

**COST ANALYSIS OF THE
PERFORMANCE BASED FINANCING SCHEME IN
RWANDA
(2006 – 2009)**

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Dedication

*This work is dedicated to the memory of my late father **GASANA Balthazar** who passed on the respect and has built a solid foundation in my education;*

*To my wonderful and adored mother **GAHONGAYIRE Séraphine** who continuously prayed for the success of this work and cares, supports me in everything;*

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List of Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
ART	Antiretroviral Therapy
BTCCTB	Belgium Technical Cooperation
CAAC	Cellule d'Appui a l'Approche Contractuelle
CCT	Conditional Cash Transfer
CDC	Center for Diseases Control and prevention
CRS / AIDS Relief	Catholic Relief Services / AIDS Relief Rwanda
CTR	Cost Transfer Ratio
DH	District Hospital
DPs	Development Partners
EDPRS	Economic Development and Poverty Reduction Strategy
EGPAF	Elisabeth Glaser Paediatric AIDS Foundation
FP	Family Planning
GoR	Government of Rwanda
GTZ	Germany Technical Cooperation
HDP	Health Development and Performance
HIPC	Heavily Indebted Poor Country
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information Systems
HSSF/CSP	Health Systems Strengthening Framework / Consolidated Strategic Plan
HSSP-II	The second Health Sector Strategic plan 2009-2012
ICAP	International Centre for AIDS Care and Treatment Programs
IHI/HCSP	Intrahealth / HIV Clinical Services Project
IT	Information Technology
LICs	Low Income Countries
M&E	Monitoring and Evaluation
MIC	Middle Income Countries
MINALOC	Ministry of Local Governance
MINECOFIN	Ministry of Finance and Economic Planning
MoH	Ministry of Health
MPH	Masters in Public Health
MSH	Management Sciences for Health
NASA	National AIDS Spending Assessment
NGO	Non-Governmental Organisation
NUR	National University of Rwanda
OECD	Organization for Economic Co-operation and Development
OI	Opportunistic Infection
P4P	Pay-for-Performance
PBF	Performance Based Financing
PCA	Complementary Package of Activities
PEPFAR	Presidential Emergency Plan For AIDS Relief
PMA	Minimum Package of Activities
PMTCT	Prevention from Mother To Child Transmission
RBF	Result Based Financing
SPH	School of Public Health
STI	Sexual Transmitted Diseases
UGP/GF	Unité de Gestion des Projet / Global Fund
UPDC	Unité Politique et Développent des Capacités
USD	United States Dollars
USG	United States Government
VCT	Voluntary Counselling and Testing
WB	World Bank

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Abstract

Background

Performance-Based Financing (PBF) has become a key strategy to strengthen overall health systems by linking payment to providers to their performance. Rwanda has been the first Low-Income Country to scale up PBF approaches from pilot projects. The scaling up of PBF in Rwanda has shown significant results through a well-executed and rigorous impact evaluation, a first such endeavor. While other countries are initiating PBF and others are planning the scaling up of PBF, questions remains on the real total costs and the proportion of the transaction cost (investment and operating cost) of the strategy.

Methods

The present study aimed at collecting all costs information for both the payment of the indicators selected by the Ministry of Health and all administrative costs of PBF implementation, Indicators payment covered the cost of general health and HIV indicators as well as the payment to district hospitals. The main categories collected as administrative cost of PBF covered Evaluation, data verification, capacity building and coordination. Information was gathered from the Rwanda government institutions and all development partners involved in the PBF scaling up process from January 2006 to December 2009. Data management and analysis were done with both Stata software version 11 (StataCorp, 2009) and MS Excel spreadsheets and pivot tables.

Results

The total per capita cost of indicators payment kept increasing over the four years. It was US\$0,35 in 2006; US\$0,65 in 2007; US\$0,88 in 2008 and US\$1,36 in 2009. The transaction costs of scaling-up PBF (investment and operating costs) are estimated at 23% of the total expenditure for PBF over the study period. Annual per capita transaction cost increased from 2006 to 2008 (US\$0,14; US\$0,23 and US\$0,34 respectively), and started decreasing in 2009 at US\$0,28. This was due to a significant decrease of investment costs, especially those related to international technical assistance (TA) which decreased dramatically in 2009 in replacement by national TA. This documents an important capacity transfer from international to local TA as the system

matures. Also, important economies of scale have been documented, with the Cost-Transfer Ratio (CTR) which came from US\$0.40 in 2006 to US\$0.21 in 2009. The total CTR has been of US\$0,30. This means that, over the four years, it cost US\$0.30 to put US\$1 in a health facility bank account.

Conclusion and recommendation

PBF is a feasible and cost effective strategy. The launching of the scheme needs external expertise and funding to support the government. In Rwanda, there are significant capacity buildings and capacity transfer which evidence is a decreasing percentage of international technical assistance as it is being replaced by national technical assistance. The government should consider increasing the budget allocated to PBF to ensure sustainability.

Key words:

Performance Based Financing, output payments, input payment, and transaction cost.

INTRODUCTION: GENERAL CONTEXT

0.1 Background

The Government of Rwanda (GOR) has made Performance-Based Financing (PBF) the cornerstone of far-reaching health financing reforms perceived as a key determinant of health system performance. PBF is now one of the key strategies implemented in Rwanda in order to increase the quantity, quality, and efficiency of health services (Rusa, et al., 2007), (Rusa, et al., 2009). The second Health Sector Strategic plan 2009-2012 (HSSP-II) emphasizes the strategic role of PBF to reward health facilities and staff for good performance. The health sector strengthening framework recognizes PBF as a key resource reallocation strategy that helps to achieve the vision of the Rwandan health finance policy. But as all strategies it does cost money and this strategy is competing with other interventions in both the health sectors and other sectors using government and development partner's resources.

A quote from Hurley says:

“A fundamental problem facing all societies is that productive resources are scarce. There are not, and can never be, enough resources to satisfy all human wants and needs. This observation is acutely clear everyday when it comes to matters of illness and health, but it is equally true of other areas of human activity. There exists a constant conflict among alternative uses of productive resources, and a constant need to choose among alternative allocations. Therefore, the opportunity cost defines the real cost of an activity (for example, provision of hospital services) as the other outputs that must be given up (for example, other health services such as immunizations, or non-health services or commodities such as defense or vehicles) because productive resources are committed to it. Policymakers in all societies face decisions about trade-offs such as these on a daily basis” (Hurley, 1998 p. quoted from)

In Rwanda, like in many aid-dependant LICs, a considerable amount of resources targeted at the health sector, is external and off-budget aid. Most of this aid is also tied to HIV/AIDS (MOH, 2008). An interesting phenomenon is that very little of the available monies reaches the front line health facilities; this has been documented in Rwanda (Kalk, 2005).

Although some generic costing studies have been done in Rwanda like the National health accounts 2006 (MOH, 2008), a costing study to inform the financing of the community based health insurance mechanisms (Kagubare, 2005), the micro-costing in 2005 of health centers in Gicumbi District (McMennamin, et al., 2008),¹ and a step-down costing study on Hospital and Health Center costs by Intrahealth/Twubakane in 2006 (Beaston-Blaakman, et al., 2008) which show some costs related to the part that PBF plays in total costs and revenues, there is a lack of up-to-date comprehensive cost information in PBF.

There is a need to gather comprehensive information on the total cost of PBF schemes that takes into account both costs for paying contracted indicators and those related to administration, capacity building, equipment, IT, and other system strengthening activities is lacking. For 2007, costs related to administration, technical assistance, capacity building and so on were estimated at about 20% of overall expenses (MOH, 2008).

Information on costs of PBF systems is rare in the literature. A report from the Dutch Royal Tropical Institute looked at PBF systems managed through the NGO Cordaid, and informs that the Rwanda PBF scheme is funded by government by 60% of the total funding, in addition to external aid from USG to 30%, BTC-CTB 9% and by some NGOs such as CORDAID and HealthNet-TPO to 1% for technical assistance (Toonen, 2009). The Rwandan government funding for PBF has its source largely from monies liberated through the Heavily Indebted Poor Country Initiative (HIPC). The Rwandan PBF scheme has an internal market for the purchase of performance; for the community PBF, for the Health Center PBF and for the District Hospital PBF, an internal market for performance purchase exists. Multiple purchasers, some of which pool their funds with the GOR, others which are bilateral donors and off-budget, purchase performance. This is a particular feature of the Rwandan PBF system, and will be discussed further in this report.

¹ Data for 2006 and 2007 have also been collected, and are currently being analyzed.

0.2 Problem Statement

After four years national roll-out process, the Rwandan PBF schemes are seen as models for Low Income Countries to follow when designing national Performance-Based Financing systems. Many health interventions and sound policies converged in Rwanda, not the least a boost in overall health expenditure from US\$17/capita/year in 2003 to US\$34/capita/year in 2007, the administrative reforms, the performance contracts of the Mayors, the decentralization of human resource management, the increase in the levels of autonomy for health facilities and the nationwide roll-out of Community Based Health Insurance Schemes which reached 86% coverage in June 2009². However, Performance-Based Financing is considered by many insiders to have been instrumental in producing key results in the health sector over the past four years (LOGIE, et al., 2008), (Meessen, 2011).

Results for Rwandan PBF are quite impressive: recent results from the large World Bank (WB) impact evaluation of health center PBF shows a significant result for institutional deliveries, and child visits to health centers. In addition, the quality of services was significantly better than in the control districts, also, the nutritional status of children living in the catchment areas of PBF facilities was better; they were taller and lesser sick (Basinga, 2009).³

Although the results of PBF are impressive, quite extensive support mechanisms have been put in place by the MOH and partners, to verify results, to introduce community client surveys, to support the decentralized authorities in managing PBF, and to continuously build capacity, both at the central, and in the periphery level. In addition, this capacity has been a driver of innovation and continuous development of the PBF approaches, which are emblematic of one of the key principles of PBF: to experiment and learn and to include lessons learned in the PBF approaches as one continue to implement it.

² Information drawn from the CBHI website www.cbhirwanda.org.rw

³ The impact evaluation of PBF was done in presence of other important national wide implemented intervention such as the President's performance contracts with his Mayors (the so-called 'imihigo's') and the community based health insurance schemes that have had quite a significant impact on the performance of health centers in both the 'control' and "intervention" districts of the PBF impact evaluation. Indicators that were measured by these performance contracts for example, in health notably family planning coverage and institutional deliveries, have helped pushing these indicators high nationwide. It is quite possible that the double-difference, that is, the difference measured between the increase in PBF related indicators in treatment and control districts, might have been quite a bit higher without the Presidents intervention. Nevertheless, there were quantitative differences, and notably: quality differences (which were not captured by the Presidents Imihigo's).

Despite the progress made in PBF there still information gaps specifically on the costs of scaling up the systems. This information is vital, as by July 2010, an estimated 22 African countries were designing and in various stages of implementing PBF schemes (Meessen, 2011). A second Sub-Saharan African country (Burundi) has scaled up PBF to function at scale in April 2010. Experience from these two scaling-up processes have important lessons learned for other countries. For one, the costs related to capacity building and technical assistance tends to be grossly underestimated.

There has been a continuous debate on the total cost of implementing and maintaining the Rwandan PBF model. Also national stakeholders including Government and development partners and policymakers from other countries frequently ask how much it costs to create these national approaches. Therefore, there is need to study the costs of creating a national PBF model, both from the point of view of the donor, as well as from the provider, to also judge the opportunity cost. The Rwandan Economic Development and Poverty Reduction Strategy (EDPRS)⁴ commits to an increase of funds for PBF from USD 1.20 to USD 2.90 per capita by 2012. In order to know how much funds could be freed up for PBF in the next coming years, this analysis will inform policy makers on the cost of administration, capacity building, M&E and the payment function that support the PBF models.

This study seeks approximate cost information through an ingredient costing of the health center and hospital PBF schemes from central to peripheral level, to inform policy makers on the total cost of PBF including administrative costs and cost for paying for performance. This thesis will fill this knowledge gap by studying these and other PBF related costs for the first country which has scaled up PBF successfully: Rwanda. Results from this study will be used to inform health financing in general and performance-based financing specifically.

⁴ EDPRS is the second generation of Rwandan Poverty Reduction Strategy Paper (PRSP) and covers the period from 2008 to 2012. See more details on <http://www.minecofin.gov.rw/squelettes-dist/edprs.html>

0.3 OBJECTIVE OF THE STUDY

General objective

This study has the overall objective to analyze the cost of PBF in the period from January 2006 to December 2009. Costs accruing to central and district level, related to the implementation of the health center and hospital PBF approaches will be examined.

Specific objectives

The specific objectives of the study for the period 2006-2009 are to:

- a) Estimate the per capita cost for the output payments
- b) Estimate the per capita transaction costs of PBF
- c) Estimate the per capita PBF expenditure
- d) Analyze fiscal space related to PBF and provide recommendations related to the findings to the GOR and other stakeholders

To respond to the above objectives, the present study has defined the levels of inputs for achieving outputs. The inputs defined by the study have tended to represent the totality of the cost. These costs take into account all recorded expenses for performance payments at the health centers and first level referral hospitals, expenses incurred during data evaluation and verification, counter-verification of reported data, the capacity building, the coordination functions of the system and the administrative costs of the MOH, MINALOC and various agencies involved. The study has also looked at the fiscal space for PBF, both from the policy intention point of view and from the point of view of resources available in the Rwandan health sector.

PART 1: LITERATURE REVIEW

CHAPTER 1: Definition of our Concepts

Performance-Based Financing (PBF)

Performance-Based Financing, also known as ‘l’approche contractuelle’ or ‘contractual approach’ or ‘Financement Basee sur la Performance (FBP), is a relatively young phenomenon which has its origins in experiments in the Western Province in Zambia in the late eighties/early nineties of the past century (Soeters, 1994), and in 1998 in Cambodia (Soeters, 2003), and has recently been defined closer:

“Performance-Based Financing is a health system approach with an orientation on results defined as quantity and quality of service outputs. This approach entails making health facilities autonomous agencies that work for the benefit of health related goals and their staff. It is also characterized by multiple performance frameworks for the regulatory functions, the performance purchasing agency and community empowerment. Performance-Based Financing applies market forces but seeks to correct market failures to attain health gains. PBF at the same time aims at cost-containment and a sustainable mix of revenues from cost-recovery, government and international contributions. PBF is a flexible approach that continuously seeks to improve through empirical research and rigorous impact evaluations which lead to best practices”⁵

PBF is a method of healthcare service management which seeks to increase the volume and quality of healthcare services provided to the population. PBF increases funds available at the operational level to increase health worker motivation through a system of complementary remuneration based on performance. PBF operates through contracts between those providing the

⁵ PBF draws from micro-economic, systems analysis, public choice and new institutional economics theories. The effectiveness can be enhanced by demand-side interventions such as equity funds; conditional cash transfer programs, vouchers schemes and obligatory health insurance programs. Definition adopted by the African PBF Community of Practice, August 2010.

financing and the various local actors in the health system. It is in continuous development, and incorporates lessons learned and best practices as they come available. Fundamental to the approach is system thinking (Savigny, 2009) and looking at the entire health system from a macro-point of view instead of focusing on the incentives only (Meessen, 2011).

Input Payment for Health Services ('Inputs')

Inputs are all the resources needed to deliver health services. These are for instance salaries, drugs and medical consumables, equipment, transportation, and training and so on. In PBF, we distinguish 'inputs' from 'outputs'; outputs are the services delivered, the quantity and quality of the services. In PBF programs, certain inputs are necessary to make the PBF program work. This is sometimes confusing, but as an example: in the case of the PBF pilot program in Cyangugu province, which was managed by a Fund Holder NGO, the NGO was paid a line-item budget and financed through cost-reimbursement for dispensing these (Soeters, 2006). The NGO has to finance its staff, its transportation, and its programmatic activities such as the verification, and the counter-verification. It finances the 'outputs' delivered by the health facilities that it has contracted through purchase contracts.

Output Payment

Outputs in PBF programs are considered the services that have been defined in the contracts, and are purchased at a certain unit fee/subsidy. The quality measure, which is determined through elaborate quantitative quality checklists, is also considered an output by PBF. The latter, although part of the Cyangugu PBF pilot since 2002, came to prominence as it was made part and parcel of the new national PBF approaches, and which showed a significant impact of the quality measure.

Input/output Ratio

The Input/output Ratio is the ratio between the inputs and the outputs in a PBF program. In our research the inputs are all resources needed to deliver the PBF program, whilst the outputs are all the payments for performance made during the PBF program.

Transaction Cost

When observing the cost of PBF projects, one of the interests lies in defining the transaction cost of the approach. There are several ways that we can define transaction costs;⁶ here, we consider that the transaction cost derive from contractual nature of the PBF approach, and from additional institutional elements that are necessary for managing the contracts, for coordinating the process and for introducing the quality improvement processes that are part and parcel of the approach (process management; coordination; capacity building; monitoring; verifying; reporting, etc.).

The way we use ‘transaction costs’ in this study therefore, are a departure from using this term to get a sense of how much money it costs to push one dollar through PBF taking into account its institutional arrangements. As this report will show, nearly three quarters of the transaction costs are for the capacity building and coordination efforts.

CHAPTER 2: Summary of our Literature Review

2.1 Lessons from P4P/RBF approaches

A shift from traditional financing to performance based financing approaches has been demonstrated to have a potential to elicit improvements in health service performance in developing country contexts. The basic principle in PBF is “the money follows the patient”; if health facilities attract more patients and provide quality services, they will receive more subsidies or incentive payments on a scheduled basis (monthly, quarterly or bi-annual).⁷ The expected methodology, results and incentives to arrive at the improvement are laid out beforehand in a contract; as such PBF may be seen as a type of contracting approach.

There is an increasing interest in Pay-for-Performance approaches. In the recent literature a glossary distinguishes an overarching category of ‘Pay-for-Performance’ (P4P) or ‘Results-Based Financing’ (RBF), which includes a wide range of incentive approaches at both the demand side and the supply side. See table 1 below: the Latin-American example is about demand-side

⁶ http://en.wikipedia.org/wiki/Transaction_cost, accessed 25 December, 2010

⁷ The type of incentive approach strategy is important. PBF uses a ‘fee-for-service’ lookalike provider payment mechanism, however, other incentive mechanism contract for instance a non-governmental organization to supply services, whilst the NGO then manages her health facilities through input financing. Also, other incentive approaches might be targeted at even higher levels of the health system, at the provincial government, or even at the national government. Not all incentive mechanisms have equal effectiveness and efficiency.

Table 1: Case Summaries for P4P/RBF

(Eichler, 2009 p. 7)

Latin America: *Cash transfer to support better household decisions.* Poor households receive income transfer as long as they access preventive services and attend health education talks.

United States: *Orienting pa- for-performance to patients.* Patients receive payments if they use priority services or change health related behaviors.

Afghanistan: *Paying NGOs for performance in a post conflict setting.* Performance based incentives are contrasted with input-based payment in a post conflict state with poor health statistics.

Haiti: *Going to scale with a performance incentive model.* Supply side incentives are given, as progressively more nongovernmental organizations are paid based on reaching population-based performance targets.

Nicaragua: *Combining demand and supply-side incentives.* Monetary transfers to households are linked to service use, and financial incentives for health providers are tied to the achievement of performance targets.

interventions called ‘conditional cash transfer’ (CCT) programs. The Haiti and the Afghanistan examples are so-called ‘supply-side’ incentive programs. These two specific examples are called ‘Performance-Based Contracting’ (PBC). Here, Non-Governmental Organizations are contracted performance-based to deliver basic and complementary health services to a defined population. PBF is a separate category of supply-side programs (Musgrove, 2010).

Most of the literature converges on two key objectives of P4P/RBF (1) to increase equity, accessibility, quantity and quality of health care provider to the population and (2) more efficient and effective organization of health services.

There is quite a difference in P4P/RBF approaches in rich OECD countries as compared with LIC/MIC countries. The literature, although frequently using similar terminology and evidence stated, can therefore not be transplanted to all contexts without further ado. Context matters.

P4P/RBF results in selected LIC countries (Cambodia; Haiti; Afghanistan; Rwanda, DRC, Burundi) showed improvements in utilization of health services and enhanced quality of service provision in some instances. Until fairly recently, good quality impact evaluations of P4P/RBF programs was missing. Although likely effects reported in the P4P/RBF literature include for instance the fact that projects which target performance do show efficiency gains with positive trends in both supply and demand side indicators. Most previous P4P/RBF program evaluations did not have very strong methodologies and failed to convince skeptics. The Rwanda impact evaluation was different. It is seen as good practice, and has documented strong impact of PBF on quantity and especially quality of service delivery (Basinga, 2009). The strongest scientific

evidence on P4P/RBF in LIC country setting, therefore, applies to one specific P4P/RBF approach namely PBF.

What seems to be a major difference between PBF and other incentive approaches is the holistic nature of Performance-Based Financing. PBF in effect, is a health system strengthening approach, and its effects, which are exemplified by the systemic nature of Rwanda's health system interventions, can only be understood from the point of view of a health system intervention (Savigny, 2009). This knowledge is slowly gaining currency (Meessen, 2011), (OECD, 2010).

Our literature search did not find any documentation on the costs of delivering PBF, bar some information on PBF pilot programs (Toonen, 2009), (Soeters, 2006), (Soeters, 2011), one Rwandan MOH report; the annual PBF report for 2007 (MOH, 2008).

2.1.1 Effects of PBF on health worker and organizational performance

The effects of PBF on health worker and institutional performance are a key element of Pay-for-Performance studies. Research has focused on the organization and on the individual health workers with three noteworthy findings drawn from a variety of studies;

(i) Health worker performance does improve with the introduction of PBF

The shift in the organizational cultural to a more result based way of working has demonstrated increased levels of staff motivation and has in many instances reported innovations in service delivery such as sub contracting community groups or service providers. This is explained in the literature by intrinsic rewards such as (i) the opportunity for flexibility and more autonomy in management at service level; (ii) enhanced opportunities for professional development and (iii) opportunities for staff empowerment through self and team directed problem solving leading to higher motivation in their work. Questions remain about whether such positive results are a result of intrinsic motivators or simulated by additional financial investments for health facilities (Soeters, 2011), (Soeters, 2006), (Soeters, 2003), (Meessen, 2006), (Rusa, 2009), (Perrot, 2010).

(ii) PBF can enhance health sector institutional strengthening

PBF is also seen to play an important role in institutional development (Meessen, 2011). This has manifested in improvement in existing health functions. The Health Management Information System HMIS (quality control) which benefits from data triangulation at the source and integration of new functions (fund holding at local level, verification and provider, community participation) with potential for more autonomy at local level and increased transparency (Meessen, 2006), (Soeters, 2006). It is notable that PBF provided opportunities to stimulate the provider/regulator/fund holder consultative processes thus enhancing transparency and more locally defined approaches e.g.: through business plan arrangements for service delivery (Soeters, 2006).

(iii) Sustainability of PBF is still a question

Concerns expressed by Loevinsohn (2005) in the context of Afghanistan include: (i) feasibility of scaling up (ii) overheads and /or transaction costs that are higher than government can afford; and (iii) government may have limited capacity to manage such complex approach, which are by implication, unsustainable. To date there is a limited body of evidence, outside Rwanda experience, that PBF and payments for performance can actually be sustained beyond the initial pilot and scale up period.

Overall, the review of selected PBF literature from developing countries text shows that the early results of using such approach are promising and demonstrate potential for improvements in health service utilization and quality of health care. However, the question remains whether PBF can be sustained whilst minimizing dependency on external aid. There is also concern about the ‘fungibility’ of aid: external aid for health can replace government financing – who can then invest more in other sectors to the detriment of its health financing funding.

2.1.2 Cost of PBF – sustainability and financing the approach

Critics often state that implementing and managing PBF can result in a high level of additional costs, including transaction cost and that it is ‘not worth the effort’ (Elridge, 2009), (Kalk, 2010).

By consequence, it has been argued that the cost of the PBF arrangements can be too high for the countries to sustain after withdrawal of external support.

Toonen et al (Toonen, 2009) have evaluated the level of costs in PBF projects managed by the International NGO Cordaid by determining the cost of PBF that should be considered as “transaction cost” and in making projections on the financial sustainability when scaling up PBF approaches based on what the total amount of resources that a scaled up national PBF program would require in different contexts.⁸

Transaction cost, inputs/outputs, and financial sustainability

One way of analyzing the transaction costs for PBF is to focus on the financing agents’ inputs and outputs.

- The input/output ratio from different perspectives

The simplest way to look on the transaction cost is to consider these as an input/output ratio; as the ratio that compares the value of the performance bonuses over all the resources needed to deliver these bonuses. In sum, the performance bonuses, the incentives paid to the facilities, are considered as the outputs and all the costs related to institutional management needed to deliver those incentives are considered as inputs. The resources needed to deliver the bonuses can be appreciated through three major categories of cost (Toonen, 2009):

1. Fund holder agency running cost – excluding payments for performance
2. Monitoring and evaluation cost – including regulator and external verification
3. Capacity building cost – (and coordination costs)

The first two of these cost categories correspond to the cost of upholding the purchaser and regulation functions, as defined in the PBF architecture. The third cost category can be regarded as a supporting cost but one that needs to continue after withdrawal of the external financing.

Toonen et al, (2009) found out that in general inputs needed for mobilizing the outputs (performance payment) varies somewhat between different projects. For example in Burundi

⁸ Their evaluation covered a wide range of ‘PBF approaches’ in various contexts, which, although implemented by the same organization, were not always PBF, but in some instances ‘PBF look-alikes’.

inputs represents 30% of the total cost of PBF project with 70% going to the performance payment; whilst in DRC the inputs represents over 40% of the total project cost.

However, it is also possible to consider input/output ratio from a different perspective. In essence, it should be considered that the approach also results in better monitoring systems for the health facilities, in strengthening local public administration and in capacity building and should thus be considered as outputs. From this point of view, PBF projects are seen, not only as financial arrangements that are destined to channel a certain amount of funding to the health facilities, but also as health system interventions that have a wider impact.

- **Financial sustainability of PBF**

The financial sustainability of the PBF schemes relates to the cost of PBF. PBF pilot projects are mostly depending on external aid. In some PBF pilot programs, especially in PBF pilot programs managed through Cordaid, Cordaid acts also as an important financier. Continuous external support is irrelevant from the sustainability aspect, since the essence of sustainability question does not lie in the willingness and capacity of donors to commit resources to the projects, but to the extent to which there is a shift of funding towards domestic resources or a mix of funding sources (Kutzin et al, 1997). We concur with this view. PBF schemes need to, in order to address the sustainability issue, evolve to become national programs that will be funded either entirely by the government or co-funded by government and donors.

It can be argued that PBF is not in fact an additional element, but that it should be considered as a replacement of other “conventional” input based funding mechanisms. In this case the nominal amount of resources allocated to PBF is less important, what matters is the differences in efficiency that it can create if replacing an input based funding model. There is increasing evidence that one dollar spent through output financing (i.e. one dollar put in the health facility bank account and earned through PBF) equals about four dollars spent through the traditional ‘input’ fashion, attempting to reach the same objectives. For infrastructural works, this ratio might even be larger (Soeters, 2011).

2.2 Performance-Based Financing Programs in Rwanda

In Rwanda, Performance-Based Financing is an innovative method for financing health services through the purchase of activities and products and services offered to the population based on a performance contract. The performance-measure aims at increasing the volume and quality of services at the same time.

2.2.1 PBF Pilot Approaches in Rwanda (2002-2005)

PBF in Rwanda started around 2002 with two pilot projects in the former Cyangugu and Butare provinces. The concept was developed by nongovernmental organizations (NGOs) working in the health sector in Rwanda who felt that, although they paid health workers a ‘bonus’ salary supplement, the outputs of the health services were stagnating and in some cases even deteriorating (Rusa, et al., 2007), (Meessen, 2006), (Soeters, 2006). In addition, actors who had gained experience implementing results-based programs in Cambodia brought their experience to Rwanda (LOEVINSOHN, et al., 2005), (Rusa, et al., 2007), (Rusa, et al., 2009). This led to the introduction of PBF for health services in Rwanda, an initiative that links measurable indicators with financial incentives for health facilities who are paid according to their actual performance (LOGIE, et al., 2008), (Meessen, 2006), (Soeters, 2006). Both projects proved successful to the extent that the Ministry of Health included this approach in its 2005-2009 Health Strategic Plan (Rusa, et al., 2007).

In 2005, a third pilot was started, adding to the Rwandan Performance-Based Financing experience (Rusa, 2009). In both the ‘Cyangugu model’ and the ‘Butare model’, the implementation of these incentive schemes in the form of a performance-based contract based on a few measurable indicators has been followed, among others, by a dramatic increase in outpatient visits, assisted deliveries, and use of family planning. An evaluation was conducted which showed a significant increase in utilization of health services, including immunization, family planning and assisted deliveries in provinces where the contracts were done (Soeters, 2005).

2.2.2 National PBF Approaches

Encouraging results from three PBF pilots prompted the MoH to scale up a national PBF model in 2006 (Rwanda, February 2005). Key functions remain within the public system with broad-based participation of providers, civil society, and local government. The scale up begun with 3 key actions: putting in place the institutional framework, standardizing the PBF approach and tools, and developing a rollout plan and an impact evaluation (Rusa, et al., 2007), (Rusa, et al., 2009).

Institutional framework

PBF was adopted as a national policy as part of 2005-2009 health sector strategic plan and subsequently incorporated into the national finance law. The government developed specific statutes affecting health professionals that covered bonus payment to staff at both public and nonprofit health center and district hospitals. In the short term, the government assumed responsibility for financing payment of about \$0.25 per capita at all health centers, but urged development partners to continue funding district hospitals. A thematic group on PBF was established to bring stakeholders together to exchange information and experiences. Key development partners – Belgium, the United States (PEPFAR), and the World Bank through the poverty reduction support credit/Grant⁹ have been instrumental in supporting the scale up. The WB has spearheaded the design and rollout of the impact evaluation. CORDAID, HealthNet-TPO, and BTC – the partners who supported the initial PBF schemes – have been mobilized to assist the scale up, with technical support from the United States Government through Management Sciences for Health (MSH) (Rusa, et al., 2007).

The national Performance-Based Financing approach for Health Centers

The national PBF approach for health centers was designed early in 2006, using a participatory process involving all stakeholders (the Ministry of Health; World Bank; Management for Health Sciences (MSH); Health Net International (HNI-TPO); Cordaid; Belgium Technical Cooperation (BTC) and GTz). It sought common ground and consensus building between partners with

⁹ The World Bank poverty reduction support credit/Grant have supported the PBF and budgeting for service delivery with the goal of reaching MDGs. They have been funded jointly with the Africa development bank group, the IMF, the U.K department for international development, Germany, the Netherlands and Sweden.

The model is predominantly based on the Butare model (District Steering Committee with representation of health authorities, local administration authorities, health facilities – both public and faith-based, donor technical assistants and civil society) and its three layers of contracts (District Steering Committee contract; Purchase contract and ‘Motivation’ contract), with key elements of the Cyangugu model, such as regular— preferably monthly—control at the health

Table 2: PMA indicators and unit fees/subsidies

Output indicator	Amount paid per unit (us\$)
Visit and Outreach Indicators: Number of ...	
1 curative care visits	0.18
2 first prenatal care visits	0.09
3 women who completed 4 prenatal care visits	0.37
4 first time family planning visits (IUD, injections, implants, pills)	1.83
5 Contraceptive users at the end of the month (monthly protection)	0.18
6 deliveries in the facility	4.59
7 child (0 - 59 months) growth monitoring (preventive care) visits	0.18
Content of care indicators: Number of ...	
8 women who received appropriate tetanus vaccine during prenatal care	0.46
9 women who received 2nd dose of malaria prophylaxis during prenatal care	0.46
10 at risk pregnancies referred to hospital for delivery during prenatal care	1.83
11 emergency transfers to hospital for obstetric care during delivery	4.59
12 children who completed vaccinations on time	0.92
13 malnourished children referred for treatment during preventive care visit	1.83
14 other emergency referrals during curative treatment	1.83

Adapted from « Cellule d'appui à l'approche contractuelle. Guide de l'Approche contractuelle pour les Centres de Sante. Manuel de l'Utilisateur. Mai. 2008. Ministère de la santé. p 41-42 »

center level and incorporation of the quality supervisory tool as a performance measure.

The PBF scheme for general health services has fully transferred to the government’s budget, and there is a direct link between service delivery, results, and payment. Existing PBF pilot actors transitioned from a fund holder or purchaser role into a technical assistance role. A similar phenomenon has been observed in the successful scaling up of PBF in Burundi (Fritsche, 2010).

District PBF Steering committee were established in each district to independently monitor the performance of health centers. It was in essence embodying the decentralized governance for PBF. It functioned as a governing board for PBF at the district level.

The PBF scheme for HIV/AIDS services followed the same roll out as the general health services; however PBF payments were made directly by donor agencies and not through public financial management mechanisms. HIV/AIDS PBF services had been determined after finalizing the national PBF approach for health centers, and made to ‘dovetail’ with the national approach.

Monies earned through PBF, whether through the basic package of health service indicators, or whether through HIV/AIDS would enter the same health facility bank account.

Payments for performance are based on the quantity of outputs achieved (through case-based remuneration or Fee-for-Service type provider payment) conditional on the quality of services rendered. The outputs are measured monthly while the quality is measured quarterly through the use of an elaborate quantified supervisory checklist.

Health centers staff can increase their performance, and hence their earnings, by increasing the quantity of outputs, increasing the quality of services delivered or both. When both quantity and quality increase earnings will be highest. Unit fees were determined through a consensual process between Ministry of Health and all participating partners and took into account the past pilot experience of PBF pilots, expected increase of volume of services, and available budget (CAAC, 2007).

Framework of evaluation and monitoring

The PBF has an integrated framework of evaluation, supervision training and management of health facilities. Open access to data monitoring and verification systems promote accuracy, accountability, trust and collaboration among all parties (open access is through the web-enabled application where actors can observe the performance for the entire PBF health system, and compare their results to the average of the entire country). Transparency and information sharing and information use are at the core of the Rwandan PBF approaches: data are accessible to all actors. Performance payments are published on the public documentation section of the PBF website www.pbfrwanda.org.rw .

A key construct of Rwanda PBF is a separation of functions among three parties: health service providers, purchasers and controllers. The parties interact in a way that simultaneously involves oversight and technical support. For example, district hospital staffs evaluate health centers, but also coach them on how they can close gaps between their targets and actual performance.

Figure 2: Separation of Functions in PBF



Source: (MSH, 2009)

Health service providers :
District hospitals, health centers, community health workers
Record and submit data regarding performance on contracted indicators

Controllers:
Ministry of Health and partners, steering committees, district hospital supervisors
Validate data, coach providers for improved performance; submit invoice

Purchaser:
Government of Rwanda and developing partners
Pay invoice through centralized bank account directly to individuals provider facility

Quality evaluation

The quality indicators are assessed through a PBF-specific monitoring system, in which district hospitals monitor and supervise the quality of health centers in their districts. This quality monitoring function has been allocated to the District Hospital, which falls under the Ministry of Health. This is part of the ‘separation of functions’ that has been introduced in the Rwandan health center PBF approach, in which it was attempted to allocate different functions to different institutions, thereby decreasing potential conflict of interest situations.

Every quarter, supervisors from the district hospital visit health facilities, and assess quality indicators through direct observation and review of patient records. How these visits are organized exactly is left up to the discretion of the hospital supervisory team. It is their ‘black box’ so to say. However, the hospital is held accountable, through a performance framework, for the timely and complete delivery of these outputs. This performance framework is part of a larger

quantitative quality checklist which measures and rewards district hospital performance – this is the district hospital PBF approach.

At the end of the visit, the supervisors/verifiers discuss the checklist findings and results with the facility's personnel, and provide recommendations related to the quality of services. Information from the visit is used to compute each facility's overall quality score.

Summary data from these evaluations are entered in a web-enabled application, and are used to compute the quarterly performance bonuses for each health center.

The facility's overall quality enters the payment formula as a multiplicative factor that raises or lowers the payment for all outputs. The quality index is bounded between zero and one (and is expressed in a 'percentage quality'). If the facility meets all of the quality criteria, then the index equals one and the facility receives full payment for the services listed in table 2. However, if the facility is deficient in some of the quality criteria, then all of the payments are discounted. For example, if the facility only scores 0.70 on the quality index, then it only receives 70 percent of the payment for the PBF services.

The reason for choice of this method was to mitigate the impact of the HIV PBF payments on other services. In fact, as the HIV PBF payments are conditional on the same overall quality score as the basic health service package indicators, they equally contribute to strengthening the health services in a holistic manner. Also this method which allowed conditioning the payment of quantity by the quality produced safeguarded health facilities to only put efforts on paid indicators in detriment of unpaid indicators.

The facility’s overall quality is measured as an index of both structural and process measures of quality of care for various types of services (Donabedian, 1988) (see table 3). Structural measures are the extent to which the facility has the equipment, drugs, supplies and personnel necessary to deliver a specific service, while process measures capture the clinical content of care provided for specific services. The structural and process indicators are based on the Rwandan clinical

Table 3: Services and Weights Used to Construct the Quality Score for the Health Center PBF Approach

Service	Quality Index Weight	Share of weight		Means of assessment
		Structural	Process	
1 General administration	0.052	1.00	0.00	Direct observation
2 Cleanliness	0.028	1.00	0.00	Medical record
3 Curative care	0.170	0.23	0.77	Direct observation
4 Delivery	0.130	0.40	0.60	Medical record
5 Prenatal care	0.126	0.12	0.88	Direct observation
6 Family planning	0.114	0.22	0.78	Medical record
7 Immunization	0.070	0.40	0.60	Direct observation
8 Growth monitoring	0.052	0.15	0.85	Direct observation
9 HIV services	0.090	1.00	0.00	Direct observation
10 Tuberculosis services	0.028	0.28	0.72	Direct observation
11 Laboratory Services	0.030	1.00	0.00	Direct observation
12 Pharmacy management	0.060	1.00	0.00	Direct observation
13 Financial management	0.050	1.00	0.00	Direct observation
TOTAL	1.000			

practice guidelines, and have their origin in the quantitative quality checklist used in one of the Rwandan PBF pilot programs (Soeters, 2006). These checklists are revised annually through a collaborative bottom-up mechanism, and have evolved considerably over the past eight years.

The 2009 version contained 108 composite indicators across 14 services, measuring 1,058 data elements. These versions are published on the Rwandan PBF web-site www.pbfrwanda.org, for instance, the 2010 version can be accessed there.

Quantity evaluation


The quantity of indicators in Table 2 is verified monthly by the administrative health team in each of the health centers. The quantity indicators are the indicators, or services, for which a unit fee/subsidy is paid.

In fact, due to the ‘separation of functions’, the national PBF approach for health centers has allocated the ‘quantity’ or ‘volume’ verification to a different institution than the quality

verification (Rusa, et al., 2007). The quantity verification is done by the Ministry of Local Administration. However, due to the administrative reforms, and ongoing decentralization, a fair degree of autonomy has been granted to the district to determine how to arrange these matters. Over the past years, in some districts, the quantity and quality verification functions have been put with the hospital supervisory team. In the latter instances, separate teams carry out these functions. A similar arrangement has also been introduced in the Burundi national PBF system (Fritsche, 2010).

The health facility management generates a monthly ‘provisory invoice’ for its services. A separate invoice is created for the basic health service package (PMA) and for the HIV services. These invoices contain the reported quantity performance for its PBF indicators/services. They are signed by the health center in-charge, by the president and two other members of the health center management committee, and by the district verifier – if she finds that the data are correct.

Figure 3: Monthly Provisory Invoice Extracted from the web-enabled application

REPUBLICQUE DU RWANDA					
 PROVINCE DU NORD DISTRICT DE GICUMBI					
FACTURE MENSUELLE PROVISOIRE PMA					
FORMATION SANITAIRE : CS MANYAGIRO			PERIODE : Juillet 2010		
No	Indicateur	Quantité	Validation	Tarif Unitaire	Montant FRW
1	CPC : Nouveaux cas	1,283	1,283	45	57,735
2	CPN: Nombre de femmes enceintes ayant reçu la MII lors de leur première visite	5	5	180	900
3	CPN : Femmes avec 4 visites	7	7	1,500	10,500
4	CPN : VAT 2 - 5	34	34	225	7,650
5	CPoN: Nombre de nouveaux cas en consultation postnatale endéans 10 jours après l'accouchement	0	0	2,000	0
6	PF : Nouvelle utilisatrice	88	88	900	79,200
7	PF : Utilisatrice en fin du mois	1,227	1,227	90	110,430
8	Vaccination : Enfant complètement Vacciné	57	57	450	25,650
9	Accouchement assiste au CS	35	28	3,750	105,000
10	Accouchement : référence d'urgence pour accouchement	0	0	3,750	0
11	References pour malnutrition severe	0	0	1,800	0
12	Références d'urgence	20	20	900	18,000
Montant total = 415,065					
Arrêté la présente Facture Mensuelle Provisoire PMA de la Formation Sanitaire de CS Manyagiro pour le mois de Juillet 2010 à la somme de (415,065 FRW) ; quatre cent quinze mille soixante-cinq Francs Rwandais .					

The correctness of these data is verified in the original registers by a re-count of the services produced. This fairly straightforward method is at the basis of the PBF approach. First, it focuses the attention of all to a limited number of high priority services (in the case of Rwanda in 2010,

22 services). Second, it ensures data accuracy: many people pour over these data; third, data are verified at the source, that is: where they are produced and reported; fourth, data triangulation takes place, which means that the services which are subsidized by PBF are also verified in the HMIS monthly reports, leading to an increase in the reliability of these data throughout the entire health system. The quality checklist also contains a section on routinely reported HMIS indicators, and the functioning of this reporting mechanism is also taken into account when calculating the quality performance.

Correctly and legibly filled in data (when they are not legible they are 'rejected' i.e. not subsidized leading to a very effective way to ensure legible and complete data sets) set up the system for the quarterly counter-verification mechanisms: the registers are used as the sampling frame by the third party to carry out its community client surveys.

The invoices are brought to the district level, and entered in a web-enabled application. Once per quarter, a consolidated quarterly invoice (consolidated meaning a report in which the quantity and quality performance have been joined) is printed from this web-enabled application, and presented for scrutiny, discussion and validation to the District PBF Steering Committee.

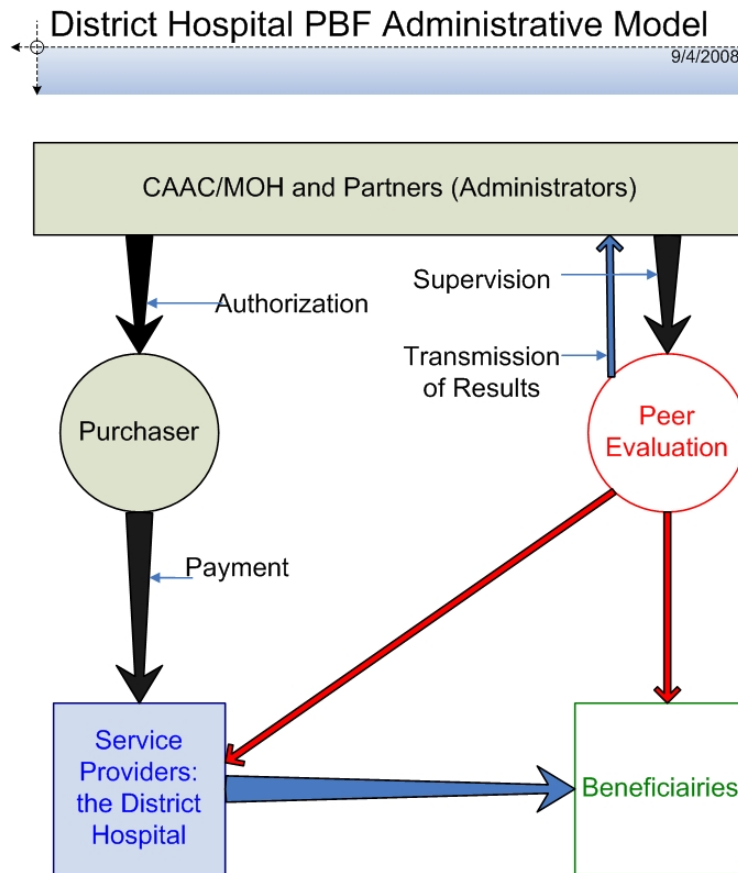
Districts PBF Steering Committee

Facilities report their monthly indicators to the district PBF steering committee responsible for authorizing payment. The committee meets once a quarter and it verifies the reports by sending auditors to the facilities on a quarterly basis on an unannounced randomly chosen day. The auditors review the utilization registry and facility records to verify the data reported is the same as the data recorded in facility records.

The Rwandan Performance-Based Financing Approach for District Hospitals

In July 2006, the design of the new national performance based financing model for district hospitals was finalized. Its implementation started straight after in the 23 phase 0 and 1 district hospitals.

Figure 4: District Hospital PBF Administrative Model



The MoH and partners are the “administrators” of the DH PBF peer evaluation mechanism. After the joint evaluations, an approved invoice is sent to the purchaser to pay for performance.

Source: District Hospital PBF User Manual (MoH, 2009).

The evaluation framework, agreed upon among all stakeholders, has 52 composite indicators, divided among three main areas; administration; quality assurance and clinical activities.¹¹

Evaluations are done through ‘peers’; each hospital is allocated a group of two to three ‘peer hospitals’, which in turn, once per quarter, will peer review its hospitals. Peer review teams consist of the hospital directors, the administrators and the chief nurses from each hospital, or their designated deputies. In addition to participants from the peered hospitals, technical assistants from partner agencies and representatives from the CAAC/MOH also participate.

¹¹ The quantified quality checklist for the hospitals is also reviewed annually. Incremental changes occur each year.

Annual prospective budgets are determined for each hospital. Each quarter a hospital can ‘earn’ 25% of this annual budget if their quarterly quality performance is 100%. Point values are allocated 20% for administration, 30% for quality assurance and 50% for clinical activities. However, for the clinical activities, a national unit value for one point was modeled: this was FRW 7,334. For 2009, this value increased to FRW 8,920. The HIV PBF indicators at the hospital are paid based on the result of this quality performance. This means that for instance if a hospital has a score of 75% that only 75% of the HIV PBF quantity performance of that hospital gets paid.

Notwithstanding impressive quality increases observed in all district hospitals nationwide, during the second half of 2009 it became clear that performance results when counter-verified in some instances showed significant differences with the reported performance. This is an interesting finding, as it shows that even a fairly transparent verification mechanism with different participating individuals and institutions, is subject to ‘conflict of interest’ situations. Currently, the CAAC – the central MOH department mandated to coordinate and steer the PBF approach- is considering with its partners how to improve the reliability of these peer-evaluations. A counter-verification mechanism is being considered (that is: the random counter-verification of the reported performance by a different more objective institution).

Counter-verification of the Quantity and Quality of Reported Services

The Rwandan health center PBF approach has a component of counter-verification of both quantity and quality of reported services.

The quantity counter-verification is done through community client surveys by a third party. The objective of this exercise is to verify whether data that have been verified at the health center level are reliable and accurate and at the same time it serves as an unbiased (because independent) approach to assess satisfaction of clients who used health center services. The gathered information is afterwards communicated in formal meetings to the respective health centers and their district supervisors. As such, these contra-verification visits are incredibly useful and are highly informative (and appreciated by) for both the health care provider and the administrative district team. Client satisfaction is discussed in great detail. Pride is taken when good results are announced as well as punitive actions are undertaken when a health centre

clearly committed fraud or did not function properly. Systematically, less than 5% of clients cannot be traced back in the community. The results of these surveys are published by the CAAC on the public PBF website, and can be accessed through the documentation section.

Two national protocols for counter verification of the quantity and quality of reported services have been established during the period covered by this study. A Rwandan civil society organization, Health Development and Performance (HDP), which has been formed from the team that had originally implemented the 2002-2005 Cyangugu PBF pilot, has been contracted to implement the national community client surveys. The first national quantity counter-verification exercise was carried out during the fourth quarter of 2008, and has been done quarterly since.

The counter-verification of the reported quality performance is coordinated by the ‘extended team’ mechanism.

Financing of PBF

Performance-based financing for health centers in Rwanda is based on case-based reimbursement/fee-for-service conditional on the quality of services. Unit fees/subsidies,¹² for basic primary health care services, vary between FRW 50 to 2,500 (US\$ 0.09 to 4.59), unit fees/subsidies for HIV services are over the whole higher; however, many of these services have a much lower volume (CAAC, 2007).

Payment for performance is based on the quantity of outputs achieved (on a case-based reimbursement basis) conditional on the quality of services rendered. In fact, these payments can be considered ‘incentives’ or ‘bonuses’ or ‘subsidies’ as the system is already paying for the outputs (through various sources such as government, bilateral and multilateral donors, out of pocket expenditures and a variety of health insurance schemes which predominantly pay on a fee-for-service reimbursement basis). The outputs are measured monthly while the quality is measured quarterly through the use of an elaborate supervisory checklist as mentioned above. Health centers staff can increase their performance, and hence their earnings, by increasing the

¹² We frequently use the term ‘subsidies’ to denote that PBF is not financing the full cost of a service, but is meant as a ‘subsidy’ on top of existing funding for this service. In fact, many services have multiple direct input and output financing. For the output financing: a service can carry a gate fee (of an insured client) or an out-of-pocket payment by an uninsured patient. It can get reimbursed through cost-reimbursement by the mutuelle section of the health center, and at the same time carry a subsidy by PBF.

quantity of outputs, increasing the quality of services delivered, or both. When both quantity and quality increase earnings will be highest.

The formula is $Earnings_{HC} = [Total\ Earnings\ through\ the\ Quantity\ production] * Quality\ [0-1]$

In which '*Earnings_{HC}*' is the consolidated quarterly health center invoice (for either basic health service or HIV), '*Quantity*' stands for the quarterly provisory health center invoice (the sum of all indicators, either basic health service indicators or HIV, multiplied with their unit fees), and '*% Quality*' stands for the consolidated score—expressed as a percentage—obtained from the quarterly quality supervisory checklist. Funds are transferred quarterly directly into the health center's bank accounts.

Financing of the district hospital PBF model was through the BTC, USG and GOR's own resources. Modeling for the 2006 and 2007 budgets was done on an approximate budget of USD\$75,000 to 150,000 per hospital per year, depending on the budget available and various agency specific criteria with modeling based on criteria such as (i) number and type of staff present; (ii) number of health centers to be supervised and (iii) actual number of reported clinical activities for 2007. The current prospective annual budgets for 2008 were between \$46,800 and \$297,147 per hospital – depending on the above variables (MoH, 2009).

A very interesting phenomenon is the **internal/quasi market** for performance purchase, which exist for the Rwandan PBF approaches. This is not just an 'internal market' where the government purchases performance from its own, and faith-based institutions; it is also a real market for the purchase of performance by different purchasers/fund holders. For the health centers, the hospitals but also for the community PBF approaches, multiple purchasers pay for performance. Entry and exit on this internal market has been managed and coordinated by the CAAC so far very well. The viability of this health financing solution has been proven by the introduction, as of April 1, 2010, in Burundi of a similar internal market arrangement for PBF (Fritsche, 2010).

PART 2: MATERIALS, METHODS, RESULTS AND DISCUSSION

CHAPTER 3: MATERIALS AND METHODS

3.1 Research design

This study has to be considered as a *formative evaluation*, meaning that the purpose was not accountability of different stakeholders involved in the financing mechanisms of neither their PBF schemes, nor a fundamental research on the effectiveness of PBF, but rather, a programmatic costing study using a retrospective approach to track all expenditures used to implement the PBF approaches in Rwanda.

The study covered four years, from January 2006 to December 2009. Reasons that pushed us to consider this period are mainly the fact that the national PBF model has been approved by the government and has started being implemented in 2006. This was implemented within 23 phase 0 and 1 districts. Starting April 2008 – after the follow up survey of the impact evaluation study had been completed- , the model was scaled up in the remaining 7 districts to cover the whole country. For the sake of highlighting both costs used for the phases 0 &1 and phase 2 , the year 2009 seemed to us a perfect time to observe all costs when the approaches had time to develop and mature and its operational and transaction costs can be accessed from a more steady state point of view.

The study took into consideration all the expenditures done for both phase 0 and 1 and phase 2 districts. During the phase 0&1 period, phase 2 health facilities received on average the same amount of funding as a lump –sum input, as the phase 0&1 facilities had earned through their performance measures. These inputs in the phase 2 district health facilities during the period of the impact evaluation study were similarly taken into account.

The study has restricted itself to the health center and the district hospital PBF models, as the community PBF model, was still being rolled out, and costs were not clear yet by the time we conducted this study. However, it was difficult to disaggregate costs involved in planning, coordination and capacity building for the community PBF model, and such has not been attempted. Quite a bit of 2009 costs taken as ‘transaction costs’ were due to the intense community PBF preparatory and capacity building efforts during 2009.

3.2 Sampling and Sample Size

This study intended to collect two types of data: (1) cost of paying for performance by Government and all partners implementing PBF, and (2) cost of implementing the PBF program.

We collected information countrywide from all possible source of information. There was no need for sample calculation; we collected data from the entire national program.

The PBF indicator payment and running costs were collected for all health facilities (N=467), regardless on the differences between phase 0&1 and phase 2 districts.

Table 4: Number of Health Facilities in Rwanda

Number of Health facilities 2006 2007 2008 2009

Health Centers	344	378	412	428
District Hospitals	35	37	39	39
Total	379	415	451	467

Source: (MoH, 2009)

3.3 Data Collection and Instrument Development

The approach similar to the resource tracking method used for NASA [National Aids Spending Assessment] has been adopted and adjusted for the present study. Two questionnaires were designed, one corresponding to the collection of costing information about PBF indicators payment, and the second for collecting information on PBF transaction costs.

A questionnaire was designed with the following components: Source of fund, Implementing partner, Area disaggregated by province and district, Health facility presented by type (HC or DH) and by name, Phases desegregated in phase 0, phase 1 and phase 2, total payment per trimester of each year covered by the study. Survey respondents were all actors involved in the PBF schemes.

At the central level, information was collected from all the financing agencies based on the list provided by MoH/CAAC of all active partners in PBF from 2006 to 2009. Active partner in PBF was defined as any organization/institution that have purchased for PBF indicators at either HC or DH level or both. The active partners involved in payment of PBF are: MoH/CAAC, MSH, FHI, EGPAF, ICAP, CRS, IHI, GTz, BTC, UGP/Global Fund, Cordaid, HNI-TPO and HDP.

In addition of total disbursement funds for direct output payments, these partners are spending money on administration, human resources, capacity building and training, equipment, transport etc to make the PBF scheme functional and to support continuous development of the scheme.

At the decentralized level, all costs involved in PBF have been collected. These are activities related to the quantity and quality control functions which form the brunt of the PBF M&E system, as well as coordination by the district through the 30 districts PBF steering committees.

The response rate was good: 100% (7 out of 7) financing source; 92 % (13 out of 14) implementing agencies have responded to the questionnaire. The 92% respondent rate from implementing agencies is applicable to 2006 as the partner who did not responded to the questionnaire have stopped his interventions in PBF area in 2006, the responding rate for the following years being 100%. The overall response rate from both financing source and implementing partner was then 99% where $96\% = (100\% + 92\%)/2$ for 2006 and 100% for the remaining years.

Primary data accounted for more than 90% of the data processed. In a minority of cases, secondary data were also consulted. For example, the payment voucher and project evaluation reports for the BTC/CTB project was used because the project was already closed at the time of the survey and it was not possible to administer the questionnaire.

Electronic questionnaires were sent to all partners after a training session on the usage of the template. Data management and analysis was done with both Excel spreadsheet and Stata software version 11 (StataCorp, 2009) and MS Excel pivot tables.

3.4 Data Processing and Analysis

The expenditure data was first captured into MS Excel tables for cleaning, calculations and estimations. At this level, data was verified and in instances where data did not balance a second round of field data verification and triangulation was carried out. Finally, data in the spreadsheets were exported to Stata. The analysis was also done using Excel pivot tables to confirm the results from both methods. It's important to note that the study adopted the "year of program implementation and payments" as the base for the analysis. All the payments and expenses were reported by quarter of each of the 4 years considered for the study (2006- 2009).

Note that during the data collection we realized that some organizations use a different financial calendar than what the government was using during the study period (January to December). In these cases, we took expenditures incurred in the calendar period corresponding to the government fiscal year¹³.

Using Stata, three key steps were undertaken to prepare the data for the final analysis:

1. Data containing the information on the indicators payment from different partner was cleaned and the following variables were created and arranged by year:
 - a. Year of the payment
 - b. Total payments made to health facilities per trimester for indicators payment after conditioning for the quality
 - c. A series of variables each one representing the total amount paid for the payment of indicators by the government and key partners (USG, GF, Belgium cooperation, GTZ)
 - d. Total amount paid for general services (Minimum package)
 - e. Total amount paid for HIV services
2. The second step was the cleaning of the data base containing the administrative cost of the PBF implementation, the following variables were created:
 - a. Year of the payment
 - b. Total amount spend on evaluation by all partner per year

¹³ Note that government fiscal year has been after changed to June to July to harmonize with the Eastern African fiscal year.

- c. Total amount spend on data verification by all partner per year
- d. Total amount spend on coordination by all partner per year
- e. Total amount spend on capacity building by all partner per year
- f. Total amount spent by all partners for PBF implementation
- g. A series of variables each one representing the total amount paid for administrative implementation of PBF by the government and key partners (USG, GF, Belgium cooperation, GTZ)

3. The last step constituted in the merging of the two data bases by “year of implementation”. The merged data base allowed the calculation/ estimation of the following indicators used in the analysis:

Output payment: taking a year as a measurement unit, we calculated the total amount paid per source of fund and implementing partner, per type of health facility where PBF is implemented HD, HC and correctional center –Prisons -, per implementation phase and per type of services purchased. We looked at the amount paid for contracted indicators of the minimum package of services at the health center level (PMA), HIV contracted indicators at both health center and district hospital level, and the complementary package of services (PCA) according to district hospitals PBF model. The total output payment per capita was calculated. The main data source for the health center and prison PBF data was the PBF database, which forms the backbone of the PBF administrative system, and was cross checked with direct observation of payment vouchers from all purchasers. The CAAC/MOH provided information on the district hospital payments.

Input payment: In addition to the source of fund and implementing partner, four categories were defined with their sub-categories as highlighted in table 2. Different activities have been identified for each sub-category and inputs used to implement a specific activity have been reported.

Table 5: Input payment analysis structure

Categories	Sub-categories
Evaluation	Quantity evaluation
	Quality evaluation
	Hospital peer review

Categories	Sub-categories
Capacity building	Technical Assistance (International TA & National TA)
	Trainings
Coordination	National level
	District level
Data verification	Community counter verification

Under the evaluation section, activities reported consist of regular evaluation field visits by the central level (MoH/CAAC and implementing agencies) as well as the quantity evaluation activities by the district administrative team. It is assumed that the quality evaluation activities by district hospitals supervisors are remunerated in the Hospital PBF payments, as the hospital PBF approach includes a rigorous section and tied solid financing for that purpose. However a specific question has been asked to four purposefully selected hospitals (Ruli, Gicumbi, Shyira and Kibagabaga Hospitals) to gather information related to the cost of supervision before and after introduction of PBF in order for us to capture the **incremental cost of supervision** due to PBF.

Human resources and institutions have been available to support supervisory, monitoring and capacity building tasks prior to the introduction of PBF. Also, a wide variety of fragmented capacity building efforts of development partners have been in place for years. The interest to us is to what extent district level staff that had been involved in such activities, had to increase their time commitments to do PBF. This is what we call the ‘incremental cost of supervision’; namely: the cost over and above the costs that had been there all along. Most of these costs consist of human resources, in addition to per diems and cost for transportation.

The capacity building activities consist mainly of salaries to the staff that are directly working on PBF. The Full Time Equivalent (FTE)¹⁴ that can be attributed to PBF related work has been

¹⁴ **Full-time equivalent (FTE)** is a way to measure a worker's involvement in a project, or a student's enrollment at an educational institution. An FTE of 1.0 means that the person is equivalent to a full-time worker, while an FTE of 0.5 signals that the worker is only half-time. Typically, different scales are used to calibrate this number, depending on the type of institution (schools, industry, research) and scope of the report (personnel cost, productivity). Accessed 26 December 2010 on http://en.wikipedia.org/wiki/Full-time_equivalent

estimated from data obtained through key informant interviews in a sample of four purposefully selected hospitals. We chose hospitals in which the Director had been in charge prior to the introduction of PBF, in order for him to make an informed estimation on the exact level and type of additional efforts involved in PBF. We did not include the actual costs involved in this effort, as these were financed through the performance earnings of the hospital. We did this to avoid double counting of these costs. However, we did include the approximate additional FTE necessary for the PBF related activities, as these represent the opportunity cost¹⁵ of PBF for the district.

Table 6: Average annual exchange rate in USD

	2006	2007	2008	2009
Exchange rate (1Frw = --- \$)	551	547	546	568

Source: (BNR, 2009)

All the costs were calculated taking a year as our unit of analysis and it was cross tabled with the total payment. Data were collected in Rwandan francs, but in this research, figures are presented in US dollars. We have used the average exchange rate as per the National Bank of Rwanda.

3.5 Assumptions and missing information estimation

Our assumptions are that the data underlying our cost figures are correct. We have tried to get the best possible data from all stakeholders, which, in some instances was not easy. In some instances we had to make assumptions related to costs as cost data were not provided. In such cases we have used key informants with intricate knowledge of the costs (for instance related to the human resources, the time used and equipment used), and made the best possible estimates. This study is an ingredients costing. It has not used a step-down or bottom-up costing methodology as this was beside the purpose of this study. It would have made our study also very expensive. Our approach was to be ‘approximately right’ instead of ‘precisely wrong’. Our

¹⁵ **Opportunity cost** is the cost related to the next-best choice available to someone who has picked among several mutually exclusive choices. It is a key concept in economics. It has been described as expressing "the basic relationship between scarcity and choice." The notion of opportunity cost plays a crucial part in ensuring that scarce resources are used efficiently. Thus, opportunity costs are not restricted to monetary or financial costs: the real cost of output forgone, lost time, pleasure or any other benefit that provides utility should also be considered opportunity costs. Accessed 26 December 2010 on http://en.wikipedia.org/wiki/Opportunity_cost

purpose was to get relatively reliable data, collected through a rigorous set of methods (primary sources; secondary sources and data triangulation), to be useful for policy action and international comparative use. Unfortunately financial information from HealthNet International-TPO was not included in the analysis because unavailable. Nonetheless it's worth noting that, a part for an active role during the national model development, HealthNet has over the years kept supporting the national model through a small secretariat located in the Huye, including one international technical assistant.

3.6 Ethical considerations

The study was authorized by the NURSPH and the Ministry of Health. As the study aimed at tracking financial resources used, the ethical issues that were most of concern was about assuring confidentiality of the information provided. We proceeded by first sending an official letter from the Permanent Secretary of the Ministry of Health, to assure partners of total confidentiality. We explained the general nature of the study and re-assured the confidentiality of data to the head of each institution that we have visited. After getting their approval, interviewed people were told about the confidentiality, and were informed orally that the survey involves sensitive questions like the administration overheads, and they were given information regarding the right to withdraw from the study at anytime without penalty. Participants were also given the opportunity to ask questions. Any consent form have not been signed, it was replaced by the approval of the head of agencies to voluntary participate in the study.

CHAPTER 4: RESULTS AND DISCUSSIONS

4.1 Results

In order to respond to our research objectives the study has been done in three steps: first, the presentation of all costs used to pay for contracted indicators under PBF schemes, secondly, the expenses incurred by all implementing agencies involved in PBF, and thirdly, the global PBF cost taking into account both payment for indicators and expenditure incurred on its behalf. These three steps have allowed us to analyze fiscal capacity to allocate internal resources to the sustainability of PBF. As mentioned in the sampling section, the results presented here cover all Rwandan health centers and district hospitals, both public and faith-based organization managed, during the period from January 2006 to December 2009.

4.1.1 Output Payments

The total Output payments (payment for performance) under the four year PBF scheme amounts to USD \$31,180,451. The amount paid to purchase indicators kept increasing over the years. The total amount spent on indicators increased by 387% from 2006 to 2009, with an annual increase rate of 158%

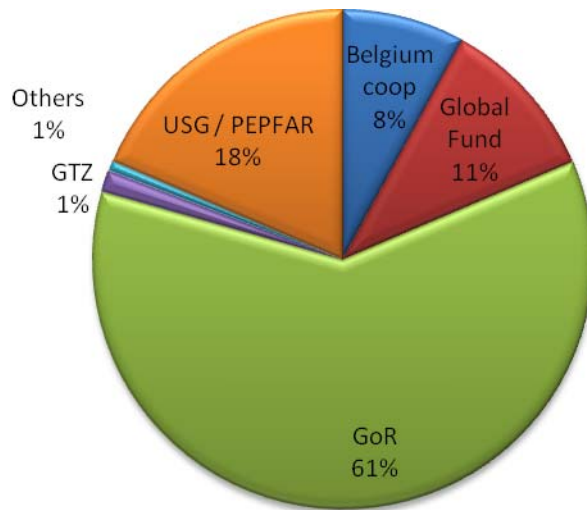
Table 7: Total Output payment per fund holder and per year in USD

Source of funds	2006	2007	2008	2009	Grand Total	%
GoR	3,024,508	3,429,046	5,008,914	7,495,254	18,957,723	60.8%
Belgium coop	156,918	1,256,373	608,393	451,222	2,472,905	8%
Global Fund			940,249	2,382,007	3,322,256	10.6%
GTz			163,438	266,441	429,879	1.4%
Others	153,210	31,887	12,560	12,215	209,871	0.7%
USG / PEPFAR	71,845	1,552,710	1,591,459	2,571,801	5,787,815	18.7
Grand Total	3,406,480	6,270,016	8,325,013	13,178,941	31,180,451	100%

The government of Rwanda has paid for 61% of the total amount used to pay for contracted indicators. The United States Government (USG) via the PEPFAR initiative has paid for 18.7% of the total payments. The Global Fund has paid 10.6%, the Belgium Cooperation 8%, the GTz

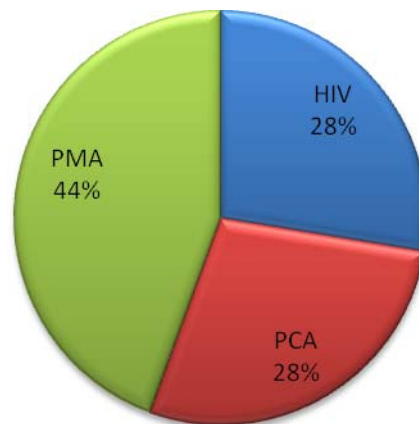
1.4% and others 1%. The others are comprised of the former World Bank project on HIV (MAP project) and Partners in Health.

Figure 5: Indicator payment per source of funds



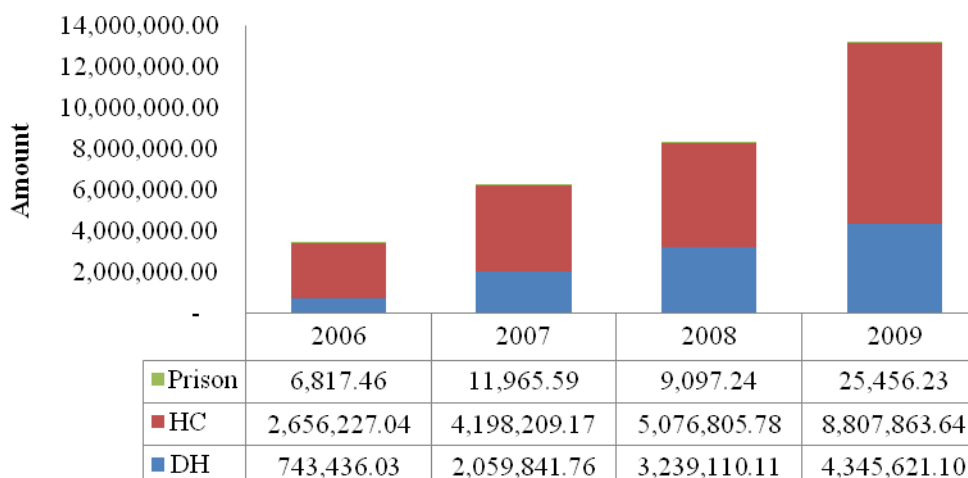
The GoR, the Belgium cooperation and GTz pay for all PMA and PCA indicators. Other partners mainly USG/PEPFAR and Global Fund pay for HIV indicators in the health facilities that they support. In fact the entire HIV PBF bill is paid by PEPFAR and GF. These consist of HIV prevention, treatment and care services such as VCT, PMTCT, ART and OI [Opportunistic Infections], but also STI, and in some instances FP, etc. Again, we need to emphasize here that **HIV payments are made conditional on the quality of care** measured through rigorous quantitative quality checklists, both at the health center and at the hospital levels.

Figure 6: Total payment per type of indicators



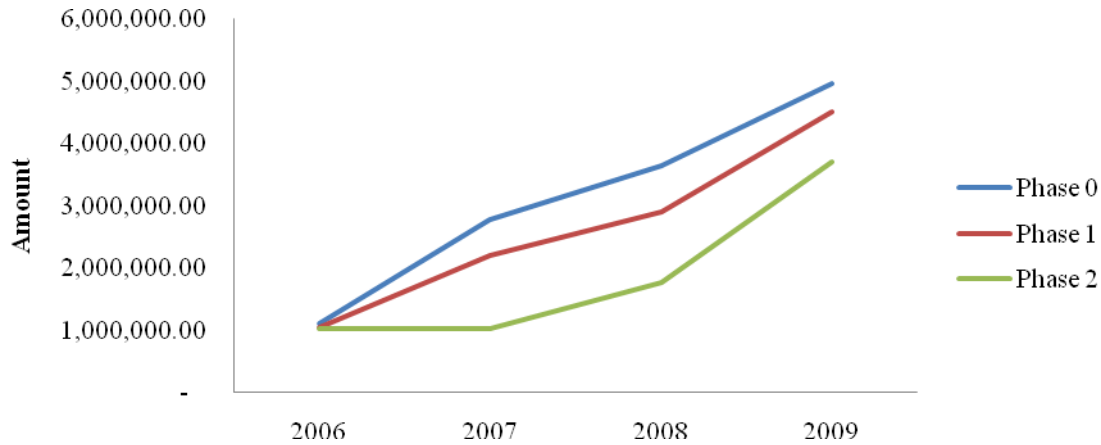
Out of 28% paid for HIV from the total payment, the USG/PEPFAR accounts for 51% and the Global Fund for 43%. The USG/PEPFAR implementing agencies that have paid for PBF indicators are MSH with 35%, ICAP with 32%, FHI with 13%, IHI/HCSP with 8%, and EGPAF with 7% and CRS with 5% of the total HIV PBF indicators.

Figure 7: PBF Output payments per year and type of health facility



Total PMA payments over the four years consist of 66.7% (including 0.2% for prisons) versus 33.3% for hospitals. This is considered good practice: about 2/3 is supposed to go to the lowest levels of the health care echelon.

Figure 8: Output payment per phase

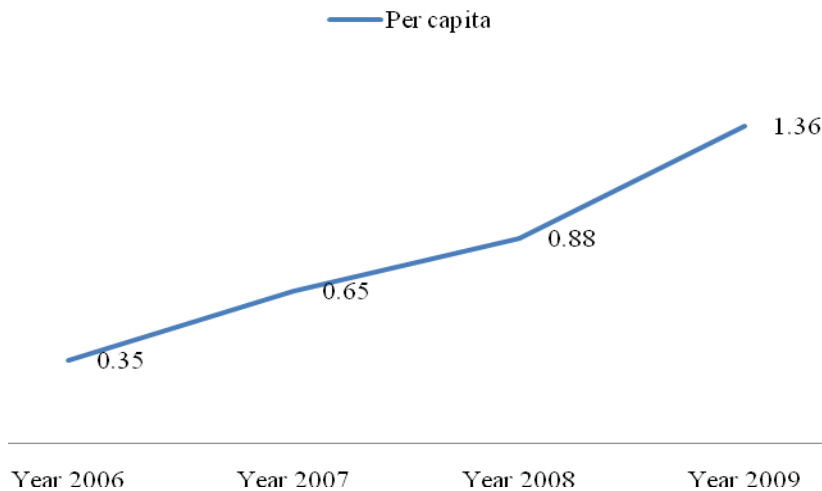


This phenomenon points at the increased investments by health facilities to increase the quantity and quality of services targeted by PBF. Health services, especially those directly related to the indicators contracted for in PBF much improved. However, also the overall quality improved significantly, which in fact covers all services provided by Rwandan health facilities.

Indicator payment cost per capita

Based on the general census data (National Census Services, 2002), the population growth rate have been modeled to the total population end of year 2002, and the total annual payment for PBF contracted indicators have been applied to each year.

Figure 9: Output payment per capita per year in USD



The per capita payment for PBF contracted indicators kept increasing. The annual average increase is US\$ 0, 34 per capita. This situation reflects an increase in the quantity and quality of indicators contracted for. Whilst the unit subsidies for PBF indicators/services were kept more or less constant, with a tendency to decrease the overall number of indicators purchased (at the health center level from a high of 30 in 2006 to a current 22), the quality measure kept changing.

This can be compared to a situation whereby to get the same amount of money, health facilities have to considerably keep on increasing and responding to changing quality norms and standards. The fact that they have been able to do so, is shown by increasing PBF payments over these four years.

4.1.2 PBF Transaction Cost

The total amount spent to design, implement, maintain and continuously develop the various PBF approaches in Rwanda from January 2006 to December 2009 amounts to 9,404,805 USD. Although our focus was health centers and first level referral hospitals, during these four years, especially during 2008-2009 considerable efforts were dispensed to design and implement the central MOH PBF approach, and the community PBF approach. This was done through the same PBF coordination and implementation mechanisms that had been created for the introduction of the health center and hospital PBF approaches (the CAAC/MOH and the extended team mechanism).

Table 8: Total PBF transaction cost per source of funds per year in USD

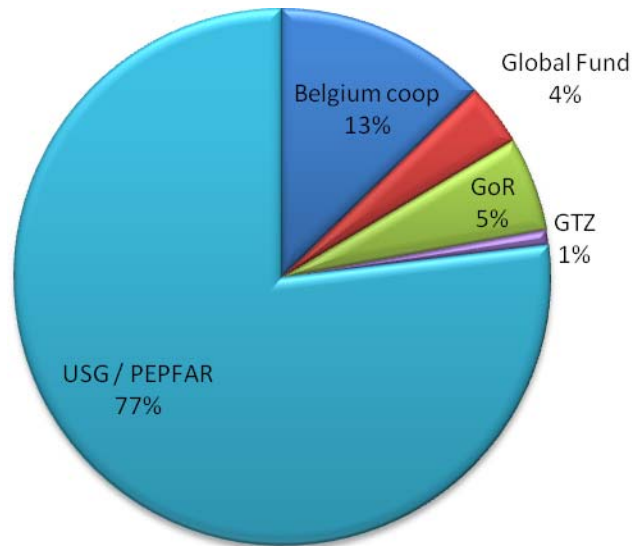
Source of fund	2006	2007	2008	2009	Grand Total	%
GoR		190,217	165,779	179,489	535,485	5.7%
Belgium coop	519,003	324,422	278,560	75,756	1,197,741	12.7%
Global Fund			22,044	329,492	351,535	3.7%
GTZ		7,568	35,354	40,638	83,560	0.8%
USG / PEPFAR	750,132	1,615,352	2,752,189	2,118,810	7,236,483	77%
Grand Total	1,269,135	2,137,560	3,253,925	2,744,185	9,404,805	100%

The central PBF support team in the Ministry of Health, the CAAC, consisted of a team of civil servants supported by national and international technical assistance and administrative staff financed by the BTC. An implementation oriented coordination mechanism called the extended team (*équipe élargie*), was created in June 2007. It consisted of three MOH departments and eight development partner technical agencies, in total about 40 technical staff. The latter mechanism played a key role in the coordination and implementation mechanism through which support to the district PBF systems was organized.

An increase of 70% of the total amount spent has been observed from 2006 to 2007, and 52% from 2007 to 2008. However, 2009 spending decreased by 16% compared to 2008. The latter decrease could be due to the combined effect of a changed quality checklist, both at the HC and the DH level, which pushed the barrier for performance higher combined with a decrease in international TA during 2009.

We should note that 94% of the PBF transaction costs have been financed through external and predominantly bilateral resources.

Figure 10: PBF transaction cost per source of funds



Among the 77% of USG/PEPFAR spending on running PBF scheme, MSH accounts for 79%, EGPAF for 18% and FHI, ICAP, IHI/HCSP, CRS, and HDP varies between 1% to 3% (HDP was sub-contracted by MSH for the counter-verification).

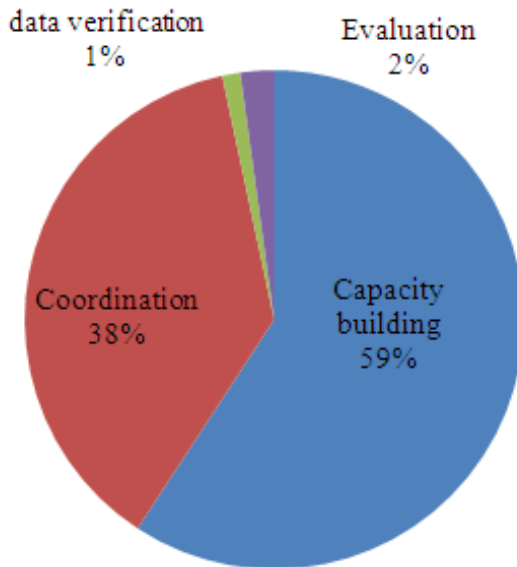
Looking at the USG/PEPFAR resources, one might be tempted to conclude that the USG spent USD1.25 for each dollar it paid for PBF performance.¹⁶ However, such a conclusion would not fly with the integrated manner in which the USG financed the PBF scaling-up in Rwanda. In fact, one can argue that the GOR used wisely funding sources available; USG/PEPFAR for technical assistance, and others for paying for the Outputs, in a holistic and system strengthening manner.

Also although the international assistance was crucial for Rwanda to implement PBF approach, the spending on the international TA was outside of the control of the government. One can argue that if the government has to manage those funds, it will have been less expensive to pay for international TA mainly due to the indirect and transaction cost that USG agencies charges for each dollar spent on program implementation. Also the salary of the international experts is most of the time disproportionately high compared to local prices. This study provides the actual costs

¹⁶ USD 5,878,815 Output payments and USD 7,236,483 for Transaction cost; for a total expenditure of USD 13M, 56% was used for transaction cost

of implementing PBF, but one could be tempted to estimate a “realistic cost of implementing and scaling up a PBF approach”. But again, the law of demand and supply will still determine the cost of international TA.

Figure 11: PBF transaction cost: spending per category



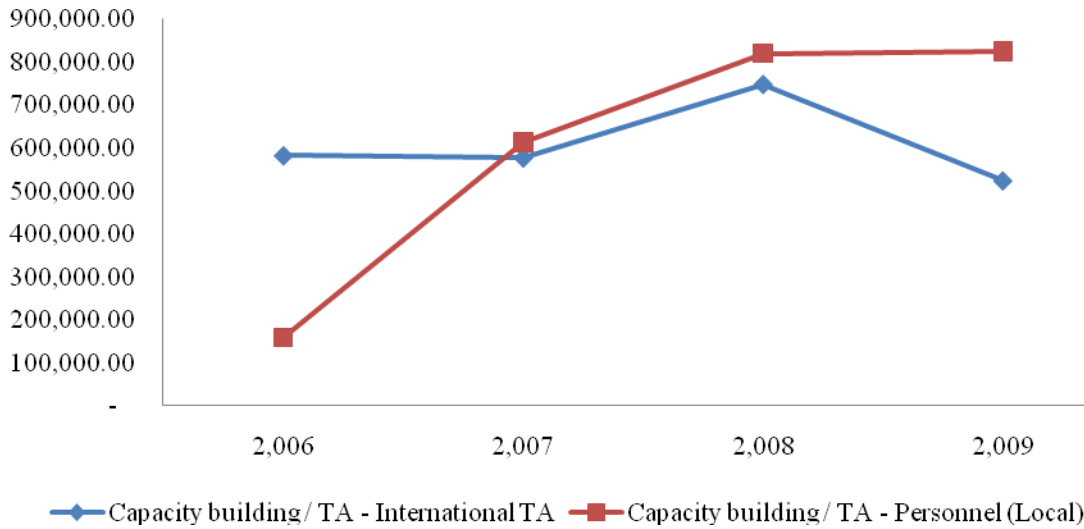
Capacity building

Capacity building has been an important component in designing, implementing and continuously improving the Rwandan PBF approaches. Two types of capacity building were identified: technical assistance (TA) representing 92% of the total capacity building spending, and training which represent 8%.

One element of capacity building was the capacity transfer. That this was done successfully is shown by the fact that various technicians, notably local technicians, have moved on and have become, on their turn, international consultants in PBF projects in other countries. The Burundian PBF approach, the scaling up which was achieved in April 2010, was achieved with significant input from Rwandan PBF experts (design PBF manual; training of trainers; snow-bal training; web-enabled application; extended team mechanism concept etc) (Fritsche, 2010).

The technical assistance was on its side desegregated in two types: the international TA and national TA represented by “personnel local” in the chart below.

Figure 12: International versus National Technical Assistance per year in USD



The international technical assistance was very important in 2006, first year implementation of the PBF national model, and 2008, first year of the national roll out plan where phases 2 districts started to implement the PBF scheme. Activities reported underneath international TA are the international experts working in PBF implementing agencies that have the strengthening of PBF model in their job description, and targeted consultancies on the development of certain aspects of the PBF approaches such as notably the web-enabled database and PBF website. Agencies that reported such activities were predominantly MSH and also BTC.

Spending on national TA was less compared to international TA in beginning of the implementation phase, but it kept increasing over the years to the extent that it became greater than the international TA in 2009. This was due to three major causes: (1) many institutions involved in PBF had not yet started implement it in 2006, two large specialized agencies were involved at that time namely MSH and CTB; (2) withdraw of the international TA in terms of reduced number of consultancies as the system was gradually established; (3) increase of the number of national staff from implementing agencies who gradually got involved in PBF. These include both technical staff working at headquarters of agencies at Kigali, and so-called PBF focal points (these are national technical assistants for the overall majority from donor technical agencies and civil society, members of the extended team) appointed in districts.

Coordination

Coordination was defined in two types: national and district level coordination representing respectively 63% and 37% of the total coordination spending. Coordination by the national level is done through different types of activities including staff of MoH/CAAC who are the stewards of the entire system, and coordination meetings which are mainly of two kinds: quarterly national PBF TWG meetings and monthly technical meetings of extended team. The former was a common coordination mechanism during 2006, however, during 2007 and beyond these were very infrequent and most coordination and technical work was done through the extended team mechanism.

Over the total spending on coordination at national level overheads accounts for 40%, and workshops for 39% whilst human resources from MoH/CAAC accounts for 21%. The coordination meetings and maintenance of the PBF database have a very slight proportion not reaching 1%.

Coordination by districts is mainly composed of meetings of the District PBF Steering Committees and operating costs of PBF focal points placed by implementing agencies in different districts to support district teams.

Data evaluation

Cost related to a comprehensive data evaluation considers all the three data evaluation types namely: quantity evaluation, quality evaluation and district hospitals peer review.

The 2% cost presented above reflects the regular supervision visits from the central level to the health facilities for either district hospitals peer review or health centers quantity evaluation. These were done by the administrative district team as well as the BPF focal points from different agencies. The 2% does not include the quality evaluation cost by district hospitals.

According to the hospital PBF model as implemented in Rwanda,¹⁷ among other aspect to evaluate, district hospitals are evaluated with regard to their role of formative supervision to health centers into their catchment areas. Based on the quantity and quality of supervision done, hospitals are paid a proportional amount, generally corresponding to 20% of the total amount

¹⁷ Cfr the section of literature review on the national Performance-based financing model for District Hospitals

they deserve after the hospital peer evaluation exercise – if this element was done to 100% satisfaction. This means that the quality evaluation related expenditures were captured under the payment of district hospital, as presented in the previous section.

However, when looking at what supervision cost to district hospitals before introduction of PBF and after, we realized that these have increased by on average 51%, taking the year 2005 and 2008 as points of measurements (2005 as the baseline; i.e. prior to PBF introduction).

This situation is due to the increase of the number of supervision visits which became intense with the introduction of PBF, as well as the increase of number of supervisors who, in most of the cases passed from 2 supervisors to 8.

Here, we can safely assume that qualified existing or recruited hospital staffs, most notably medical doctors, were used for much intensified supervisory activities. We can talk about the increased FTE related to this much enhanced supervisory activity induced by PBF. However, when we step back and take a macro-view, we have to make the following comments: first, supervisory activities were typically paid for through multiple sources (GOR; bilateral and multilateral agencies, PBF etc) in a fragmented manner, without each funding sources necessarily having an idea on the level of involvement of the other. Frequently, hospital directors had a stake in not exposing too clearly this overlap in funding for similar activities, leading in some cases to an inefficient planning and utilization of input funding. Second, we can assume that hospital management redirected productive resources and targeted these at supervisory health activities as they were held accountable for these through their performance frameworks. This holistic approach by PBF lifts a veil on the complex systemic interventions caused by PBF, and is a departure from linear causal reasoning. PBF truly is a systemic approach (Savigny, 2009).

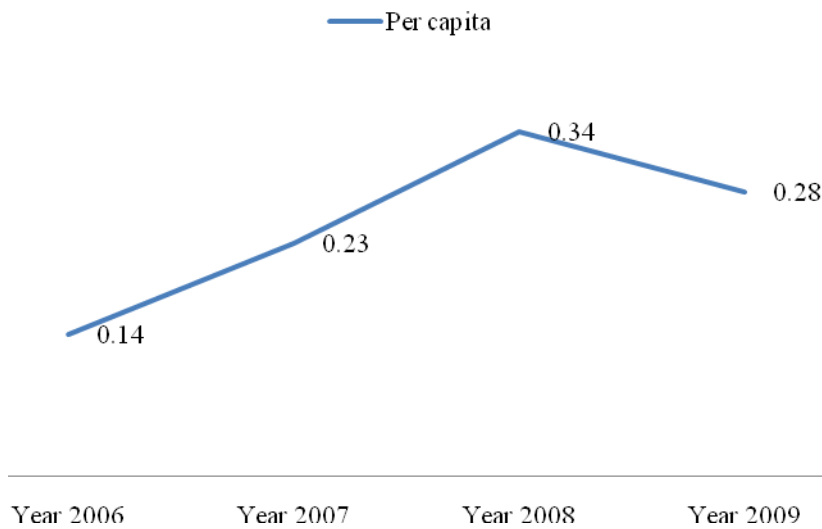
Data counter-verification

There have been multiple community client satisfaction surveys during the period covered by our study. These were community client surveys, financed by USG/PEPFAR via MSH with HDP implemented the activity. Its total cost represents 1% of the total spending on PBF administration cost. The quality counter-verification at the health center level (these were not yet introduced during 2009 for the hospital PBF approach) were done through the extended team mechanism, and its costs are part and parcel of the central level coordination and capacity building costs.

PBF running cost per capita

Using the third general census data (National Census Services, 2002) the PBF running cost per capita were calculated. The table below shows the per capita spending per year.

Figure 13: PBF transaction cost per capita per year in USD



Transaction Cost to run the national PBF approaches increased from 2006 to 2008, and started decreasing in 2009.

4.1.3 Total Cost

The total Output payments and transaction costs to run these PBF approaches from January 2006-December 2009 in Rwanda cost **USD\$ 40,076,107**.

Table 9: PBF total cost per year in USD

	Output Payment (Output)	Transaction Cost (Input)	Grand Total Cost	Ratio Input/total (in percentage)	Cost Transfer Ratio (Input/output)
2006	3,406,481	1,269,135	4,450,560	29%	0,37
2007	6,270,017	2,137,560	8,135,031	26%	0,34
2008	8,325,013	3,253,925	11,567,390	28%	0,39
2009	13,178,941	2,744,185	15,923,125	17%	0,21
Grand Total	31,180,452	9,404,805	40,076,107	23%	0,30

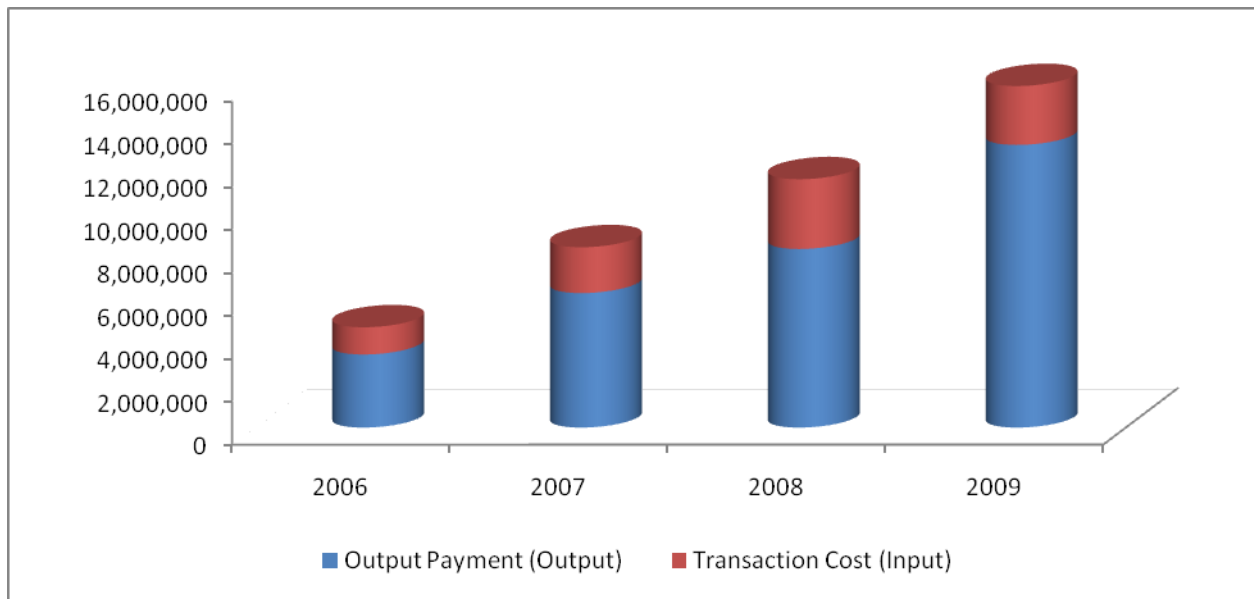
We have used the input/total ratio as a simple way to look at the proportion of the total cost of PBF that was devoted to the implementation of PBF. The overall input/total ratio indicates that the cost of the planning and implementation of the Rwanda PBF model needed on average 23% of the overall resources spent for PBF during the 4 years considered by the study. The proportion was higher in the first years of implementing PBF especially in 2006 where 29% of the total budget has been spent on transaction cost. This is the year when the 23 phase 0 and 1 districts started to implement the new PBF approaches and it still a high 28 % in 2008 when 7 remaining districts of phase 2 started. It is notable that in 2009, the fourth year of implementation, this ratio has come down to 17%. Said differently in 2009, out of \$ US1 spent on PBF, \$0.17 paid for transaction cost and the remaining 83% pay for the actual performance.

To put these cost figures in perspective we will provide a comparison with an existing health financing arrangement in Rwanda. These PBF transaction costs are about the same as the transaction costs for the first risk pool of the Rwandan community based health insurance scheme. The costs of running a Health Mutual Organization in each Rwandan health center, to

collect \$1.77 per person per year contribution, and which is used to manage the administration and to pay providers using a cost-reimbursement mechanism carries about the same percentage transaction cost.¹⁸

However, the cost transfer ratio (CTR), obtained in appreciating the level of input required to achieve output, indicates that it cost Rwanda US\$ 0,30 to push one US\$ through PBF. The cost transfer of 2006 and 2008 have been higher than those other years, certainly because of the in the initiation of the national model in 2006 and the introduction of phase2 district in 2008, as we already observed this situation previous section. The 2009 data are significant, as it reflects a gradual decrease of these CTR to reasonable levels.

Figure 14: Output versus input payment of PBF schemes

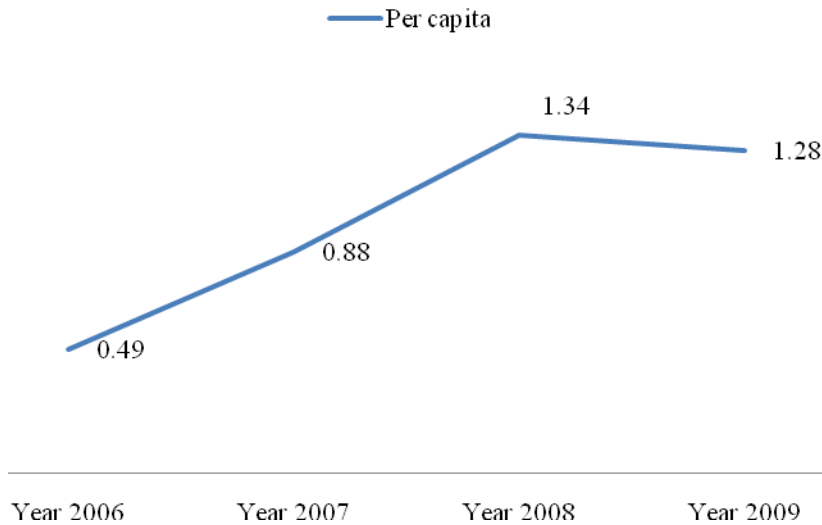


¹⁸ Data drawn from the CBHI web-enabled database www.cbhirwanda.org.rw; health insurance coverage estimated at about 85-90% of the Rwandan population. These CBHI transaction costs exclude the costs of the district and national risk pools, which are unknown - as these are not captured by this database. They also exclude the extremely bulky group of foreign agencies, DPs, implementing partners and multilateral agencies involved in CBHI. The lowest risk pool, the one covering the health centers and their catchment populations is the one which is compared with the PBF system. This HMO structure is entirely decentralized and staffed on average by two full-time locally employed administrative staff paid the local – lowly - market rate.

Total cost per capita

The total PBF costs per capita taking into account both payment for performance and PBF transaction cost increased from USD\$ 0.49 per capita in 2006 to USD\$1,34 in 2008, and decreased slightly to US\$1,28 in 2009.

Figure 11: Global PBF expenditure per capita per year in USD\$



The observed decrease is due to the decrease in PBF transaction cost, which also started decreasing during 2009.

4.2 Discussion

As highlighted in the literature review section, it is often underlined that implementing and managing PBF can result in a high level of additional costs, including transaction cost. By consequence, it has been argued that the cost of the PBF arrangements can be too high for the countries to sustain after withdrawal of external support.

Discussions of results under this chapter will be guided by the philosophy of sustaining the system, and this in all the cases will bring us to compare national budget to external finances.

A particular point of attention here is the innovative manner in which the GOR, in using an internal/quasi market for the purchase of performance, has succeeded in capturing a significant amount of bilateral off-budget funding.

This way of approaching the issue will allow us to reach our fourth objective that aims at analyzing fiscal capacity to allocate internal resources to the sustainability of PBF.

PBF Output payment

Results have shown that the Government of Rwanda takes the lead in performance payment with a proportion of 61% of the total budget. The GOR has also been able to capture GF funds for HIV performance payments, which are administered through the CAAC/MOH. Furthermore, the CAAC/MOH has gained sufficient credibility with its PBF administrative system to attract a direct contract through the ICAP (which manages PEPFAR monies through CDC). The CAAC/MOH is paying for performance in Global Fund managed health facilities, too.

In addition, the CAAC/MOH is a true steward for the PBF approaches in Rwanda, and personifies the national ownership of these approaches. These are significant achievements.

HIV PBF indicators are externally financed. They are purchased by either USG/PEPFAR funds or Global Fund money. The same applies for the HIV national response in general whereby the National AIDS Spending Assessment (NASA) exercise conducted in 2009 indicated that the GoR expenditure in HIV response varied between 5% and 6% from respectively 2006 to 2008. (CNLS, 2010).

Also, when we look at the Total Health Expenditure (THE), though the percentage of the total GOR budget allocated to health has increased from 8.2% to 9.1%, from 2003 to 2006 which translates to a rise of per capita government health expenditure from US\$6 to US\$11; the government expenditures still remains low. The GOR expenses in 2006 were US\$6.3 per capita representing 19% of THE, whilst donor participation reached US\$ 17.7 per capita (53% of THE), and private expenditures US\$9.4 per capita (28% of THE) (MOH, 2008).

According to the GoR finance law, the share of the public budget allocated to the health sector (including that for ministries other than the MOH) should reach 11.4% in 2007, which is still well below the 15% Abuja agreement. Allocation of the health sector domestic budget has likely been focused on the development and strengthening of health sector institutional capacities including development of Human Resources; strengthening of health infrastructure; ensuring quality of health care services and availing medicines, vaccines and medical consumables. HIV related activities have always been externally financed.

This situation does not assure sustainability of HIV services under PBF schemes, whilst the National Strategic Plan for HIV and AIDS (2009-2012) promotes PBF as a motivational scheme to improve quality of HIV AIDS care services. The health systems strengthening framework and consolidated strategic plan 2009-2012 (HSSF/CSP) recognizes the high levels of external financing and the insufficient internal resource mobilization as the major implementation gaps that the health sector is facing when implementing the 2009 health financing policy.

However, this study provides evidence that, although the GoR proportional allocation to the health sector and to PBF is still relatively less than that of other sources, PBF expenditures in paying for contracted indicators are increasing. This is good news. There has been a gradual increase of the per capita PBF expenditure in paying for contracted indicators (which came from a low of US\$ 0,35 per capita in 2006 to US\$1,36 per capita in 2009). The HSSF/CSP says that the total funds transferred amounted US\$1.73 per capita of which US\$ 0.88 was for health centers, US\$0.58 for hospitals, and US\$0.27 for community health.

In removing the community health PBF¹⁹, the total transferred amount remains \$1,46 per capita, which doesn't significantly differ from \$1,36 of the real expenditure provided by this study. The \$ 0,10 per capita difference may due to the budget execution which have not been of 100%.

Also, analysis of the amount paid to districts in different phases provides evidence that the earlier you start PBF the more you earn money. When referring to some other results that showed that Rwandan PBF model produces incredible results in both quantity and quality of health care services, the present study confirms that the money follows the same way. It is a model to sustain as far as it allows reaching the health goals as outlined in Rwanda's second national Health Sector Strategic Plan (HSSP-II).

Based on the \$0,34 per capita annual increase of paying for PBF contracted indicator, the target of increasing the PBF funds to \$2.90 per capita in 2012 as mentioned in the EDPRS 2008-2012, when keeping the same rhythm, this target will only be reached in 4,5 years from 2009, meaning mid 2013. To reach this commitment, it will require the minimum annual average increase of \$0,52 per capita.

¹⁹ This study has not taken into consideration the community PBF Output Payments, however, it has included the transaction costs for this approach

An important future avenue for the GOR would be to explore the internal market mechanism more. The amount of funding available at the macro level for vertical disease control programs is enormous. This amount will likely remain that way as bilateral and multilateral agencies have made international commitments to sustain the efforts to target vertical diseases, whilst they have acknowledged the importance of health system strengthening activities.

The allocative efficiency of available monies at the macro level could be much enhanced, if it were to be used through PBF. The financing mechanism has been created, and the system is ready to receive more Output budget. Such an increase in Output budget will decrease significantly the current % of funds used for transaction costs. There are tremendous economies of scale to be had for PBF too.

PBF can get you more health for fewer resources (and certainly more health for the same amount of resources).

PBF Transaction cost (Input payment)

The present study is the first that provides information about the transaction cost of a scaled-up PBF approach. Our discussions will refer to the guidance provided by the GOR as highlighted in the Aid policy and the manual for the mobilization; negotiation and management of external assistance. (MINECOFIN, 2009)

Findings of this study showed that GOR contributed 5% to the transaction cost of the various PBF approaches. This raises again the issue of the high levels of external financing.

Technical Assistance has been an important aspect in implementing PBF scheme. As highlighted in the Rwanda Aid policy, all TA provided to the Government of Rwanda must be concerned primarily with the transfer of capacity to the government by building the skills and capabilities of local staff and/or developing systems and procedures in an accessible manner for use by local staff (Rwanda, 2006).

International TA in the context of PBF has respected these as an ultimate objective. Figure 12 shows a decreasing trend of the money spent on international TA whilst the national TA is gradually increasing. The high amount spent on international TA in 2006 and 2008 is explained

by the fact that PBF started in 2006 and later in 2008 the phases2 districts started implement PBF as well. So, when implementing a new model requiring expertise that is not available in the country, it is acceptable that international TA become more important than local TA, what matters is the capacity transfer from international to local staff. The PBF national model was designed and implemented under high quality international standards and its monitoring and coordination system has been established with the international TA support, and now, the entire system is managed by Rwandans. Considering that spending on administration of PBF starts decreasing in 2009, as shown in table 13 and figure 9, this study finds support for the assertion that the national PBF model is progressively being sustained.

Input/total ratio and cost transfer ratio

The Government of Rwanda recommends that that the administration cost to implement a program should not exceed 5% of the total budget (MINECOFIN, 2009). In Rwandan PBF the transaction cost, which included administrative costs, represent 1/5th of the total expenses incurred through PBF. However, the CTR indicate a much higher cost reaching US\$ 0,30 for one US\$ spent for PBF in total. In all the cases, the tendency for both transaction cost and CTR is reducing: it came down from 29% in 2006 to 17% in 2009, for transaction cost; and from the highest CTR in 2008 of 0,39 to US\$ 0,21 in 2009, with a potential to decrease even more if the Output budget were to be increased.

Here we need to emphasize the difference between administrative costs, transaction cost and transfer cost. The transaction cost incurred for PBF included all the costs to make the system tick. These costs have been incurred to do effective health system strengthening, in a holistic manner., these were obtained in appreciating the level of input over all the PBF costs, transaction costs inclusive; whilst the transfer cost consider input over the output, transaction costs not included in the denominator. In fact, this study demonstrates the costs for doing so: on average 23% over four years have been for transaction cost of the total PBF cost, and 30% for transfer cost.

To do effective PBF has a cost. This cost is between 20-40% in PBF pilot programs (Toonen, 2009), (Soeters, 2006), (Soeters, 2011). Compared to PBF pilot programs run by non-governmental organizations, the Rwandan PBF approach, a contracting-in approach, is being

done for 17% of the expenses, with potential for further significant economies of scale. This is not bad at all.

The health policy expressed the concern about the subsidy from donors which appears inefficient with large amounts going to overheads and a lack of clarity on its management. Indeed, the management of the PBF transaction cost is not clear with regard to agencies overheads, but it is very clear with regard to the capacity building, coordination and monitoring the system, as structures and mechanisms are in place to follow it up.²⁰ Also, our study has shed some light in this darkness by exposing the real figures.

4.3 Conclusions and Recommendations

4.3.1 General Conclusion

According to all Rwandan health sector guiding documents, from the health sector strategic plan 2009-2012 (HSSP II), the health financial policy and the health systems strengthening framework, and the National strategic plan on HIV and AIDS (NSP 2009-2012), PBF is recognized as a key strategy for the health financing reforms that are being implemented in Rwanda.

While the GOR Aid policy is highlighting the high and inefficient use of available resources, this study provides accurate and comprehensive information on the real cost of scaling up PBF approaches, and has presented the general trend that can be used to inform policy makers on how implementing PBF costs.

Our analysis revealed that, yes, transaction cost have been important in the early stages of the design and implementation, and are still relatively important compared to what the GOR is recommending for classical input programs, but that a clear trend shows that transaction cost of the Rwandan PBF model are getting significantly lower whilst the trend for output payment is increasing. Thus, health facilities are receiving more of the available PBF budget as the system matures.

²⁰ Cfr literature review section on the framework of evaluation and monitoring

Our analysis also points at **economies of scale**: increasing the Output budget allocations will significantly decrease the proportional cost for delivering PBF. There is clear fiscal space for increasing the PBF output budget, looking at the amount of foreign funding available for Rwanda's health sector. PBF is a much more efficient proposition for the GOR and donors, as it finances health services at the level where the most cost-effective services are produced: at the community, the health center and at the first level referral hospital levels.

4.3.2 Recommendations

A number of lessons are apparent from results of this study which have important policy implications.

First, the Output payments are increasing. This can be taken as a sign of confidence in the PBF system, and it also shows the important economies of scale that can be had by using this financing method. We recommend to MoH and MINECOFIN to observe the minimum annual average increase of \$ 0,52 per capita in order to reach the EDPRS target of US\$ 2,90 per capita. In comparison: the Burundi national PBF approach which was started in April 2010 uses a combined budget of \$3.55 per capita per year (Fritsche, 2010).

Second, the health sector is benefiting from relatively high levels of external aid, and so, the proportional allocation of domestic budget to PBF is still low. This applies for both payment of HIV indicators and administration of PBF. We recommend to the MoH and MINECOFIN to re-assess the internal revenue collection strategies that may include but are not limited to taxation, social insurance contributions and private insurance premiums, etc, in order to generate more domestic revenue, and therefore allocate an increased share of GOR budget to the health sector. Investing in Health has known macroeconomic benefits (Sachs, 2001). Development partners would also need to be nudged to spend more of their resources in the Rwandan PBF approaches. The GOR would be to explore the internal market mechanism more in considering the allocative efficiency of available monies at the macro level for vertical disease control programs that could be much enhanced, if they were to be used through PBF. The financing mechanism has been created, and the system can be ready to receive more Output budget. This will decrease transaction cost.

Third, a comparison of amount spent on international versus national TA proved us that investment in national TA is getting much higher than international TA. Whilst this is a good thing and exemplifies the current high level of capacity transfer taking place, we need to acknowledge also that national capacity is being drained to the benefit of other countries where PBF approaches are designed and implemented. In Africa, it is estimated that by July 2010, 22 countries were in various stages of designing and implementing PBF approaches (Meessen,

2011). We recommend to MoH to sustain the capacity transfer approach from both international to national and amongst national staff, with a view to continuously sustaining and improving the Rwandan PBF approaches.

And last but not least, the CAAC should put in place a systematic way of collecting PBF administration related cost information from all implementing agencies, and avail them to the public for future use, as they are already perfectly doing it for indicator payments information. Collecting administration cost of PBF was such a challenging part of our study, that we are willing to avail our database to MoH/CAAC for them to adjust and make it a routine data collection tool.

A note to policy makers from other countries: when implementing a national PBF approach, the Rwandan experience shows that it requires an average of **around 20% of the total budget** as input for technical assistance to effectively put in place and running the program. The per capita cost (cfr figure 13) of these transaction costs could increase over the years up to when the system matures. In the case of Rwanda it took three years to get the system matured, the capacity building transfer, from international to national staff being a determinant element. However, the first phases of implementation require a much higher transaction cost and transfer cost, which in the case of Rwanda has been around **30%**. This was due to the fairly low Output budgets, too. Also, more importantly, when implementing PBF in settings of a resource limited country, it is recommended to maximize domestic revenue injection into output payment, but also think about a realistic way of conducting business in an integrated and joint approach.

4.5 Limitations of our Study and Directions for Future Research

There are a number of limitations to this study. It was a retrospective study covering four years. Though it tempted to collect information from all possible sources of information, it may have suffered from a variety of biases. For instance recall bias from key informants, lack of access to information, due to data archiving which is not always obvious.

Recommendations for further research may include (1) a specific cost effectiveness study, to judge on the effectiveness and efficiency of the PBF approaches. (2) A more detailed forecasting model would inform more accurately on the exact resources needed to sustain the program. This

would have information on necessary reallocation to undertake from the total health budget in order to equitably use available resources. Finally, (3) a deep analysis on supervision cost before and during PBF would more shed light on the incremental cost due to PBF and therefore layout proper strategies to manage efficiently supervisions. We might want to start experimenting with random sampling strategies for verifying performance.

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Appendices

Annex 1: PBF Output Payments per district and per year in USD

Province/District	2006	2007	2008	2009	Grand Total
East	753,434.08	1,374,000.55	1,581,209.84	2,599,911.82	6,308,556.29
Bugesera	174,474.80	308,774.52	297,998.75	349,335.24	1,130,583.32
Gatsibo	76,908.25	295,298.35	295,723.11	347,760.01	1,015,689.72
Kayonza	109,160.33	131,781.39	218,323.93	443,711.78	902,977.43
Kirehe	74,677.54	114,254.49	144,699.98	346,569.11	680,201.12
Ngoma	116,115.24	115,585.72	253,721.50	380,419.85	865,842.30
Nyagatare	122,892.28	119,133.29	215,031.16	514,306.10	971,362.82
Rwamagana	79,205.64	289,172.79	155,711.41	217,809.73	741,899.57
MVK	207,761.88	692,453.79	883,443.49	1,255,972.56	3,039,631.72
Gasabo	67,656.14	359,722.98	525,836.11	604,864.99	1,558,080.22
Kicukiro	67,177.46	91,337.20	127,800.35	193,242.30	479,557.30
Nyarugenge	72,928.28	241,393.61	229,807.04	457,865.27	1,001,994.19
North	721,032.00	1,273,920.35	1,558,173.13	2,181,885.04	5,735,010.53
Burera	116,951.58	139,404.94	216,313.10	325,081.20	797,750.82
Gakenke	164,472.76	369,363.05	285,095.36	381,927.52	1,200,858.69
Gicumbi	186,104.74	321,091.56	415,119.03	506,601.11	1,428,916.44
Musanze	139,003.51	112,798.24	284,723.44	576,237.23	1,112,762.42
Rulindo	114,499.42	331,262.56	356,922.20	392,038.00	1,194,722.17
South	767,026.75	1,480,108.00	1,926,871.49	2,946,615.72	7,120,621.96
Gisagara	70,523.00	175,559.70	249,483.28	389,146.24	884,712.22
Huye	74,319.88	223,165.39	347,628.18	464,559.66	1,109,673.11
Kamonyi	109,587.72	106,531.65	160,315.18	304,765.22	681,199.77
Muhanga	124,084.91	314,651.88	338,878.16	465,744.53	1,243,359.48
Nyamagabe	163,007.02	146,807.45	191,564.13	362,816.34	864,194.94
Nyanza	70,735.55	171,761.37	227,343.95	353,306.40	823,147.27
Nyaruguru	54,912.44	123,849.96	198,098.68	272,788.22	649,649.30
Ruhango	99,856.23	217,780.59	213,559.92	333,489.11	864,685.86
West	957,225.82	1,449,533.84	2,375,315.18	4,194,555.83	8,976,630.68
Karongi	189,928.42	166,411.42	354,649.59	712,441.13	1,423,430.56
Ngororero	43,842.83	134,345.51	259,589.38	523,318.11	961,095.82
Nyabihu	111,978.25	123,578.78	196,566.05	439,187.63	871,310.71
Nyamasheke	202,102.88	363,343.57	527,617.93	739,013.52	1,832,077.89
Rubavu	121,079.65	158,037.02	292,434.84	622,183.81	1,193,735.32
Rusizi	192,136.40	314,260.24	448,726.81	568,646.22	1,523,769.67
Rutsiro	96,157.40	189,557.30	295,730.58	589,765.43	1,171,210.71
Grand Total	3,406,480.53	6,270,016.53	8,325,013.12	13,178,940.98	31,180,451.17

Annex 2: PBF transaction cost per sub-category and per year in USD

Row Labels	2,006	2,007	2,008	2,009	Grand Total
Capacity building	773,458.36	1,246,718.98	1,662,744.14	1,574,664.49	5,257,585.98
Capacity building / TA	740,901.58	1,190,640.23	1,568,108.90	1,350,125.08	4,849,775.79
Capacity building / Training	32,556.78	56,078.75	94,635.24	224,539.41	407,810.18
Coordination	488,925.03	850,369.95	1,509,465.36	983,218.65	3,831,978.98
Coordination/District		441,150.77	574,373.18	587,562.88	1,603,086.82
Coordination/National	488,925.03	409,219.18	935,092.18	395,655.77	2,228,892.16
data verification			24,361.32	85,804.93	110,166.25
Community counter verification			24,361.32	85,804.93	110,166.25
Evaluation	6,751.42	40,471.23	57,354.58	100,496.60	205,073.82
Hospital peer review	6,573.56	19,129.16	22,660.23	57,253.42	105,616.37
Quality evaluation		603.29	4,642.86	6,021.13	11,267.27
Quantity evaluation	177.86	20,738.78	30,051.50	37,222.04	88,190.18
Grand Total	1,269,134.81	2,137,560.15	3,253,925.40	2,744,184.67	9,404,805.03

Annex 3: PBF cost per capita per year

Year	2006	2007	2008	2009
Population	9,030,157	9,261,180	9,492,203	9,723,226
Per capita running cost (Input)	0.14	0.23	0.34	0.28
Per Capita for paying indicators (output)	0.35	0.65	0.88	1.36
Total PBF per capita	0.49	0.88	1.34	1.28
Ratio input / Total	29%	26%	28%	17%

Annex 4: List of persons consulted during this study

Institution	Name	Occupation
MoH	- Dr Agnes BINAGWAHO - Fidel KARANGWA - Regis HITIMANA - Esperance NDEGA	- Permanent Secretary - Director of Finance and Administration - Planning and M&E officer - Personal Assistant to the Permanent Secretary
MoH/CAAC	- Dr Rusa Louis - Dr Joseph NTIBIRINGIRWA - Michel MUTUNGWA - Nadine KAMPIRE	- Coordinator and expert in PBF - Planning and M&E officer - PBF Supervisor - Account of GF/Round 7 into CAAC
CEPEX	- Charles KALINDA	- Program coordinator, in charge of UN agencies
CTB/BTC	- Dr. Willy JANSEEN	- Co-Director/PAPSDSK
MSH	- Dr Katy Kantengwa - Dr Cedric NDIZEYE - Augustine GATETE - David Randolph Wilson - Therese KUNDA - Alex Hakuzimana	- Chief of Party - Senior Advisor/Performance-Based Health Financing Systems - Finance manager - Senior Advisor/Health Management Information Systems - Community Based Health Insurance (CBHI) Coordinator - Leadership and Management Specialist
ICAP	- Dr Ruben SAHABO - GAHONGAYIRE Aline - Venant IYAMUREMYE - UDAHEMUKA	- Country Director - Director of Finances and Administration - Sub-contract Officer
IHI/HCSP	- GATANA Jean	- District and Capacity Building Team Leader
HDP	- Christian HABINEZA	- Managing Director
PMU/Global Fund	- Dr Daniel NGAMIJE - Patrice MWITENDE - Dr KITOKO MBUGUJE	- Coordinator - Director of planning and M&E - Program manager of PBF and Health System Strengthening
FHI	- Alexie MUKAMUJYENZI - Mathias MUREKEZI	- Associate Director, Administration - Technical Officer, health system strengthening
EGPAF	- Francois NGIRINSHUTI	- Associate Director for Operations
CRS	- Josephine MUKAMUGANGA	- Prevention & integration Coordinator
GTZ / Santé	- Anja FISCHER	- Technical Advisor Health Financing
Ruli District Hospital	- Dr NGIRABEGA Jean de Dieu	- Director
Kibagabaga Hospital	- NTIZIMIRA Christian	- Director
Gicumbi Hospital	- Dr MUKAMA Diocles	- Former Director of Gicumbi Hospital

Cost Analysis of PBF in Rwanda

Institution	Name	Occupation
		and actual director of Ngarama Hospital
Shyira Hosptal	- Ambroise	- Chief supervisor and M&E
Key Informants	- Rigobert MPENDWANZI	- World Bank consultant in Burundi and former PBF manager at CAAC
	- Dr SEKABARAGA Claude	- World Bank regional office and former director of UPDC at MoH
	- Dr Gyuri FRITSCHÉ	- Former MSH HIV/PBF Project Technical Director and current Sr Health Specialist for the World Bank, Washington DC

Annex 5: Recommendation for data collection

REPUBLIQUE OF RWANDA



MINISTRY OF HEALTH
B.P : 84 KIGALI

Kigali, on 07 JUN 2010

N° 20/ /PS/2010

1571

TO WHOM IT MAY CONCERN

From: Dr Agnes BINAGWAHO
Permanent Secretary
Ministry of Health



Through: Dr RUSA Louis
CAAC Coordinator de la
Ministry of Health

To:

- Director of District Hospitals (All)
- Head of the following agencies: MSH, FHI, EGPAF, ICAP, UGP/GF, GTz, CTB, HDP, IHI, CRS, HNI TPO

RE: Authorization for data collection

Dear All,

I am hereby, attesting that Mme UWIMPUHWE Sidonie, graduate in Masters in Public Health at NUR/SPH, is conducting a study on “*Cost analysis of PBF scheme in Rwanda*”

Given that this study is of a very big importance in the implementation and sustainability of PBF scheme, I am requesting you to facilitate her collect all information needed, in guarantying you a full and professional secrecy.

Yours Sincerely.