model based on Madagascar data.
5. Use of the E-Views regression package, with on-the-job instruction so the participants could use E-Views in their own applications.
6. Developing applications to project the monetary aggregates of Madagascar based on several filters studied by the participants.
7. The discussants analyzed the determinants of the demand for money in general and their application to the case of Madagascar. The group estimated different models to attempt to explain the determinants of the demand for money in Madagascar.
8. Despite the limitations of the National Accounts data, the group attempted several applications of the procedures used to forecast Gross Domestic Product, Private Consumption, and Imports.

The possibility of future growth of participants depends on the availability and quality of the data, which was the strongest constraint found. The participants were encouraged to develop their own ability to use E-Views.

Mr. Protasi was scheduled to give a second seminar, in which he would introduce a model for monetary programming in Madagascar which had immediately applicability for forecasting and for analysis. Unfortunately, due to illness he was not able to make this presentation. He provided copies of the model to the BCM. Two attempts were made to reschedule his visit for this purpose, but the logistics proved impossible. This is one of the most serious shortcomings of the project and the achievement of its goals of assistance to the BCM in its transformation.

After discussion between the project implementers and the PRODIF, the seminars of Mr. Protasi were paralleled by a short seminar given by Mr. Nelson in the use of E-Views for those who had not participated in this course (or in the work of WG 5 led by Mr. Azam). This enabled many other staff members to have a beginners knowledge of these tools of analysis. The BCM has the texts (unfortunately the texts are only available in English for E-Views) to continue training.

Working Group 5 Macroeconomic Approaches to Exchange Rates

Working group 5 received training in macroeconomic approaches to exchange rates. The goal of the training was to help the BCM improve coordination between exchange rate policy (external monetary policy) and credit policy (domestic monetary policy).

Situation before the activity began

In September 1997, three months before the activity began, the Ministry of Finance removed many controls and made the Malagasy franc convertible for current-account transactions for the first time in decades. For many years previously, exchange controls had been extensive, reflecting the government's attempt at making Madagascar a centrally planned economy. The removal of exchange controls and other measures that the government had recently taken to move Madagascar towards a market economy thrust the central bank into an unfamiliar position. It now had to take into consideration the reactions of market participants to its policies.

The move towards a market economy implied a greater need for a well coordinated monetary policy. For several years, outside observers had remarked on the lack of coordination between the BCM's exchange rate policy and its credit policy. For example, on one occasion the *Direction des Services Etrangers et de la Dette Extérieure* was reducing the monetary base by buying Malagasy francs in the foreign-exchange market, unaware that at the same time the *Direction du Crédit* was increasing the monetary base by lending money at lower interest rates than before reducing rates in credit market. In the centrally planned economy lack of coordination between exchange rate and credit policy did not matter as much because, in effect, domestic considerations took priority and the government manipulated exchange controls to prevent the exchange rate from depreciating as much as it otherwise would have. By removing exchange controls for current-account transactions the government committed itself and the central bank to a more transparent, market-oriented approach to the exchange rate. Exchange rate policy became much more important and for the first time in decades the central bank had to think seriously about coordinating it with credit policy.

Outside observers had also remarked that information important for conducting monetary policy was not shared among directorates in the bank. The *Direction des Services Etrangers et de la Dette Extérieure*, the *Direction du Crédit*, and the *Direction des Etudes*, the three directorates with primary responsibility for formulating and implementing monetary policy, did not readily share some basic statistical information. Given that even within the BCM such information was hard to get, it was even harder for the public to get. Compared to central banks in most developed countries and some developed countries (for example, Madagascar's neighbor Mauritius), the BCM released little information, often not in a timely manner. Information about the BCM's balance sheet, for example, was released in spotty fashion. Because of Madagascar's obscurity in the international financial system, it was especially hard for people outside the country to get key financial information such as up-to-date exchange rates and interest rates charged by the central bank.

What did the staff of the BCM learn?

The staff of the BCM took three courses that had considerable content related to exchange rates: (1) Economic Intuition and (2) Institutions and Terminology of a Market Economy, led by Kurt Schuler and Eric Nelson, and (3) Jean-Paul Azam's course in econometric analysis on the computer. Most instructors also taught some sessions of a workshop in making on the computer some types of calculations from the

course on Economic Intuition, and gave workshops on using the World Wide Web to gather and disseminate information.

The members of WG 5 studied techniques for extracting from the yield curve measures of the credibility of monetary policy beyond the simple analysis taught in the core courses. They learned how to calculate market expectations of future inflation rates and nominal and real exchange rates. One can calculate market expectations of future inflation rates by analyzing the components of nominal interest rates and making certain assumptions about the size of components that cannot easily be measured in a country where financial markets are still rudimentary. In the final stage of the training, the staff did these calculations in Microsoft Excel, applying their recently acquired knowledge of how to use spreadsheets. That enabled them to draw curves of expected inflation and to see easily whether expectations of inflation had been increasing or decreasing recently.

The workshops on the World Wide Web focused on how staff of the BCM could gather financial information available for free on the Internet and how the BCM itself could disseminate information on its activities. Mr. Nelson concentrated on showing the staff how to gather information and Mr. Schuler concentrated on showing them how to disseminate it. Because Madagascar is a poor country, the BCM previously could not readily afford to publicize its policies widely outside Madagascar. Since it had no interest in doing so, that was not a problem. Today, though, as Madagascar is opening its economy to foreign trade and foreign investment, it is important for the BCM to communicate all over the world so as to attract the confidence of foreigners. A site on the World Wide Web offers an inexpensive and effective way of doing so. Mr. Nelson provided an introduction to the WWW for all staff, then in two special workshops Mr. Schuler showed the staff of the BCM the rudiments of designing a Web site, guiding volunteers from the audience through the steps of setting up a Web page and linking it to other pages.

Besides making information on Madagascar more readily available in the outside world, a Web page offers an indirect way for the BCM to improve communication internally. If different departments will post information on pages within the BCM's site they will make information available to each other as well as to the public.

The CAER Team also showed staff of the BCM what other central banks have done to make Web sites tools of communication. Reviewing the Web sites of other central banks and of organizations such as the IMF is a means of education for the staff. It enables them to see what other central banks are doing and to imitate the best practices they find. A wealth of information that is not readily available in print in Madagascar can become available online to the staff, enabling them to expand their knowledge of how other central banks are handling problems similar to those the BCM faces. For example, we showed them the IMF's recommendations regarding the economic data that central banks and governments should disseminate to financial markets.

Staff of the BCM now know the fundamentals of interpreting the yield curve. They know how to extract from it market expectations of the inflation rate. They can enter the data in a spreadsheet and use the spreadsheet to make comparisons with past yield curves or with yield curves in other countries. Such calculations allow the BCM to ascertain quantitatively how much credibility it has instead of being able to talk only about an impression that it has more or less.

Also, the staff are now aware that market participants form expectations of future exchange rates even when no explicit futures market exists (as one does not yet in Madagascar). The BCM can extract that information by comparing yield curves for, say, bank loans in Malagasy francs with yield curves for bank

loans in foreign currencies. Besides calculating the nominal exchange rate that market participants anticipate, the BCM can also do a more market-based calculation of the real exchange rate to compare to the more model-based calculations it already makes.

The training increased the number of staff who can read the stock, bond, and foreign exchange tables of financial newspapers or online financial information services. Developing financial numeracy among its staff is essential for the BCM. To get a feel for financial markets, the staff need to understand when interest rates may be high, when they may be low, whether the exchange rate is volatile or not, whether local-currency investments are attractive compared to foreign investments, and so on. The only way to obtain such knowledge is to read financial tables regularly and become familiar with the rhythms of activity in financial markets, both in one's own country and abroad.

The staff also now know how to establish a simple World Wide Web site to disseminate information more widely within Madagascar and especially to the outside world. The BCM has made great progress in reducing inflation in the last few years, and that is a success that the world needs to hear about. Improving the BCM's visibility could also increase its independence by making it more of a force in shaping the opinion of participants in financial markets at home and abroad.

All these pieces of knowledge can help in one way or another to improve coordination between exchange rate policy and credit policy. The staff now have a keener appreciation than before that the yield curve is an indicator that ties together expectations of inflation and (by comparing it with yield curves in foreign currencies) expectations of the exchange rate. They can calculate in a way that they previously did not know how to the effect of credit operations on the expected nominal and real exchange rate.

Results of the training

The training in foreign exchange and debt culminated in a workshop performing an empirical analysis of the real effective exchange rate and the inflation rate using the program EViews. This section of the report was prepared by Mr. Azam based on the results of the analysis by the BCM Working Group 5.

After an intensive search procedure, going from the general to the simple, à la Hendry, the following equation was selected :

$$\begin{aligned} \Delta \log(REER) = & -0.219 + 0.827 \Delta \log(NEER) + 0.011 \log(RATIO) & (1) \\ & (3.49) \quad (12.38) & (2.57) \\ & -0.034 \log(REER(-1)) - 0.214 \Delta INFL \\ & (3.24) & (2.14) \end{aligned}$$

$$N = 160, R^2 = 0.80, F = 158.91, D.W. = 2.09, LM(2)-F = 0.22, White-F = 2.00, ARCH(1) = 22,55.$$

In equation (1) *REER* and *NEER* are the real effective exchange rate and the nominal effective exchange rate, respectively. Notice that the former, lagged once, has a significant negative impact on its growth rate, suggesting that this variable is stationary after all, once all the other effects are taken into account. This is an example of conditional stationarity. The ratio of reserves of the central bank to domestic credit is noted *RATIO*, and *INFL* is the rate of inflation, computed over 12 months, so that no seasonality effect is expected. The number of lags is noted (-1), and Δ is the first difference operator. The sample used covers

1984:02 - 1997:05. The numbers in parentheses below the estimated coefficients are White's Heteroscedasticity-Consistent t ratios, because of the heteroscedasticity problem detected by the relevant tests. There are two serial correlation tests, the DW , which is biased here because of the inclusion of the lagged endogenous variable, and the LM test, which tests serial correlation up to the second order. Then come two heteroscedasticity tests, White's F test detects some slight heteroscedasticity, while the $ARCH$ spots some massive auto-regressive conditional heteroscedasticity. These two problems do not create biases for the estimation of the coefficients of the equation, but raise problems for the usual t ratios. This explains why the heteroscedasticity-consistent ones have been used instead.

The number in the square brackets with a superscript N is the Nakamura and Nakamura (1981) exogeneity test. It aims at testing whether the estimate of the coefficient of $\Delta INFL$, which is theoretically endogenous, would have been different, had two-stage least squares been used instead of OLS. It is done by including the residuals of equation (3) below, which explains $\Delta INFL$, as an additional variable beside the latter in equation (1). The t ratio of this variable in this additional equation tests precisely whether the difference between the estimate under the two estimation method is significant. The low number found here shows that using TSLS instead of OLS would have made no significant difference.

However, it would be disappointing just to be content with correcting the tests for the heteroscedasticity and $ARCH$ problems detected. It is in fact worthwhile to investigate the process generating this changing residuals variance. By adapting the Swamy (1970) random coefficients model to the problem at hand, we can estimate the residuals-variance-generating process in the following way :

$$RES^2 = 0.003 INFL + 0.338 RES^2(-1). \quad (2)$$

(2.54) (1.61)

$$N = 159, R^2 = 0.14, F = 24.40, LM-F = 4.34, White-F = 1.38.$$

Although it suffers from a little residuals serial correlation, this equation shows that inflation is the main driving force behind the changing variability of the real effective exchange rate, which raises the problem described above. The higher is the inflation rate, the more volatile is the real exchange rate. Caballero and Corbo (1989) have shown empirically that the variability of the real exchange rate is negatively related to export performance in LDCs. Then our result creates a link between inflation and export performance.

Therefore, the two econometric exercises performed above show a crucial link between real and monetary factors in the Malagasy economy : the rate of inflation affects both the rate of real depreciation, and its volatility. Notice that in equation (1), an increase in the rate of inflation entails a negative effect on the real exchange rate, i.e. an appreciation. This is the short run effect, to be distinguished from the positive long-run effect found in the co-integration equation (not given in this paper) and in Chapter I Figure 4. The other interesting point worth mentioning about this equation is that an increase in the ratio of reserves to domestic credit has an impact going in the direction of a real depreciation, as expected from standard macro-economic theory.

Using a similar approach, we have estimated an equation for explaining the rate of inflation. After an intensive search, the following specification has been selected.

$$\Delta INFL = 0.219 - 0.079 INFL(-1) + 0.081 \Delta \log(NEER(-5)) \quad (3)$$

(2.66) (2.45) (2.38)

$$+ 0.038 \log(REER(-1)) + 0.027 \log(REAV(-1))$$

(2.48)

(2.14)

$N = 160, R^2 = 0.12, F = 5.18, D.W. = 1.97, LM(2)-F = 0.41,$
 $White-F = 1.25, ARCH(1) = 2,35.$

This equation relates the change in the rate of inflation to its lagged value, with a negative sign, suggesting also that inflation might be stationary after all, once the impacts of all the exogenous variables has been taken into account. The impact of the devaluations is significant, with a 5-months lag. This confirms the visual impression gathered from examining Chapter I Figure 3 and Figure 5 describing the background to reform in Madagascar. The impact of the *REER* lagged once is significantly positive, confirming the effect found in the long-run (co-integrating) equation. This may be interpreted as a feed back effect from the real economy, and in particular from its external competitiveness, on the monetary side. Lastly, *REAV* is the real value of the central bank credit to the treasury. Its positive impact shows the standard inflationary impact of government budget deficits, when they are financed through the «printing press».

Conclusion

The central bank plays a crucial role in affecting both the rate of inflation and the real effective exchange rate in Madagascar. Its policy should thus be geared both on monetary targets, like the rate of inflation, and real targets like the degree of competitiveness of the economy. Fortunately, the central bank of Madagascar has several tools in its tool kit that have significant impact on the behavior of these two variables. First, the level of the nominal effective exchange rate has been shown to affect both the rate of inflation, which responds with a short lag to any change in the former, and on the real effective exchange rate, on which it has a temporary impact. Second, the portfolio behavior of the central bank also affects these two variables, with the ratio of foreign exchange reserves affecting significantly the real effective exchange rate, while the real value of the stock of credit to the treasury seems to affect predominantly the rate of inflation. Hence, the BCM is equipped to be a major actor in the structural adjustment program of the Malagasy economy. With the training of WG 5, the BCM staff is prepared to undertake its role in policy analysis and implementation.

Study Tours

There were two study tours, one each to East Asia (Malaysia and Indonesia) and to the Maghreb (Tunisia and Morocco). Each tour lasted slightly less than two weeks, or one week per country.

The East Asia tour took place during the opening days of the “baht crisis” of 1997 which saw a devaluation of the Thai baht and strong pressures on the Malaysian ringgit and the Indonesian Rupiah, which at the time of the tour were being successfully resisted by the two central banks. Both central banks were very open in describing their policies. Malaysia, which has the simplest single-target money supply (objective is price stability; target, instrument and indicator are the 3-month interbank interest rates), nevertheless, has many specialized financial institutions not under the control of the central bank. Indonesia does elaborate estimation of the required money supply growth, but in fact its wide trading band means that the Central Bank at the time was sterilizing considerable capital inflows (which reversed the following month, precipitating the rupiah crisis). Of special interest in Indonesia is the inability of the Central Bank to estimate current and capital flows, given the complete abolition of foreign exchange control on the current account. Finally, in Indonesia the team visited a bank specializing in financial services to the rural areas, BRI Unit Desa system.

The Maghreb study tour was restricted by the continued-day policy of government institutions in the Maghreb in summer, which for the most part limited our discussions to the mornings alone. However, extended discussions with the central banks themselves proved very useful, particularly in Morocco.

The Moroccan and Tunisian financial sector reforms, although their financial markets are considerably more evolved than that of Madagascar, have in many ways been more tentative than those of the BCM. In fact, many dirigiste elements have been retained which limit transparency, the development of money markets (which are, however, more evolved than in Madagascar) and of financial deepening generally.

CHAPTER 3 EQUIPMENT

The purpose of this project was assistance and training to help the BCM achieve its transition to supervision and monetary policy within a market economy; the provision of equipment was not part of the assistance and was incidental to the assistance. Most of the equipment used was provided by the BCM, not by a donor agency.

The most important equipment used in both formal training and on-the-job work was a computer laboratory provided by BCM on its fourth floor, featuring ten PC computers equipped with Windows 3.1, MS Excel and MS Word, among other computer programs. These computers had not previously been released to the staff of the bank because it was believed they could not use the equipment productively. By the end of the program there was strong pressure to dismantle the laboratory so the computers could be used by the staff in their work. This is a strong sign of the growing confidence of BCM management in the computer capabilities of its staff. The BCM also provided an overhead projector and screen, flip-charts, and a telephone connection for the local access to the World Wide Web, without which the training would have been far more difficult or impossible.

The CAER project provided the following materials to assist the transformation of the BCM:

1. Books and handbooks. Multilingual financial dictionaries, texts on statistics, monetary programming, financial derivatives, monetary economics, international trade, computer programs and computer languages used in the training, and other necessary materiel were provided by the project staff. Other materials were acquired during the study tours. Finally, Mr. Lubell left extensive findings and recommendations for the DET, and Mr. Protasi produced two handbooks (one on monetary programming, one on modelling) and a computer model; these were presented to the BCM.
2. Financial calculators. Dr. Alma determined that the use of PCs and Excel, although workable, was not the most effective way of meeting the needs of BCM analysts. She arranged for a French foundation to provide Hewlett Packard financial calculators which were shipped to Madagascar and provided to the BCM by the project.
3. Software. The project provided to the BCM three copies of E-Views, a powerful econometric projection and modelling software, with accompanying documentation. Training in E-Views was provided by Mr. Protasi for WG4 and by Mr. Azam for WG5; in response to a request from PRODIF Mr. Nelson provided a course for other interested users, so there is now a cadre of trained users of E-Views in the BCM. Mr. Protasi provided a macroeconomic model for Central Bank projection, which is simpler and more adopted to policy analysis than the RMSM-X in which BCM staffers and others have been trained by the World Bank.
4. Audiovisual training devices. The use of an electronic overhead projector panel display permitted the instructors to use computer applications in the training and presentations. This was transferred to the BCM at the end of the training. The applications included Excel databases, E-Views econometric package, presentations in Microsoft Powerpoint, and World Wide Web research.

CHAPTER 4 FURTHER RECOMMENDATIONS

Recommendations specific to each working group were given as part of the presentation in Chapter 2. This chapter covers policy and procedural recommendations from the Team, including the BCM trainees and their contribution to the development of a strategy for the BCM.

The CAER Assistance to the Banque Centrale de Madagascar developed the skills and knowledge of the BCM staff, and as these evolved the lead in policy analysis was progressively transferred to them. Their recommendations are the result of this process. In addition, our observations as trainers and experts leads us to additional procedural recommendations for the BCM which are given here.

RECOMMENDATIONS BY THE BCM TRAINEES

Final objective: internal and external monetary stability; 1997 inflation 7 percent.

Recommendations:

Declare objectives publicly; explain actions of Central Bank

Explanation: give reference point to markets, affect the formation of expectations, increase the credibility of the central bank among the public

Intermediate objective: Money supply

Instrument: modify the supply of credit

Current: required reserves 20 percent of FMG and foreign exchange deposits.

Option A. Monthly average

Recommendation: daily balances

Explanation: avoid cash crunches at end of period

Option B. Surplus can be carried forward

Recommendation: Not recommended for adoption

Explanation: requires continual effort

Negative or Positive Auctions

Recommendation: Phase out in favor of other instruments (Open market, Repo)

Explanation: Remove the Central Bank as intermediary in market

Rediscount (*pensions*)

Currently variable term 2-10 days.

Recommendation: Fixed term, 24-hour or 5-day

Explanation: Retain this instrument for treasury short-term management

Currently done automatically

Recommendation: limit frequency of access to window or impose penalty rate

Explanation: avoid moral hazard

Currently T-bills or assets as collateral as guarantee

Recommendation: exclude assets, permit title to negotiable securities

Explanation: Develop the secondary market for securities

Instrument: Modify the demand

Central bank rate

Recommendation: develop a reference indicator to replace the central bank rate

Explanation: choose as reference a rate defined by the market (for example 3 month T-bill rate)

Other instruments

Recommendation: Open-market or Repo based on central bank certificates or Treasury bills

Explanation: Increase the number of instruments available to central bank; support the development of secondary markets in these securities.

Development of the T-bill market

Recommendation: Convert the special advances under the 1992 decree into T-bills

Explanation: progressively retire these advances; create immediately a large supply of central bank certificates to permit open-market operations.

Relations with the Treasury

Currently BCM has statutory requirement of advancing 15 percent of current receipts of the previous fiscal year.

Recommendation: Progressive reduction of these advances until the mechanism is no longer used; put in place a system of extraordinary very-short-term access— current account overdraft for a limited term; develop periodic meetings between BCM and Treasury

Explanation: Limit monetarization of the fiscal deficit; provide incentives for the Treasury to go to the markets for finance; limit access to the central bank to extraordinary very-short-term finance.

Relations with banks

Currently meet with bank as needed

Recommendation: Regular meetings

Explanation: Improve the effectiveness of central bank measures through better communication

Recommendation: All requests for information from the Central Bank require attention, with the possibility of sanctions if required to back this up.

Explanation: Reinforce the management information system required for the central bank

Other operations of the central bank

Currently must finance quasi-fiscal operations (absorb exchange trading losses, etc.)

Recommendation: Cease these operations

Explanation: The central bank should restrict itself to activities related to its mission.

SYSTEMS DEVELOPMENT

The BCM staff working in foreign exchange have developed the capacity to manage the external accounts. The Direction des Etudes has improved its capability to forecast the variables required for monetary programming. However, the actual foreign exchange operations continue to be determined by BCM guidance which is not based on technical analysis. The foreign exchange division requires the freedom to

conduct foreign exchange and debt management operations under the guidance of the bank directors, not under the micro-management. System must be improved to permit this and to improve coordination between DET and DSE

FURTHER TRAINING

The BCM is committed to the transition to market-oriented techniques. Much of the BCM staff has been following this new orientation without having learned why the new direction has been taken by the Bank. Older staff were trained in a regime of socialist regulation, while many of the newer staff are accountants rather than economists by training, in accordance with recent bank policy to upgrade its supervisory capability to function in a market economy. Their normal career training has emphasized first implementing rules, and later establishing rules that the BCM staff can enforce. Now they must learn how to set broad guidelines both in terms of giving staff latitude to interpret the market for public expectations of future interest and exchange rates, and more directly for the free functioning of a market-based economy while maintaining a prudential regulatory regime.

From this background, many staff had difficulty in understanding the role of a central bank monitoring and guiding a market economy, rather than directing a financial system. For instance, a common question in early sessions was how to “build up” margins and a risk premium to arrive at a market interest rate, rather than learning to interpret the market rate as a series of premia set by market participants. The assistance concentrated on developing an aptitude for reasoning economically, rather than getting procedures right which has been the subject of most staff development training. Despite a desire to understand how to implement the orientation of the BCM to indirect instruments for monetary management, many participants, when confronted with new situations were not comfortable in trying to work through required changes in the parameters in question. As another example, BCM is attempting to address the empirical question of how to restructure auctions of reserve money (a typical indirect tool of monetary policy) in light of the oligopolistic nature of the auction market in Madagascar.

The CAER program focused on instructing BCM staff how to reason through questions relating to why they should be making the transition from direct instruments and techniques of monetary control to indirect (market economy) methods of monetary control. The approach: “why are we doing this?” instead of “how should we do this?” appears to have caught on, judging from the final presentations by the trainees as part of their taking over the assignment. The course emphasized the need continually to examine the implications of the many different possible approaches to the transition to indirect methods of monetary control as found in other transitional economies and to select an approach which would be most viable under the particular Malagasy circumstances.

One difficulty the assistance had to address was for the “anglo-saxon” experts to involve staff in a “problem solving” approach. Many participants felt uncomfortable with putting forward their own ideas or thinking in the context of the class where several of their superiors were present. Our internal evaluation showed that trainees were not becoming comfortable working through the implications of the tools of monetary policy, for example the ability to relate the theory that absorbing liquidity would bring about a rise in the interest rate to the practical mechanisms through which this would take place. Future BCM training should rely principally on practical examples which might be encountered on the job to link theoretical concepts to BCM practice, for the training to be useful to BCM.

COORDINATION WITH OTHER INSTITUTIONS

The development of the T-bill market and future financial markets requires an improvement in the forecasting skills of the Treasury. Until now there is too little coordination between the BCM and the Trésor. Financial requirements for the Government appear to be too general, possibly incorrect (because of political imperatives limiting the deficit which are unrelated to monthly or seasonal financing needs) and not keyed to the weekly schedule for auctions of T-bills. In many other countries the auction of government bills is done by the central bank. Whether or not this is transferred to the BCM, the BCM requires the information for its monetary programming and internal balance.

Clearing mechanisms must be developed for the secondary debt market.

Further research is required into the public demand for securities of differing maturities, in order to enlarge the financial markets and eventually to deepen them.

OTHER

With the assistance of USAID under the "Leland Initiative", competitive access to Internet services now exists at a reasonable price in Antananarivo. For the training the project temporarily maintained an internet account which offered both World Wide Web (WWW) and email services for a flat fee. The Internet is a useful research tool and is important for information dissemination, and is widely used by most Central Banks worldwide. We recommend that the BCM establish an internet connection (not just a modem connection by telephone) to a local internet provider, to assure email connections for its staff to their colleagues elsewhere and ability to get access to the many data sets which are available worldwide. Following the training given by Mr. Schuler, it would be useful for the BCM to establish its own Home Page on the WWW, following the model of existing Central Banks and the model proposed by Mr. Schuler.

CHAPTER 5 LESSONS ON THE ROLE OF THE CENTRAL BANK IN FINANCIAL REFORM

Chapter 3 showed the crucial role of the BCM in affecting both the rate of inflation and the real effective exchange rate in Madagascar. The econometric evidence demonstrated that it has powerful tools, in terms of its ability to affect the nominal exchange rate which has an impact on the rate of inflation and a temporary impact on the real effective exchange rate. It can also affect these two variables through its portfolio behavior (foreign exchange reserves and the real value of the stock of credit to the Treasury). Thus the Central Bank is already a powerful actor in the reform of the Malagasy economy, one which is coming to understand its tools and their wise and effective use.

The initial capabilities of the staff of the Banque Centrale de Madagascar found during the design of the training and assistance in December 1996 do not reflect lack of training or poor training of the staff. They are closely related to the changing role of the central bank in economic restructuring and reform. The history of the BCM had been one of quantitative control. It was changing its entire operating mentality, not just its operations themselves, from one of statist direction and administration to one in which it could influence markets but could not force market responses, nor could it force compliance with its information requirements.

The first lesson which the management of the BCM already understood, and which guided the choice of assistance, was that the operations of the BCM could not be changed through formal training alone. Addressing, internal balance, the organization, operations and staff positions of the BCM were little changed from the organizations required for quantitative controls of the money supply. Concerning external balance and debt management, the BCM has for so long been in arrears on both principal and interest of its foreign debt that the skills for debt management had been lost. The BCM also lacked widespread formal understanding of monetary programming and hence operationally it treated external and internal balance as separate targets.

Related to this, the reporting required for central bank operations in a market economy are significantly different from those required for control under a socialist economy, and the ability of the Central Bank to require compliance with its reporting requirements was greatly diminished under market conditions. The BCM required extensive assistance on the job to learn these new techniques and understand the limitations of its authority; formal training would have been received and then allowed to atrophy from disuse.

Third, most of the economists had been trained under a dirigiste system, and while their formal training is in many cases very strong, it has not been applied within a market system in which market *expectations* rather than market *history* are important for the development and implementation of monetary policy.

Economic intuition: With these constraints, the senior management had so little confidence in its own staff that political decisions rather than policy analysis tended to influence policy, particularly exchange rate management. With little delegation of authority to support and implement monetary policy, the staff of BCM were bureaucratized. Dr. Clive Gray observed in his first diagnostic in early 1996 that the staff of the BCM lacked “economic intuition.” Without an understand of the relationship between macroeconomic, sectoral and financial variables, the staff can follow instructions only imperfectly and it is difficult for the BCM to delegate initiative to the various *Directions*.

On this basis, training in economic intuition was required before other formal training and particularly before the use of the tools of analysis to perform policy analysis, so that the tools could be used correctly and to achieve the ends of the BCM.

Beyond this, core training was uniformly based on the principle of monetary programming, as a basic understanding to be shared by all. This program did not go into the subject in the depth which available elsewhere. Following the CAER activity, The BCM has already sent one member of the DCR for training at the IMF Institute in Washington, and more should be considered for such training in the future as the bank organizes according to this principle. Finally, the BCM's own staff development training programs must begin with core training based on monetary programming, followed by specialized training related to monetary programming for those who need it.

Difficulties remained with this, since the trainers generally came from an Anglo-Saxon approach to economics (whether from the U.S., from Latin America or from CERDI). More courses required to instill the approach to economic problem-solving.

Madagascar and experience elsewhere

Close coordination is required between Treasury and the Central Bank in conducting debt auctions, for open market operations to be a viable option for the Central Bank. In some countries the Central Bank is responsible for the management of the Government short-term debt. This coordination has not yet been achieved in Madagascar but must be achieved if the range of maturities is to be changed, if the market is to be enlarged, and if the BCM is to have open market operations as a tool of monetary policy.

The study tours demonstrated that national experience is highly colored by local needs, and there are few examples of the monetary programming approach being applied without strong political adaptations to local needs. In the four countries visited, only one (Malaysia) kept to a single target and a single instrument; the others attempted to do so with more or less diligence, but were influenced by policy makers who would not leave the other instruments alone as required by a monetary programming model. Also, systems of monetary programming requiring less information are easier to operate than those requiring more information, but leave less latitude for operation for the Central Bank.

Computers and analysis

The team and consultants encountered continual resistance to the use of computers by the staff, and to access to (and publication of information on) the World Wide Web. The former resistance appeared to change by August 1997 to a desire to get the computers into the *Directions* for use by the staff, a welcome change. However, by now the computers themselves require upgrades to meet the latest standards, a relatively less expensive task than the original provision. BCM requires a program for upgrading and maintenance of its computer system. Resistance to use of the WWW remains; the team's recommendations were given in the previous chapter, but the use of the WWW to improve transparency is essential as the BCM moves to a reform environment.

Related to this, however, the teams of the DET and the DCE believed that the greatest impediment to proper analysis is the direct interference of senior management in the details of policy implementation, without reference to the work performed by DET. This is a much deeper level of problem for the BCM as it moves into the new environment.

The CAER team, and our consultant brought in to investigate data management and data exchange, believe that increasing the number of PCs with a current hardware and software configuration is a prerequisite for the realization of data exchange through a network. We support the consultant's recommendations and propose that the BCM not attempt to tie all data to a central database which will be unwieldy, expensive, instantly outmoded, and inappropriate for the needs of the staff of BCM who are concerned with projection. Such a database is next-to-useless for the forward-looking goals of the BCM in a market economy which requires continually reinterpreting the market; it is useful only for historical or audit data.

Active data sets for policy purposes require an incentive structure which encourages users as part of their normal job to enter timely and accurate data. With some BCM data sets the incentive structures for providing data to such databases are either nonexistent or unrelated to the incentives of those who must use such databases, so serious delays and errors are inevitable no matter how strong or repressive the administrative structure within which such data-entry people must work. In a single database such delays and errors contaminate the timely data and make analysis more difficult rather than better. This has been demonstrated world-wide in a variety of bureaucracies and so is not attributable to BCM policies. We have stated this finding and our recommendations to not merge data sets into a single database several times during the course of the project, we have had to debate it with the staff of PROFIF which objects to this finding on each occasion including the final presentation of the specialist who consulted for BCM after the main training and assistance were completed, and we reiterate it now in our conclusions. PRODIF may disagree, but after a year it must now disagree with our consistent professional recommendations from a variety of policy and database-provision viewpoints.

Many of the services required, particularly for training BCM staff and in data collection, can or should be obtained from the private sector which the BCM should pay on an as-needed basis rather than maintaining its own bureaucracy to obtain such data. If the BCM concentrates its resources on maintaining standards for private service provision it can obtain a far higher level of performance without paying full-time staff who lack the motivation to complete satisfactorily and expeditiously the work assigned.

The Central Bank of Madagascar is well on the way to its own reform, in which assistance from PRODIF, from the CAER project and others is providing assistance. The bank maintains leadership in its reform. The team dynamics of the staff trained under CAER is notable to all observers, with the development of open debate and active consensus-building rather than passive study. By the end of the CAER assistance and training activity the foreign experts were reduced to the role of resource persons and facilitators, with the leadership coming from the staff of the Central Bank of Madagascar. Since the future remains uncertain, this is the greatest success of the reform and the role of the Central Bank in the reform.

ANNEXES

ANNEX A

LIST OF PARTICIPANTS

FMD TRAINING

N°	Training Institutions	Receiving Institutions	Courses	Name of participant	Dates		Number of participant	
					Begin	End	Men	Women
1	CAER	BCM	Windows 3.11-Word 6.0-Excel 5.0	Razakariasy Henri Bernard	Jan. 20, 97	Mar. 7, 97	1	
2			By Blanche Birger	Rakotobe Laurent			1	
3			Groupe 1 Advance	Razanadraibe Marie Danielle				1
4				Ravelonanosy Ihtasolo				1
5				Rakotozanany Colombe				1
6				Ralaindimby Tsilavo Haja			1	
7				Rakotomena Haingo Tiana				1
8				Rajaobelina Falihery			1	
9				Randrianarison Hajanirina Jerisoa			1	
10				Nirina Ratsimbazafy Andrianajaja			1	
11	CAER	BCM	Windows 3.11-Word 6.0-Excel 5.0	Andrianelinjaka Josoa	Jan. 20, 97	Mar. 7, 97	1	
12			By Blanche Birger	Rasamiarindrainy Nirina			1	
13			Groupe 2 débutant	Razanatsoa Njiva				1
14				Ramahandry Raharivelo Louise				1
15				Andriamiharisoa André			1	
16				Rakotovao Joseph			1	
17				Rasolofo Brigitte				1
18				Randriamanana Justin				1
19				Rasoarimalala Emilienne				1
20				Andriambolanoro Jeanine				
21				Mohammed Said			1	
22	CAER	BCM	Windows 3.11-Word 6.0-Excel 5.0	Rakotoanosy guy	Jan. 20, 97	Mar. 7, 97	1	
23			By Blanche Birger	Ramiandrisoa Clotilde				1
24			Groupe 3 débutant	Miniminy Rasolofo			1	
25				Rakotonirina Jaona				
26				Randriamanana Justin			1	
27				Ravalison Salvator			1	
28				Nirina Harimanana Céline				1
29				Rasoarilala Sylvia				1
30				Hoffman Paulin Manase			1	
31				Rasetaharimanana Augustin			1	
32				Rasetaharimanana Augustin Etienne			1	

FMD TRAINING

N°	Training Institutions	Receiving Institutions	Courses	Name of participant	Dates		Number of participant	
					Begin	End	Men	Women
33	CAER	BCM	Windows 3.11-Word 6.0-Excel 5.0 By Blanche Birger Groupe 4 débutant	Rakotohasina Clément Raphael	Jan. 20, 97	Mar. 7, 97	1	
34				Rakotonirina Martial Jean			1	
35				Rabearivelo Njaka			1	
36				Rakotonaivo Martial			1	
37				Rajaonson Soavelohaja			1	
38				Rakotondramanana Justin			1	
39				Andrianasolo Emma				1
40				Razafintsalama Yves			1	
41				Ramanamahefa Georges			1	
42				Andrianarijaona Guy			1	
43			Andrianantenaina Jeannot	1				
44	CAER	BCM	Windows 3.11-Word 6.0-Excel 5.0 By Blanche Birger Groupe 5 moyen	Ramalanjaona Nambinina	Mar. 10, 97	Apr. 3, 97	1	
45				Rasoanirina Hasimbola			1	
46				Rakotomanga Joseph			1	
47				Randrianarison Honoré			1	
48				Harinaivo Voahangy Elianne Françoise				1
49				Rabeantoandro Joé			1	
50				Razafimbelo Vonimanitra				1
51				Rahajason Fanja				1
52				Razafimahay Julie				1
53								Rakotoarimanana Tovo
54	CAER	BCM	Windows 3.11-Word 6.0-Excel 5.0 By Blanche Birger Groupe 6 débutant	Ramangalahy Théodore	Mar. 10, 97	Apr. 3, 97	1	
55				Ramanjatoson Mamy			1	
56				Razafindrakoto Gilbert			1	
57				Rahajarivony Louissette				1
58				Ralaza Roger			1	
59				Andriamanantena Mamy			1	
60				Razafindrakoto Herilanto			1	
61				Rasoamahenina Fanja				1
62				Razanadrabe Dorothée				1
63								Andrianaimalaza Prosper
64	CAER	BCM	Comptabilité Nationale Equipe 1,2,3,4,5	Rakotoanosy Guy	Jan. 14, 97	Feb. 14, 9	1	
65				Rakotobe Laurent			1	
66				Rasoanirina Hasimbola				1
67				Ravelonanosy Ihantasolo			1	

FMD TRAINING

N°	Training Institutions	Receiving Institutions	Courses	Name of participant	Dates		Number of participant	
					Begin	End	Men	Women
68				Razakariasy Henri Bernard				1
69				Razanatsoa Njiva			1	
70				Rajaobelina Falihery				1
71				Ramiandrisoa Clotilde				1
72				Ravalison Salvator			1	
73				Andrianelinjaka Josoa			1	
74				Rakotohasina Clément			1	
75				Rakotozanany Colombe				1
76				Rasamiarindrainy Nirina			1	
77				Razanadrabe Dorothée				1
78				Rakotomena Haingotiana				1
79				Randriamanana Justin			1	
80				Ralaindimby Tsilavo Haja			1	
81				Ramahandry Louise				1
82				Ramahatra Nirina Harimanana				1
83				Rasetaharimanana Augustin			1	
84				Rasoarimalala Emilienne				1
85				Ramalanjaonina Nambinina			1	
86				Razanadraibe Danielle				1
87				Andriambolanoro Jeanine				1
88				Andrianarijaona Guy			1	
89				Andriamiharisoa André			1	
90				Hoffman Paulin			1	
91				Rakotoarimanana Tovo			1	
92				Rasoarilala Sylvia				1
93				Razafimahay Julie				1

FMD TRAINING

N°	Training Institutions	Receiving Institutions	Courses	Name of participant	Dates		Number of participant	
					Begin	End	Men	Women
94	CAER	BCM	Réseau Internet	Rakotoanoso Guy	May 5, 97	Jun., 13, 97	1	
95			Equipe 1,2,3,4,5	Rakotobe Laurent			1	
96				Rasoanirina Hasimbola				1
97			Cannot confirm attendance	Ravelonanosy Ihantasolo			1	
98			This was an informal series	Razakariasy Henri Bernard				1
99			Also, one session was for	Razanatsoa Njiva			1	
100			BCM Directors	Rajaobelina Falihery				1
101				Ramiandrisoa Clotilde				1
102				Ravalison Salvator			1	
103				Andrianelinjaka Josoa			1	
104				Rakotohasina Clément			1	
105				Rakotozanany Colombe				1
106				Rasamiarindrainy Nirina			1	
107				Razanadrabe Dorothée				1
108				Rakotomena Haingotiana				1
109				Randriamanana Justin			1	
110				Ralaindimby Tsilavo Haja			1	
111				Ramahandry Louise				1
112				Ramahatra Nirina Harimanana				1
113				Rasetaharimanana Augustin			1	
114				Rasoarimalala Emilienne				1
115				Ramalanjaonina Nambinina			1	
116				Razanadraibe Danielle				1
117				Andriambolanoro Jeanine				1
118				Andrianarijaona Guy			1	
119				Andriamiharisoa André			1	
120				Hoffman Paulin			1	
121				Rakotoarimanana Tovo			1	
122				Rasoarilala Sylvia				1
123				Razafimahay Julie				1
124	CAER	BCM	Visual Basic	Rakotobe Laurent	Jul. 24, 97	Aug. 4, 97	1	
125			Equipes 1,2,3,4	Andrianelinjaka Josoa			1	
126				Randriamanana Justin			1	
127				Ralaindimby Tsilavo Haja			1	
128				Ramahandry Louise				1

FMD TRAINING

N°	Training Institutions	Receiving Institutions	Courses	Name of participant	Dates		Number of participant	
					Begin	End	Men	Women
129	CAER	BCM	Intuition Economic	Rakotoanosy Guy	Mar. 10, 97	Apr. 4, 97	1	
130			Equipe 1,2,3,4,5	Rakotobe Laurent			1	
131				Rasoanirina Hasimbola				1
132				Ravelonanosy Ihantasolo			1	
133				Razakariasy Henri Bernard				1
134				Razanatsoa Njiva			1	
135				Rajaobelina Falihery				1
136				Ramiandrisoa Clotilde				1
137				Ravalison Salvator			1	
138				Andrianelinjaka Josoa			1	
139				Rakotohasina Clément			1	
140				Rakotozanany Colombe				1
141				Rasamiarindrainy Nirina			1	
142				Razanadrabe Dorotheé				1
143				Rakotomena Haingotiana				1
144				Randriamanana Justin			1	
145				Ralaindimby Tsilavo Haja			1	
146				Ramahandry Louise				1
147				Ramahatra Nirina Harimanana				1
148				Rasetaharimanana Augustin			1	
149				Rasoarimalala Emilienne				1
150				Ramalanjaonina Nambinina			1	
151				Razanadraibe Danielle				1
152				Andriambolanoro Jeanine				1
153				Andrianarijaona Guy			1	
154				Andriamiharisoa André			1	
155				Hoffman Paulin			1	
156				Rakotoarimanana Tovo			1	
157				Rasoarilala Sylvia				1
158				Razafimahay Julie				1

FMD TRAINING

N°	Training Institutions	Receiving Institutions	Courses	Name of participant	Dates		Number of participant	
					Begin	End	Men	Women
159	CAER	BCM	Institutions de l'Economie	Rakotoanosy Guy	[Mar. 24, 97	Apr.4, 97	1	
160			Equipe 1,2,3,4,5	Rakotobe Laurent	Jul. 14, 97	Aug. 1, 97	1	
161				Rasoanirina Hasimbola				1
162				Ravelonanosy Ihantasolo			1	
163				Razakariasy Henri Bernard				1
164				Razanatsoa Njiva			1	
165				Rajaobelina Falihery				1
166				Ramiandrisoa Clotilde				1
167				Ravalison Salvator			1	
168				Andrianelinjaka Josoa			1	
169				Rakotohasina Clément			1	
170				Rakotozanany Colombe				1
171				Rasamiarindrainy Nirina			1	
172				Razanadrabe Dorothée				1
173				Rakotomena Haingotiana				1
174				Randriamanana Justin			1	
175				Ralaindimby Tsilavo Haja			1	
176				Ramahandry Louise				1
177				Ramahatra Nirina Harimanana				1
178				Rasetaharimanana Augustin			1	
179				Rasoarimalala Emilienne				1
180				Ramalanjaonina Nambinina			1	
181				Razanadraibe Danielle				1
182				Andriambolanoro Jeanine				1
183				Andrianarijaona Guy			1	
184				Andriamiharisoa André			1	
185				Hoffman Paulin			1	
186				Rakotoarimanana Tovo			1	
187				Rasoarilala Sylvia				1
188				Razafimahay Julie				1

FMD TRAINING

N°	Training Institutions	Receiving Institutions	Courses	Name of participant	Dates		Number of participant	
					Begin	End	Men	Women
189	CAER	BCM	Programme Monétaire et Gestion de la Dette Equipe 1,2,3,4,5	Rakotoanosy Guy	[Mar. 10, 97	Mar. 21, 9	1	
190				Rakotobe Laurent	Jul. 14, 97	Aug. 1, 97	1	
191				Rasoanirina Hasimbola				1
192				Ravelonanosy Ihantasolo			1	
193				Razakariasy Henri Bernard				1
194				Razanatsoa Njiva			1	
195				Rajaobelina Falihery				1
196				Ramiandrisoa Clotilde				1
197				Ravalison Salvator			1	
198				Andrianelinjaka Josoa			1	
199				Rakotohasina Clément			1	
200				Rakotozanany Colombe				1
201				Rasamiarindrainy Nirina			1	
202				Razanadrabe Dorothee				1
203				Rakotomena Haingotiana				1
204				Randriamanana Justin			1	
205				Ralaindimby Tsilavo Haja			1	
206				Ramahandry Louise				1
207				Ramahatra Nirina Harimanana				1
208			Rasetaharimanana Augustin			1		
209			Rasoarimalala Emilienne				1	
210			Ramalanjaonina Nambinina			1		
211			Razanadraibe Danielle				1	
212			Andriambolanoro Jeanine				1	
213			Andrianarijaona Guy			1		
214			Andriamiharisoa André			1		
215			Hoffman Paulin			1		
216			Rakotoarimanana Tovo			1		
217			Rasoarilala Sylvia				1	
218			Razafimahay Julie				1	

FMD TRAINING

N°	Training Institutions	Receiving Institutions	Courses	Name of participant	Dates		Number of participant	
					Begin	End	Men	Women
219	CAER	BCM	Statistique, prévision et enquête Technique Equipes 1,2,3,4	Rakotoanosy Guy	Apr. 7, 97	May 2, 97	1	
220				Rakotobe Laurent	Jul. 14, 97	Aug. 1, 97	1	
221				Rasoanirina Hasimbola				1
222				Ravelonanosy Ihantasolo			1	
223				Razakariasy Henri Bernard				1
224				Rajaobelina Falihery				1
225				Ramiandrisoa Clotilde				1
226				Ravalison Salvator			1	
227				Andrianelinjaka Josoa			1	
228				Rakotohasina Clément			1	
229				Rakotozanany Colombe			1	
230				Rasamiarindrainy Nirina			1	
231				Razanadrabe Dorotheé			1	
232				Razanatsoa Njiva			1	
233				Rakotomena Haingotiana			1	
234				Randriamanana Justin			1	
235				Ralaindimby Tsilavo Haja			1	
236				Ramahandry Louise			1	
237				Ramahatra Nirina Harimanana			1	
238				Rasetaharimanana Augustin			1	
239				Rasoarimalala Emilienne			1	
240				Ramalanjaonina Nambinina			1	
241				Razanadraibe Danielle			1	
242				Rajaobelina Falihery			1	
243				Andriambolanoro Jeanine			1	
244				Andrianarijaona Guy			1	
245	CAER	BCM	Mathématique Financière Equipes, 1,2,4,5	Rakotoanosy Guy	Apr. 30, 97	May 9, 97	1	
246				Rakotobe Laurent	Jul. 14, 97	Aug. 1, 97	1	
247				Rasoanirina Hasimbola				1
248				Ravelonanosy Ihantasolo			1	
249				Razakariasy Henri Bernard			1	
250				Razanatsoa Njiva			1	
251				Rajaobelina Falihery			1	
252				Ramiandrisoa Clotilde			1	
253				Ravalison Salvator			1	

FMD TRAINING

N°	Training Institutions	Receiving Institutions	Courses	Name of participant	Dates		Number of participant	
					Begin	End	Men	Women
254				Andrianelinjaka Josoa			1	
255				Rakotohasina Clément			1	
256				Rakotozanany Colombe				1
257				Rasamiarindrainy Nirina			1	
258				Razanadrabe Dorothee				1
259				Rakotomena Haingotiana			1	
260				Randriamanana Justin			1	
261				Ramaianjaonina Nambinina				1
262				Razanadraibe Danielle				1
263				Andriambolanoro Jeanine				1
264				Andrianarijaona Guy			1	
265				Andriamiharisoa André			1	
266				Hoffman Paulin			1	
267				Rakotoarimanana Tovo			1	
268				Rasoarilala Sylvia				1
269				Razafimahay Julie				1
270	CAER	BCM	Analyse de crédit et des Risques	Andrianelinjaka Josoa	May 12, 97	Jun. 13, 97	1	
271			Fiancières	Rakotohasina Clément	Jul. 14, 97	Aug. 1, 97	1	
272			Equipe 2,5	Rakotozanany Colombe				1
273				Rasamiarindrainy Nirina			1	
274				Razanadrabe Dorothee				1
275				Razanatsoa Njiva				1
276				Rakotomena Haingotiana			1	
277				Randriamanana Justin				1
278				Ravelonanosy Ihantasolo			1	
279				Razakariasy Henri Bernard			1	
280				Andriamiharisoa André			1	
281				Rajaobelina Faiihery			1	
282				Ralaindimby Tsilavo Haja			1	
283				Ramiandrisoa Clotilde				1
284				Hoffman Paulin			1	
285				Rakotoarimanana Tovo			1	
286				Rasoarilala Sylvia				1
287				Razafimahay Julie				1

FMD TRAINING

N°	Training Institutions	Receiving Institutions	Courses	Name of participant	Dates		Number of participant	
					Begin	End	Men	Women
288	CAER	BCM	Gestion et Accumulation des Données Data Collection and Management Equipe 3	Rasamiarindrainy Nirina	May 12, 97	Jun. 6, 97	1	1
289				Razanatsoa Njiva				
290				Rajaobelina Falihery				
291				Rakotomena Haingotiana				
292				Ralaindimby Tsilavo Haja				
293				Ramahandry Louise				
294				Ramahatra Nirina Harimanana				
295				Rasetaharimanana Augustin				
296				Rasoarimalala Emilienne				
298				Ratsimbazafy A. Nirina				
298	CAER	BCM	Transition Countries in Transition Equipes 1,2,5	Rakotoanoso Guy	[May 19, 97	Jun 6, 97	1	
299				Rakotobe Laurent	Jun. 30, 97	Jul. 4, 97	1	
300				Rasoanirina Hasimbola	Jul. 14, 97	Aug. 1, 97]		1
301				Ravelonanosy Ihantasolo			1	
302				Razakariasy Henri Bernard				1
303				Razanatsoa Njiva			1	
304				Rajaobelina Falihery				1
305				Ramiandrisoa Clotilde				1
306				Ravalison Salvator			1	
307				Andrianelinjaka Josoa			1	
308				Rakotohasina Clément			1	
309				Rakotozanany Colombe				1
310				Rasamiarindrainy Nirina			1	
311				Razanadrabe Dorothée				1
312				Rakotomena Haingotiana				1
313				Randriamanana Justin			1	
314				Andriamiharisoa André			1	
315	Rakotoarimanana Tovo			1				
316	Rasoarilala Sylvia				1			
317	Razafimahay Julie				1			

FMD TRAINING

N°	Training Institutions	Receiving Institutions	Courses	Name of participant	Dates		Number of participant	
					Begin	End	Men	Women
318	CAER	BCM	Bons de Tresor	Rakotoanosy Guy	[a)Mar. 17, 9	Apr 25, 97	1	
319			a - Assistance Technique	Rakotobe Laurent	a)Jul 14, 97	Aug, 1, 97	1	
320			b - Formation sur l'Etat	Rasoanirina Hasimbola	[b) May12, 9	Jul 6, 97		1
321			Treasury Bill Auction and Market	Ravelonanosy Ihantasolo	b)Jun 30, 97	Jul.4, 97]	1	
322			Equipe 1	Razakariasy Henri Bernard				1
323				Razanatsoa Njiva			1	
324				Rajaobelina Falihery				1
325				Ramiandrisoa Clotilde				1
326				Ravalison Salvator			1	
327	CAER	BCM	Produit dérivé	Rakotoanosy Guy	Jul. 14, 97	Aug. 8, 97	1	
328			Equipes 1,2,5	Rakotobe Laurent			1	
329				Rasoanirina Hasimbola				1
330				Ravelonanosy Ihantasolo			1	
331				Razakariasy Henri Bernard				1
332				Razanatsoa Njiva			1	
333				Rajaobelina Falihery				1
334				Ramiandrisoa Clotilde				
335				Ravalison Salvator			1	
336				Andrianelinjaka Josoa			1	
337				Rakotohasina Clément			1	
338				Rakotozanany Colombe				1
339				Rasamiarindrainy Nirina			1	
340				Razanadrabe Dorothée				1
341				Rakotomena Haingotiana				1
342				Randriamanana Justin			1	
343				Andriamiharisoa André			1	
344				Hoffman Paulin			1	
345				Rakotoarimanana Tovo			1	
346				Rasoarilala Sylvia				1
347				Razafimahay Julie				1
348	CAER	BCM	Information et Prévison	Rakotoanosy Guy	Jun.2, 97	Jun. 19, 9	1	
349			Modeling and forecastng	Rakotobe Laurent	Pending 5 weeks		1	
350			Equipes 1,2,3,5	Rasoanirina Hasimbola				1
351				Ravelonanosy Ihantasolo			1	
352				Razakariasy Henri Bernard				1

FMD TRAINING

N°	Training Institutions	Receiving Institutions	Courses	Name of participant	Dates		Number of participant	
					Begin	End	Men	Women
353				Razanatsoa Njiva			1	
354				Rajaobelina Falihery				1
355				Ramiandrisoa Clotilde				1
356				Ravalison Salvator			1	
357				Andrianelinjaka Josoa			1	
358				Rakotohasina Clément			1	
359				Rakotozanany Colombe				1
360				Rasamiarindrainy Nirina			1	
361				Razanadrabe Dorothee				1
362				Rakotomena Haingotiana				1
363				Randriamanana Justin			1	
364				Ralaindimby Tsilavo Haja			1	
365				Ramahandry Louise				1
366				Ramahatra Nirina Harimanana				1
367				Rasetaharimanana Augustin			1	
368				Rasoarimalala Emilienne				1
369				Andriamiharisoa André			1	
370				Hoffman Paulin			1	
371				Rakotoarimanana Tovo			1	
372				Rasoarilala Sylvia				1
373				Razafimahay Julie				1
374	CAER	BCM	Taux de Change	Ravelonanosy Ihantasolo	[Jun.12, 97	Jul. 1, 97		1
375			Equipe 5	Razakariasy Henri Bernard	Jul. 14, 97	Aug. 1, 97	1	
376				Andriamiharisoa André			1	
377				Rajaobelina Falihery			1	
378				Ralaindimby Tsilavo Haja			1	
379				Ramiandrisoa Clotilde				1
380				Hoffman Paulin			1	
381				Rakotoarimanana Tovo			1	
382				Rasoarilala Sylvia				1
383				Razafimahay Julie				1

FMD TRAINING

N°	Training Institutions	Receiving Institutions	Courses	Name of participant	Dates		Number of participant	
					Begin	End	Men	Women
384	CAER	BCM	Tableau des Opérations Financières Equipe 3	Rasamiarindrainy Nirina	[May 12, 97 Jul. 14, 97	Jun. 6, 97 Aug. 1, 97]	1	
385				Razanatsoa Njiva				1
386				Rajaobelina Falihery				
387				Rakotomena Haingotiana				
388				Ralaindimby Tsilavo Haja				1
389				Ramahandry Louise				
390				Ramahatra Nirina Harimanana				
391				Rasetaharimanana Augustin				1
392				Rasoarimalala Emilienne				
393				Ratsimbazafy A. Nirina				
394	CAER	BCM	Flux Financier Equipes 3,5	Rasamiarindrainy Nirina	May 19, 97	Jun. 6, 97	1	
395				Razanatsoa Njiva				
396				Rajaobelina Falihery				1
397				Rakotomena Haingotiana				
398				Ralaindimby Tsilavo Haja				1
399				Ramahandry Louise				
400				Ramahatra Nirina Harimanana				
401				Rasetaharimanana Augustin				1
402				Rasoarimalala Emilienne				
403				Ratsimbazafy A. Nirina				
404				Ravelonanosy Ihantasolo				
405				Razakariasy Henri Bernard				1
406				Andriamiharisoa André				1
407				Ramiandrisoa Clotilde				
408				Hoffman Paulin				1
409				Rakotoarimanana Tovo				1
410				Rasoarilala Sylvia				
411	Razafimahay Julie							
412	CAER	BCM	Study tours - Malaisie - Indonesie	Ravalison Salvator	Jun. 24, 97	Jul.5, 97	1	
413				Rakotomena Haingotiana				
414				Rasoarilala Sylvia				
415				Rakotomamonjy Guy Alain				1
416				Ravelonanosy Ihantasolo				

FMD TRAINING

N°	Training Institutions	Receiving Institutions	Courses	Name of participant	Dates		Number of participant	
					Begin	End	Men	Women
417	CAER	BCM	Study Tours - Maghreb	Razanatsoa Njiva	Jul. 7, 97	Jul.24, 97		1
418				Rakotozanany Colombe				1
419				Rakotobe Laurent			1	
420				Ramahandry Louise				1
421				Rajaobelina Falihery			1	
422				Ralaindimby Tsilavo Haja			1	
423				Rasetaharimanana Augustin			1	
424	CAER	BCM	Strategie BCM - Atelier	Ravalison Salvator	Jul 28, 97	Jul. 31, 97	1	
425			BCM Strategy Workshop	Rakotomena Haingotiana				1
426				Rasoarilala Sylvia				1
427				Rakotomamonjy Guy Alain			1	
428				Ravelonanosy Ihantasolo				1
429				Razanatsoa Njiva				1
430				Rakotozanany Colombe				1
431				Rakotobe Laurent			1	
432				Ramahandry Louise				1
433				Rajaobelina Falihery			1	
434				Ralaindimby Tsilavo Haja			1	
435				Rasetaharimanana Augustin			1	

ANNEX B

PARTICIPANT SURVEYS

Nom de l'activité évaluée :	Intuition Economique
Animateur :	Eric NELSON et Kurt SCHULER

Considérations : 5=excellent, 4=supérieur, 3=moyen, 2=inférieur, 1=mauvais

D. L'ACTIVITE

1. Est-ce que le contenu de cette activité vous aidera à aboutir à l'objectif de votre GT?

5	4	3	2	1	Moyenne
1	10	4	0	0	3.800

2. Est-ce que la presentation vous aidera à comprendre comment la BCM peut ou doit réagir dans une économie libérale?

5	4	3	2	1	Moyenne
2	7	5	1	0	3.667

3. Est-ce que l'activité :

a. vous a donné des concepts utiles?

5	4	3	2	1	Moyenne
1	10	4	0	0	3.800

b. vous a donné des outils d'application utiles?

5	4	3	2	1	Moyenne
0	4	11	0	0	3.267

c. a bien lié les concepts aux outils d'application?

5	4	3	2	1	Moyenne
0	2	11	2	0	3.000

E. L'ANIMATEUR

5. Est-ce que l'animateur a présenté les concepts d'une manière :

a. claire?

5	4	3	2	1	Moyenne
0	2	9	3	0	2.929

b. intéressante?

5	4	3	2	1	Moyenne
1	5	8	0	0	3.500

6. A-t-il répondu bien aux questions et besoins d'éclaircissement des concepts et outils?

5	4	3	2	1	Moyenne
0	4	10	0	0	3.286

7. Est-ce que l'animateur était disponible pendant les heures essentielles pour le travail pratique?

5	4	3	2	1	Moyenne
0	0	2	0	0	3.000

Nom de l'activité évaluée :	Institutions financières et terminologie
Animateur :	Eric NELSON et Kurt SCHULER

Considérations : 5=excellent, 4=supérieur, 3=moyen, 2=inférieur, 1=mauvais

D. L'ACTIVITE

1. Est-ce que le contenu de cette activité vous aidera à aboutir à l'objectif de votre GT?

5	4	3	2	1	Moyenne
1	2	3	0	1	3.286

2. Est-ce que la présentation vous aidera à comprendre comment la BCM peut ou doit réagir dans une économie libérale?

5	4	3	2	1	Moyenne
0	4	2	0	0	3.667

3. Est-ce que l'activité :

a. vous a donné des concepts utiles?

5	4	3	2	1	Moyenne
0	6	1	0	0	3.857

b. vous a donné des outils d'application utiles?

5	4	3	2	1	Moyenne
0	1	6	0	0	3.143

c. a bien lié les concepts aux outils d'application?

5	4	3	2	1	Moyenne
0	2	5	0	0	3.286

E. L'ANIMATEUR

5. Est-ce que l'animateur a présenté les concepts d'une manière :

a. claire?

5	4	3	2	1	Moyenne
0	2	4	0	0	3.333

b. intéressante?

5	4	3	2	1	Moyenne
0	6	1	0	0	3.857

6. A-t-il répondu bien aux questions et besoins d'éclaircissement des concepts et outils?

5	4	3	2	1	Moyenne
1	5	0	1	0	3.857

7. Est-ce que l'animateur était disponible pendant les heures essentielles pour le travail pratique?

5	4	3	2	1	Moyenne
0	1	2	0	0	3.333

Nom de l'activité évaluée :	Programmation Monétaire
Animateur :	Juan Carlos PROTASI

Considérations : 5=excellent, 4=supérieur, 3=moyen, 2=inférieur, 1=mauvais

D. L'ACTIVITE

1. Est-ce que le contenu de cette activité vous aidera à aboutir à l'objectif de votre GT?

5	4	3	2	1	Moyenne
3	16	5	1	1	3.731

2. Est-ce que la presentation vous aidera à comprendre comment la BCM peut ou doit réagir dans une économie libérale?

5	4	3	2	1	Moyenne
3	19	3	0	1	3.885

3. Est-ce que l'activité :

a. vous a donné des concepts utiles?

5	4	3	2	1	Moyenne
6	16	3	0	1	4.000

b. vous a donné des outils d'application utiles?

5	4	3	2	1	Moyenne
1	12	12	0	1	3.462

c. a bien lié les concepts aux outils d'application?

5	4	3	2	1	Moyenne
1	11	12	1	1	3.385

E. L'ANIMATEUR

5. Est-ce que l'animateur a présenté les concepts d'une manière

a. claire?

5	4	3	2	1	Moyenne
1	15	7	2	1	3.500

b. intéressante?

5	4	3	2	1	Moyenne
2	15	4	2	1	3.625

6. A-t-il répondu bien aux questions et besoins d'eclaircissage des concepts et outils?

5	4	3	2	1	Moyenne
1	18	5	1	1	3.654

7. Est-ce que l'animateur était disponible pendant les heurs essentielles pour le travail pratique?

5	4	3	2	1	Moyenne
1	1	1	0	0	4.000

Nom de l'activité évaluée :	Statistiques - Previsions - Sondage
Animateur :	Mme Josée RANDRIAMAMONJY

5

Considérations : 5=excellent, 4=supérieur, 3=moyen, 2=inférieur, 1=mauvais

D. L'ACTIVITE

1. Est-ce que le contenu de cette activité vous aidera à aboutir à l'objectif de votre GT?

5	4	3	2	1	Moyenne
0	6	7	1	0	3.357

2. Est-ce que la présentation vous aidera à comprendre comment la BCM peut ou doit réagir dans une économie libérale?

5	4	3	2	1	Moyenne
1	5	4	3	1	3.143

3. Est-ce que l'activité :

a. vous a donné des concepts utiles?

5	4	3	2	1	Moyenne
3	3	5	3	1	3.429

b. vous a donné des outils d'application utiles?

5	4	3	2	1	Moyenne
3	4	5	2	0	3.571

c. a bien lié les concepts aux outils d'application?

5	4	3	2	1	Moyenne
0	4	5	4	1	2.857

E. L'ANIMATEUR

5. Est-ce que l'animateur a présenté les concepts d'une manière :

a. claire?

5	4	3	2	1	Moyenne
0	1	7	5	0	2.692

b. intéressante?

5	4	3	2	1	Moyenne
0	2	8	4	0	2.857

6. A-t-il répondu bien aux questions et besoins d'éclaircissage des concepts et outils?

5	4	3	2	1	Moyenne
0	0	7	7	0	2.500

7. Est-ce que l'animateur était disponible pendant les heures essentielles pour le travail pratique?

5	4	3	2	1	Moyenne
0	3	4	0	0	3.429

Nom de l'activité évaluée :	Maths Financières
Animateur :	Mme Elisabeth ALMA

Considérations : 5=excellent, 4=supérieur, 3=moyen, 2=inférieur, 1=mauvais

D. L'ACTIVITE

1. Est-ce que le contenu de cette activité vous aidera à aboutir à l'objectif de votre GT?

5	4	3	2	1	Moyenne
1	6	0	0	0	4.143

2. Est-ce que la presentation vous aidera à comprendre comment la BCM peut ou doit réagir dans une économie libérale?

5	4	3	2	1	Moyenne
1	6	0	0	0	4.143

3. Est-ce que l'activité :

a. vous a donné des concepts utiles?

5	4	3	2	1	Moyenne
3	4	0	0	0	4.429

b. vous a donné des outils d'application utiles?

5	4	3	2	1	Moyenne
3	3	1	0	0	4.286

c. a bien lié les concepts aux outils d'application?

5	4	3	2	1	Moyenne
2	4	1	0	0	4.143

E. L'ANIMATEUR

5. Est-ce que l'animateur a présenté les concepts d'une manière :

a. claire?

5	4	3	2	1	Moyenne
3	4	0	0	0	4.429

b. intéressante?

5	4	3	2	1	Moyenne
3	4	0	0	0	4.429

6. A-t-il répondu bien aux questions et besoins d'éclaircissage des concepts et outils?

5	4	3	2	1	Moyenne
2	4	1	0	0	4.143

7. Est-ce que l'animateur était disponible pendant les heurs essentielles pour le travail pratique?

5	4	3	2	1	Moyenne
1	1	0	0	0	4.500

Nom de l'activité évaluée :	Analyses financières et des risques
Animateur :	Lloyd FREEMAN

Considérations : 5=excellent, 4=supérieur, 3=moyen, 2=inférieur, 1=mauvais

D. L'ACTIVITE

1. Est-ce que le contenu de cette activité vous aidera à aboutir à l'objectif de votre GT?

5	4	3	2	1	Moyenne
5	6	0	0	0	4.455

2. Est-ce que la présentation vous aidera à comprendre comment la BCM peut ou doit réagir dans une économie libérale?

5	4	3	2	1	Moyenne
2	6	3	0	0	3.909

3. Est-ce que l'activité :

a. vous a donné des concepts utiles?

5	4	3	2	1	Moyenne
4	7	0	0	0	4.364

b. vous a donné des outils d'application utiles?

5	4	3	2	1	Moyenne
3	8	0	0	0	4.273

c. a bien lié les concepts aux outils d'application?

5	4	3	2	1	Moyenne
2	8	1	0	0	4.091

E. L'ANIMATEUR

5. Est-ce que l'animateur a présenté les concepts d'une manière :

a. claire?

5	4	3	2	1	Moyenne
5	6	0	0	0	4.455

b. intéressante?

5	4	3	2	1	Moyenne
4	6	1	0	0	4.273

6. A-t-il répondu bien aux questions et besoins d'éclaircissement des concepts et outils?

5	4	3	2	1	Moyenne
4	6	1	0	0	4.273

7. Est-ce que l'animateur était disponible pendant les heures essentielles pour le travail pratique?

5	4	3	2	1	Moyenne
7	3	1	0	0	4.545

Nom de l'activité évaluée :	Politique de Change
Animateur :	Jean-Paul AZAM

Considérations : 5=excellent, 4=supérieur, 3=moyen, 2=inférieur, 1=mauvais

3. L'ACTIVITE

1. Est-ce que le contenu de cette activité vous aidera à aboutir à l'objectif de votre GT?

5	4	3	2	1	Moyenne
0	4	3	0	0	3.500

2. Est-ce que la présentation vous aidera à comprendre comment la BCM peut ou doit réagir dans une économie libérale?

5	4	3	2	1	Moyenne
0	4	3	0	0	3.500

3. Est-ce que l'activité :

a. vous a donné des concepts utiles?

5	4	3	2	1	Moyenne
0	2	0	0	0	4.000

b. vous a donné des outils d'application utiles?

5	4	3	2	1	Moyenne
0	1	1	0	0	3.500

c. a bien lié les concepts aux outils d'application?

5	4	3	2	1	Moyenne
0	0	2	0	0	3.000

E. L'ANIMATEUR

5. Est-ce que l'animateur a présenté les concepts d'une manière :

a. claire?

5	4	3	2	1	Moyenne
0	0	2	0	0	3.000

b. intéressante?

5	4	3	2	1	Moyenne
0	2	0	0	0	4.000

6. A-t-il répondu bien aux questions et besoins d'éclaircissement des concepts et outils?

5	4	3	2	1	Moyenne
1	0	1	0	0	4.000

7. Est-ce que l'animateur était disponible pendant les heures essentielles pour le travail pratique?

5	4	3	2	1	Moyenne
2	0	0	0	0	5.000

Nom de l'activité évaluée :	Produits Dérivés
Animateur :	Eric NELSON

Considérations : 5=excellent, 4=supérieur, 3=moyen, 2=inférieur, 1=mauvais

D. L'ACTIVITE

1. Est-ce que le contenu de cette activité vous aidera à aboutir à l'objectif de votre GT?

5	4	3	2	1	Moyenne
0	2	1	0	0	3.667

2. Est-ce que la presentation vous aidera à comprendre comment la BCM peut ou doit réagir dans une économie libérale?

5	4	3	2	1	Moyenne
0	2	0	0	0	4.000

3. Est-ce que l'activité :

a. vous a donné des concepts utiles?

5	4	3	2	1	Moyenne
1	1	1	0	0	4.000

b. vous a donné des outils d'application utiles?

5	4	3	2	1	Moyenne
1	2	0	0	0	4.333

c. a bien lié les concepts aux outils d'application?

5	4	3	2	1	Moyenne
0	2	1	0	0	3.667

E. L'ANIMATEUR

5. Est-ce que l'animateur a présenté les concepts d'une manière :

a. claire?

5	4	3	2	1	Moyenne
0	1	2	0	0	3.333

b. intéressante?

5	4	3	2	1	Moyenne
1	2	0	0	0	4.333

6. A-t-il répondu bien aux questions et besoins d'éclaircissage des concepts et outils?

5	4	3	2	1	Moyenne
0	3	0	0	0	4.000

7. Est-ce que l'animateur était disponible pendant les heures essentielles pour le travail pratique?

5	4	3	2	1	Moyenne
0	1	1	0	0	3.500

Nom de l'activité évaluée :	E-Views
Animateur :	Eric NELSON

Considérations : 5=excellent, 4=supérieur, 3=moyen, 2=inférieur, 1=mauvais

D. L'ACTIVITE

1. Est-ce que le contenu de cette activité vous aidera à aboutir à l'objectif de votre GT?

5	4	3	2	1	Moyenne
1	3	2	0	0	3.833

2. Est-ce que la présentation vous aidera à comprendre comment la BCM peut ou doit réagir dans une économie libérale?

5	4	3	2	1	Moyenne
0	2	3	1	0	3.167

3. Est-ce que l'activité :

a. vous a donné des concepts utiles?

5	4	3	2	1	Moyenne
2	2	2	0	0	4.000

b. vous a donné des outils d'application utiles?

5	4	3	2	1	Moyenne
2	3	0	1	0	4.000

c. a bien lié les concepts aux outils d'application?

5	4	3	2	1	Moyenne
0	1	5	0	0	3.167

E. L'ANIMATEUR

5. Est-ce que l'animateur a présenté les concepts d'une manière :

a. claire?

5	4	3	2	1	Moyenne
0	1	2	0	0	3.333

b. intéressante?

5	4	3	2	1	Moyenne
1	2	0	0	0	4.333

6. A-t-il répondu bien aux questions et besoins d'éclaircissage des concepts et outils?

5	4	3	2	1	Moyenne
0	3	0	0	0	4.000

7. Est-ce que l'animateur était disponible pendant les heures essentielles pour le travail pratique?

5	4	3	2	1	Moyenne
0	1	1	0	0	3.500

Nom de l'activité évaluée :	Voyage d'Etudes Maghreb
Animateur :	Philip BERLIN

Considérations : 5=excellent, 4=supérieur, 3=moyen, 2=inférieur, 1=mauvais

D. L'ACTIVITE

1. Est-ce que le contenu de cette activité vous aidera à aboutir à l'objectif de votre GT?

5	4	3	2	1	Moyenne
1	2	0	0	0	4.333

2. Est-ce que la présentation vous aidera à comprendre comment la BCM peut ou doit réagir dans une économie libérale?

5	4	3	2	1	Moyenne
1	1	0	0	0	4.500

3. Est-ce que l'activité :

a. vous a donné des concepts utiles?

5	4	3	2	1	Moyenne
0	3	0	0	0	4.000

b. vous a donné des outils d'application utiles?

5	4	3	2	1	Moyenne
0	1	2	0	0	3.333

c. a bien lié les concepts aux outils d'application?

5	4	3	2	1	Moyenne
1	0	2	0	0	3.667

E. L'ANIMATEUR

5. Est-ce que l'animateur a présenté les concepts d'une manière :

a. claire?

5	4	3	2	1	Moyenne
0	3	0	0	0	4/000

b. intéressante?

5	4	3	2	1	Moyenne
1	2	0	0	0	4.333

6. A-t-il répondu bien aux questions et besoins d'éclaircissement des concepts et outils?

5	4	3	2	1	Moyenne
1	0	2	0	0	3.667

7. Est-ce que l'animateur était disponible pendant les heures essentielles pour le travail pratique?

5	4	3	2	1	Moyenne
1	0	1	0	0	4.000