Evaluation of the financial support of Gavi, the Vaccine Alliance, for health system strengthening in Cameroon

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List of acronyms

DHS	Demographic Health Survey
DR	Document review
DTP3	Diphtheria, tetanus, pertussis 3RD dose
EPI	Expanded Program on Immunization
FA	Financial analysis
FV	Field visits
Gavi	GAVI, the Vaccine Alliance
HD	Health District
HS	Health System
HSS	Health System Strengthening
IHC	Integrated Health Center
KI	Key informant
KII	Key Informants Interviews
MICS	Multiple Indicators Cluster Survey
MinSanté	Ministry of Public Health
SAE	Small Area Estimates
VC	Vaccine coverage
WHO	World Health Organization

Summary

Mandate

The financial support of Gavi, the Vaccine Alliance (Gavi), for Health System Strengthening (HSS) in Cameroon was originally planned for the period of 2007-2012 but has not yet come to its end. No formal evaluation has been conducted to assess the process and outcomes of this HSS support. For this reason, Gavi called for the assessment of this support in June 2015. This assessment is sponsored by Gavi and the Ministry of Public Health (MinSanté) of Cameroon. It aims to measure **the relevance, effectiveness, efficiency, and results of HSS in Cameroon**.

Methodology

We used mixed methodology to conduct this evaluation following a concurrent strategy of triangulation of qualitative and quantitative data.

Key results

Planning, design, and implementation

1. The first HSS application in 2006, aligned with the sectoral strategy of health, was developed quickly to meet the HSS window, leading to a poorly designed program.
2. The decision to award the management of HSS to the Technical Secretariat responsible for piloting the sectoral strategy combined with the lack of supervision and the lack of clear guidance from Gavi on the program's implementation and financial management led to inconsistent implementation and a deviation from the planned budget.
3. A series of investigations and assessments showed irregularities in expenditures which led Gavi to suspend HSS.
4. Despite the implementation issues, a culture of planning and coordination started in Cameroon, a culture which was missing until 2007 and to which HSS has contributed greatly.
5. In the absence of a clear link between HSS activities and immunization, we cannot designate the effect of the activities implemented during this period on the Expanded Program on Immunization (EPI) or vaccine coverage.
6. Non-compliance with the original plan led to a waste of resources invested in the investigation of the deviations and then in the reprogramming of HSS.
7. Recognition of mistakes by the country along with a subsequent commitment to repay the ineligible expenditures led to the resolution of the conflict.
8. The reprogramming of HSS was made in consultation with health partners, including all levels of the health system, and with direct involvement of Gavi.
9. The activities were better articulated, but the plan and objectives did not appear to take into account the actual capacity of the country for implementation.
10. The decision to designate the World Health Organization (WHO) for financial management of HSS was timely and helped to avoid a long delay, saving time the country would have needed to develop its own system for the financial management of HSS.
11. The indicators chosen in reprogramming are primarily indicators of implementation and not results, which constitute a strong point of the proposal.
12. The emphasis of activities related to management and governance, such as the development of financial management manuals and training of accountants, relate directly to lessons learned from the first period.

13. The role played by WHO at the program level helped to reinforce the accounting system, helping adhere to the original HSS budget and creating a culture of accountability at MinSanté.
14. However, the internal procedures at WHO caused a delay in the implementation of activities, thus limiting the effectiveness of its role.
15. A confusion of roles between MinSanté and WHO at the level of governance led to tension that has affected relations between the two partners.
16. The late implementation of planned activities is acceptable given the difficult context that surrounded the program (delay in the HSS process, delay in the appointment of the HSS team at MinSanté, the polio epidemic, the WHO embargo, and reduced efficiency due to program management costs).
17. Implementation was almost identical in priority and non-priority health districts.
18. The delay in the provision of funds and ineffective planning delayed activities, especially at the peripheral level. Almost no HSS activity took place during the first half of 2014.

Efficiency

19. From a financial point of view, the reprogrammed HSS expenditures have been managed in accordance with the budget so far.
20. The efficiency of HSS is reduced because of the high cost of managing the program and the investment in activities that do not correspond to the six areas of the health care system.

Results

21. With a level of implementation of activities at 50%, the intermediate results were achieved at 50%, while 80% of the budget had already been used by July 2015.
22. On the other hand, we note a remarkable growth in vaccine coverage and a decline in under-5 mortality, approaching the Millennium Development Goal.
23. The implementation of activities is almost identical in the priority districts and elsewhere, reflecting no additional benefit in the management of these priority districts, which have always had higher coverage.
24. With the delay observed in the involvement of representatives of organizations of civil society, links with the community are still growing.

Sustainability

25. The sustainability of the gains is conditional based on the availability of funding and the continuation of the culture of accountability. In September 2015, the financial management manuals had still not been finalized.

Key recommendations

For the country

Recommendations concerning the new application: design

1. Involve all partners and levels of the health system in the design of HSS, identify key stakeholders, and define their roles early through the design of HSS.
    a. Identify the objectives of all partners responsible for the implementation of activities with measurable indicators and in line with a clear plan.
2. The HSS application should present a realistic plan that takes into account the process of submission, approval and disbursement of funds.
3. Differentiate the HSS application areas/activities that should be financed by the HSS from those that should be financed by other funding streams or partners.
4. The selection of activities should take account of the efficiency, sustainability and catalytic role of HSS.

5. For activities meant for overall strengthening of the health system, it is essential to consider areas where investment could be more sustainable and which would strengthen the system as a whole. Attention could be shifted from 1) management and governance, human resources, and health information, to 2) logistics, health services, and medical products.
    a. Specifically for generating the next application, given the late start of related activities and the lack of clear results at this stage, it would be in best interest to reconsider the extent that this area should occupy in HSS II.
    b. Given the weakness of the cold chain for vaccines in Cameroon, it would be desirable that this domain gets more attention.
    c. We recommend that Cameroon invest more in its health information system.
6. In case the country decides to prioritize health districts for HSS II, it is recommended to consider 2014 vaccine coverage estimates for these districts.

Recommendations concerning the new application: management and implementation

7. Mechanisms of fund management must be communicated before the disbursement of funds.
8. It is up to MinSanté to decide whether WHO should continue in this role, or remain in its role as a partner providing technical assistance.
9. Given our results on the implementation of activities and the increase in vaccine coverage, we cannot recommend the continuity in the assignment of the priority districts to partners in the current configuration.
10. We encourage that the principle of indicators of activities or outputs, and the system of meetings and bulletins, be established to monitor the reprogrammed HSS.

Recommendations for Gavi

1. We recommend that Gavi be represented during the development of HSS applications, in order to contribute to the discussion of choosing HSS activities and/or health system areas to target.
2. Gavi and the partners involved should assist countries in reflecting the catalytic role of HSS in their applications.
3. Gavi should ensure that the country knows the procedures to be followed in the financial management and implementation of HSS.
4. During the implementation, it is important to strengthen frameworks for ongoing dialogue between Gavi and the country in order to ensure better monitoring of HSS.

Chapter I: Introduction

Justification of the evaluation

In 2006, recognizing the importance of a strong health care system for the improvement of vaccine coverage (VC), the government of Cameroon requested the support of Gavi, the Vaccine Alliance (Gavi), for Health System Strengthening (HSS). The first HSS proposal was approved for a period of five years, starting in 2007[1]. However, the program was suspended in 2010 for two years. After that, Cameroon benefited at the end of 2013 due to a reallocation of Gavi's HSS funds to the Expanded Program on Immunization (EPI)[2].

In the context of the activities contained in the HSS proposal, Cameroon's Ministry of Public Health (MinSanté) and Gavi agreed to **evaluate the relevance, effectiveness, efficiency, and the results of Gavi's HSS support in Cameroon. This evaluation assesses the achievement of the objectives formulated in the country's proposal and its contribution to the improvement of the health system (HS). In addition, it examines the influence of the social and political context in the country on the implementation of activities and its impact on the achievement of the objectives. Finally, this evaluation identifies the strengths and difficulties encountered and their causes in order to propose improvements to the design and implementation of HSS II.** Thus, the results of this evaluation should enable Cameroon, Gavi, and various national and international partners to learn from the HSS experience and to improve on future support programs.

Health system in Cameroon

The Cameroonian HS has a pyramid structure (Figure 1) of three levels, with administrative structures, health facilities, and dialogue structures with specific functions [3,4].

- The central level, responsible for the development of national policies, health norms, and standards and regulations, includes the central services of MinSanté, general hospitals, the University Hospital, and central hospitals.
- The intermediate level, in charge of technical support, includes Regional Delegations of Public Health and regional hospitals.
- The peripheral level, or Health District (HD), includes the District Health Services, districts and related hospitals, District Medical Centers, and Integrated Health Centers (IHC) in the health areas. It is the operational level of integrated implementation of health programs.

The EPI lies in the Directorate of Disease Prevention, one of the seven directorates of MinSanté. The essential mission of the EPI is to provide technical support to the Regional Delegations of Public Health for the implementation of the national policy of vaccination in the whole country. Currently, the EPI offers vaccination to prevent morbidity and mortality linked to at least eight diseases: tuberculosis, polio, tetanus, whooping cough, hepatitis B, diphtheria, measles, and yellow fever.

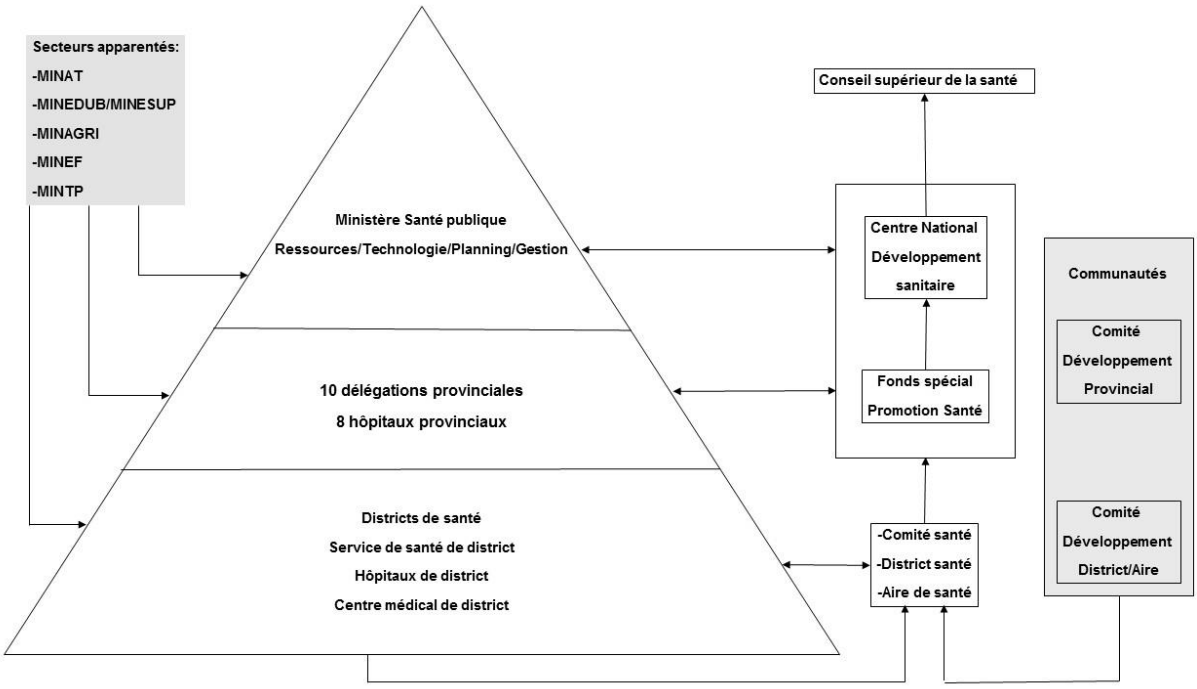

Figure 1: National Health System, Cameroon. Source: MinSanté, 1999

In Cameroon, the cornerstone of the HS is the HD. It is the first line of access to care. Based on primary health care, the HD is a relatively autonomous element of the national health system. It consists of a population that is administratively and geographically well-defined and clearly delimited (urban / rural). It includes all the necessary elements and all those who offer or seek health care (health professionals, communities, non-governmental organizations, families, and individuals). It encompasses personal care initiative, all staff, and all the equipment and services involved (medical analysis laboratories, pharmacies of hospitals, district, etc.). As of 2015, there were 189 HDs in Cameroon. As the operational arm of the primary care unit, the HDs' mission is to provide care characterized by continuity (care and follow up of patients), integration (preventive, promotional, and curative care), and inclusiveness (support of cultural, social, psychological, and economic aspects).

Description of Gavi's support for Health System Strengthening in Cameroon

Since 2001, Cameroon has benefited from Gavi's support of immunization services, and from 2003 to 2005 benefited from Gavi's support for the safety of injections, as well as the introduction of new vaccines in the EPI. This includes support for the yellow fever vaccine in 2004 and the viral hepatitis B vaccine with the tetravalent form (DTPHepB) in 2005 [1]. Such support from Gavi contributed to both qualitative and quantitative improvement of performance. The national DPT3 coverage increased from 43% in 2001 to 79.7% in 2005. The number of HDs having a VC greater than 80% was constantly on the rise. Moreover, the percentage of HDs with DTO3 dropout rate higher than 10% decreased from 62% in 2002 to 35% in 2005, and the rate of vaccines' wastage was in control in all districts of the country[1].

Given this perspective, the country intended to continue to improve performance. Hence, in the EPI's complete multiyear plan for 2007-2011, Cameroon intended to achieve a rate of national VC of 90% in 2011 with at least 80% by Antigen in each district, to continue the introduction of new vaccines in the EPI (vaccines against Hib infections in 2008 and Rotavirus infection in 2011). However, this growth became stagnant at some point, leading Cameroon to conduct comprehensive review of the EPI for the period 2001-2005. In June 2006, at the end of this exercise, the weak points of the EPI had been identified and recommendations for solving the problems proposed. Cameroon took advantage of Gavi's HSS to ask for this support in order to enable the servicing of HD and sustain the previous gains. The strengthening of the health system was imperative. Solicited support was expected to contribute mainly to planning, supervision, monitoring, and coordination at different levels[1].

The request for HSS support was sent in October 2006 and the support provided in August 2007. Activities were programmed for the period 2007-2012 and targeted all HD for a total amount of $US 9,846,000. Table 1 presents the activities, outputs, outcomes, and impact of the proposed HSS in 2006[1].

Table 1: Activities, outputs, outcomes and impact proposed in HSS, 2006

Activities	Outputs	Results	Impact 2011
Develop an annual integrated and budgeted plan	The HD managers systematically develop integrated and budgeted annual action plans	100% of the HD (33% in 2005) have developed an integrated and budgeted annual action plan	DTP3 coverage: 90.0% (79.7% in 2005)
Strengthen the integrated supervision of HD and health zones	The HD have mastered management procedures	100% (33% in 2005) of the HD have mastered management procedures	DTP3 coverage > 80% in 100% of HD
Improve the coordination of health activities in each HD	Health activities are coordinated effectively in the HD	Health activities are effectively coordinated in 100% (33% in 2005) of the HD	Wastage rate < 10% in 100% of HD (16.4% in 2005)
Develop integrated monitoring at the HD	The integrated supervisory activities are reinforced in the HD	The integrated supervisory activities are strengthened in 100% (33% in 2005) of the HD	Mortality due to measles reduced by 90%
Carry-on the EPI/ASCD activities in the HD			Morbidity due to measles reduced by 96%

However, the first disbursements took place in October 2007 [5]. The funds were blocked by Gavi in 2011 as a result of management problems, while $US 4,453,690 have yet to be disbursed[6]. After negotiations with Gavi, the reprogramming was authorized for the period 2013-2014[7]. It was during this reprogramming that activities were oriented towards the EPI in the fields of generation of demand for immunization services by the population, the increase in the supply of immunization services, and improvement of leadership and governance. Table 2 presents the areas, objectives, and cost of reprogrammed HSS in 2013.

Table 2: Areas, objectives, and cost of reprogrammed HSS, 2013

Domains of HSS	Specific objectives, July 2014	Cost in $US (%)
Demand generation for immunization services	The community is involved in routine immunization in 100% of the health zones and HD	842,593 (19%)
Provision of immunization services	100% of the HD reach ≥80% coverage Implement regular supervision in 60% of the HD At least 50% of health zones have two registered nurses Increase the budget of the EPI by at least 25% 80% of health zones and 100% of HD have a functional cold chain and vaccines available for each child	2,537,676 (56%)
Governance and performance	Improve the management, coordination and governance in 100% of the Regional Delegations of Public Health and 80% of HD 100% of the HD and health zones have integrated data collection tools, and computers and power	1,123,315 (25%)

We developed both a theory of change (Figure 2), and a logic model (Figure 3) based on the original proposal and the reprogramming of funds. One of the major specificities of the theory of change for Cameroon is the allocation of the financial management of HSS to the World Health Organization (WHO) following the reprogramming of 2013.

While the theory of change is a general representation of the various components of the program, the logic model represents the specific details pertaining to the inputs, activities, outputs, and results of the planned HSS. The inputs are human, financial, and physical resources dedicated to the realization of HSS. Activities are the strategies that the program uses, with inputs to produce outputs, thus achieving the desired objectives. The outputs are the direct results of activities or HSS implementation. These are the productivity indicators and early indicators of results. These are also the benchmarks, or measures of achievement, of the objectives of HSS. This logic model is based on the request of reprogramming of 2013. It allows a precise vision of the points to be measured and a better selection of methods to be used.

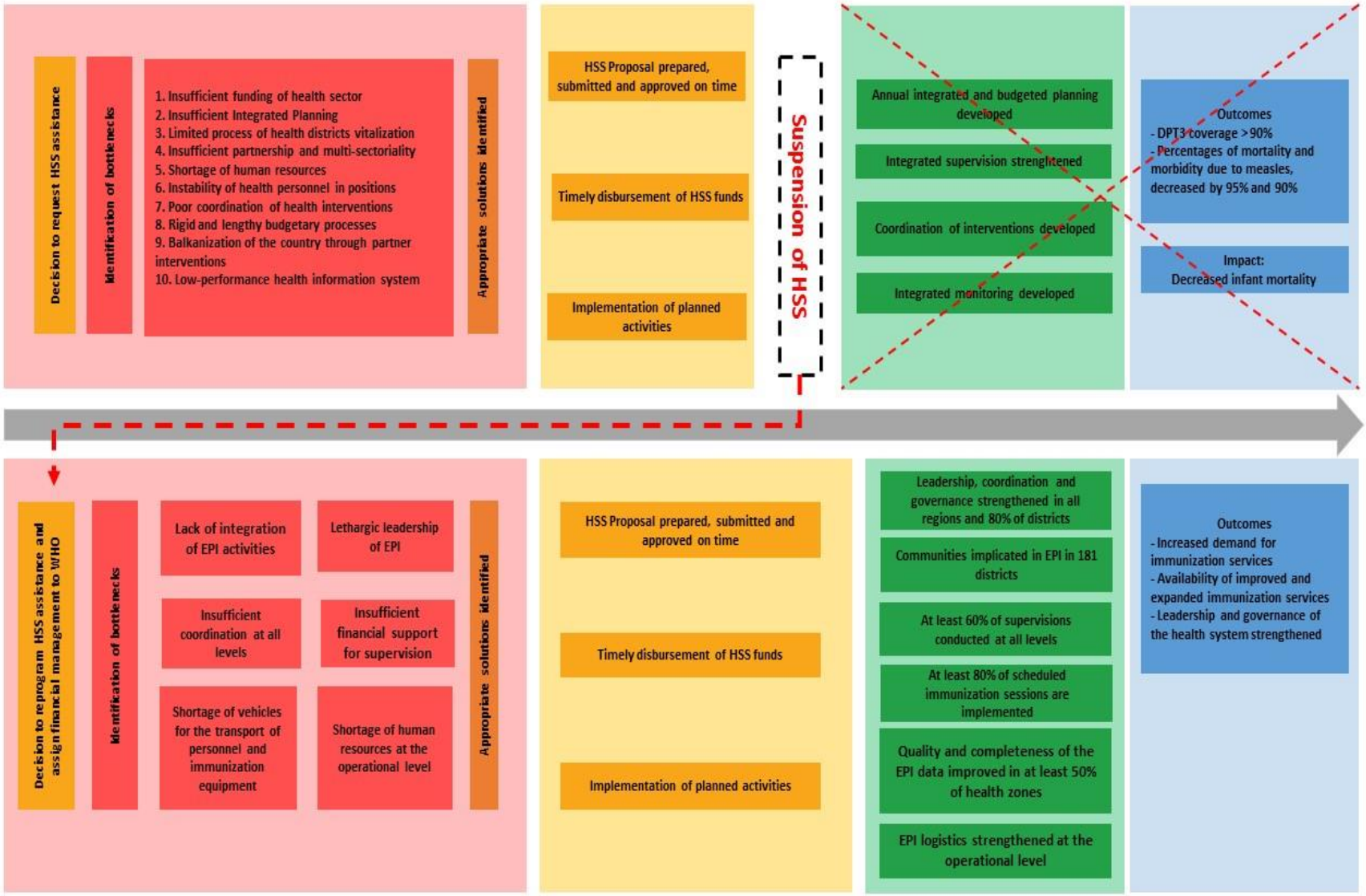

Figure 2: Theory of change built retrospectively and based on the original proposal of 2006 and to the reprogramming of 2013

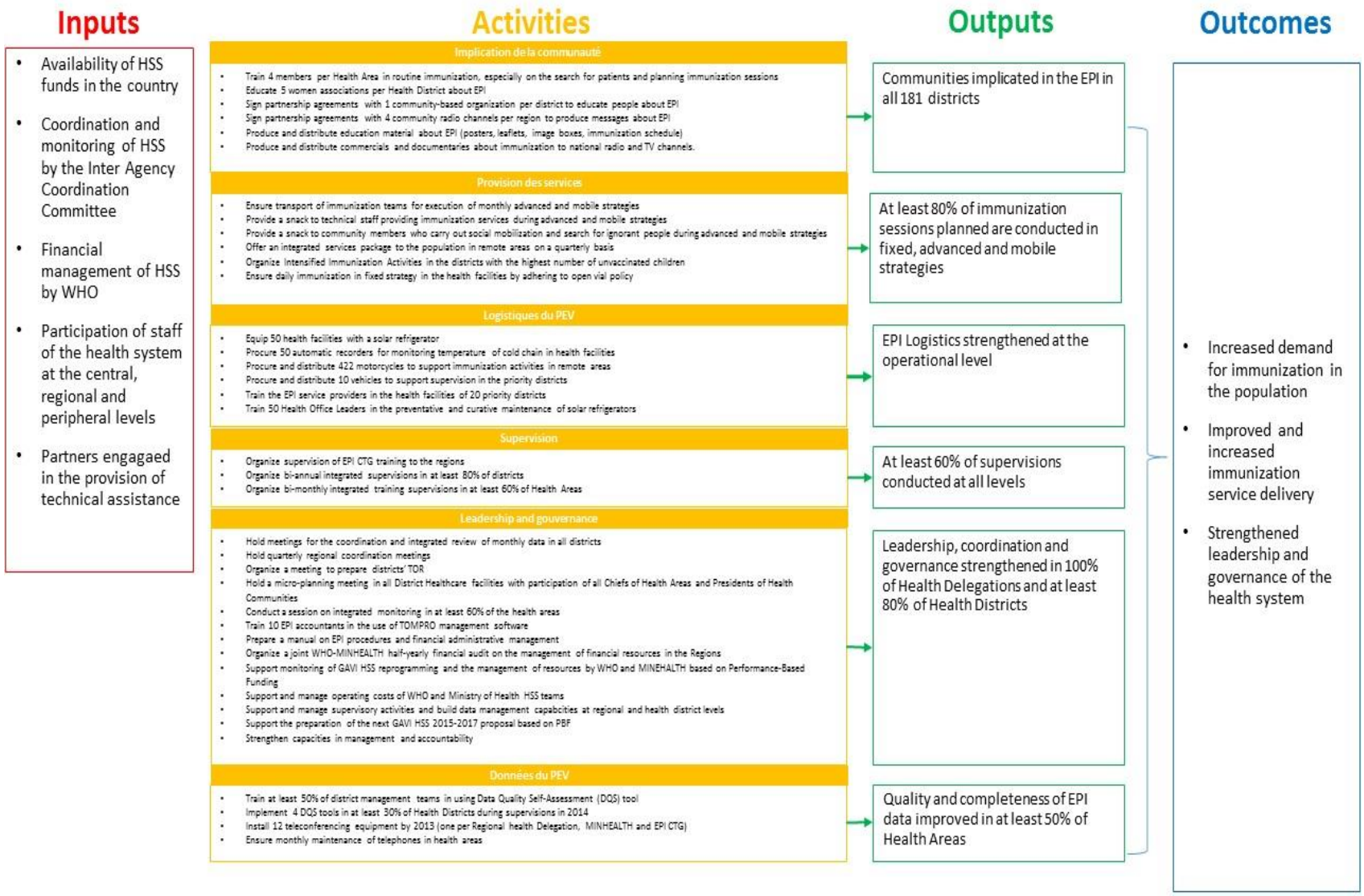

Figure 3: Logical framework for HSS based on the proposal by reprogramming of 2013

Chapter II: Methodology

Approach and theoretical framework

We followed a pragmatic approach, favoring research questions, in order to provide reliable conclusions. Under this approach, the researcher is not limited to a single qualitative or quantitative research methodology. Rather, they examine each research question to choose the most appropriate method to respond to the question. Thus, we used a mixed methodology to complete our evaluation. This methodology followed a concurrent strategy of triangulation, combining qualitative and quantitative methods and collected data simultaneously, due to the short duration of the study (Figure 4)[8]. Triangulation allows the combination of several techniques to reflect the complexity and contradictions of real life situations. It combines different types of data or methods of data collection in a single study. This method is advantageous because the triangulation of data investigating the same themes increases the robustness of the results.

Specifically, we have chosen the appropriate methods for each evaluation question. The data were collected and analyzed according to each method, and then the results of different analyses were compared to draw conclusions. For example, the question of efficiency requires at the same time an investigation with HSS managers, based on structured interviews and a financial analysis of HSS budgeted and expended funds, to confirm or validate the qualitative investigation. Following these two methods, once data were collected results have been triangulated to draw conclusions.

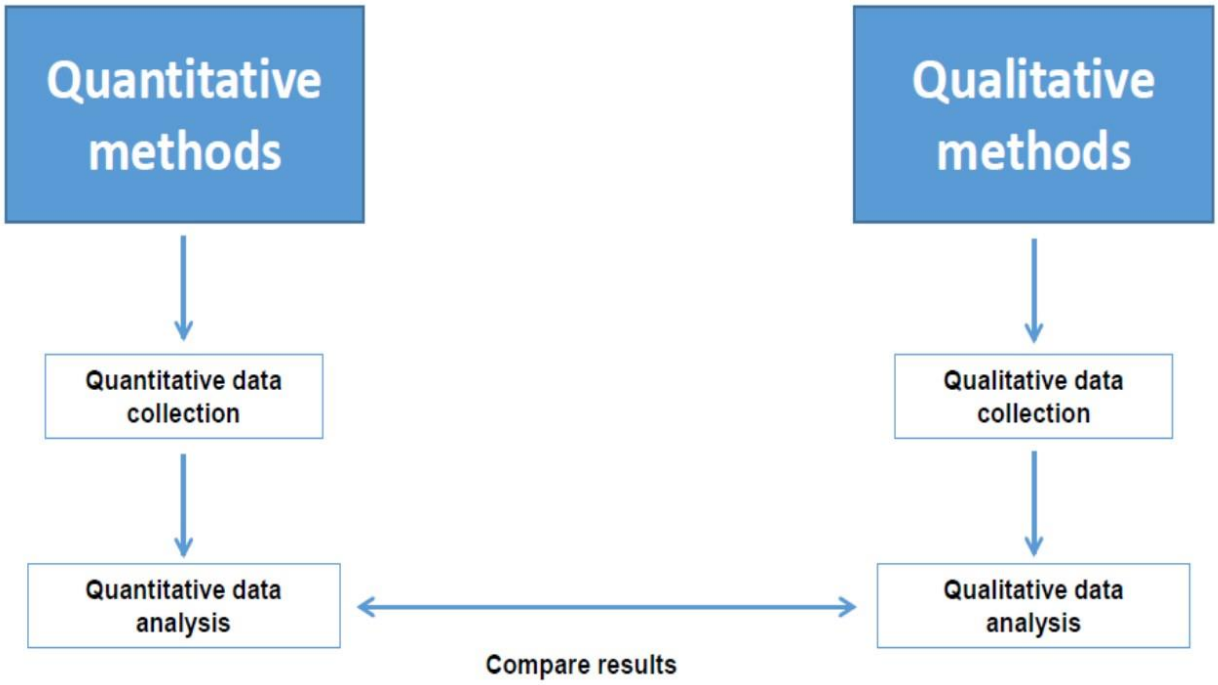

Figure 4: Concurrent triangulation strategy in mixed methodology research

The evaluation, which was framed by the six steps of the Centers for Disease Control and Prevention's guidelines for program evaluation in public health (Figure 5), maintained four standards: utility, feasibility, propriety, and accuracy [9]. In addition, the assessment used the theory of change as a reference, from which divergences in the implementation of the program were measured. **The evaluation questions arise from Gavi's five domains of evaluation: planning, design, and implementation; efficiency; results; sustainability; and learnt lessons.** In parallel and throughout the evaluation, we have taken account of the sociopolitical situation and other contextual factors that might have affected the implementation of the program.

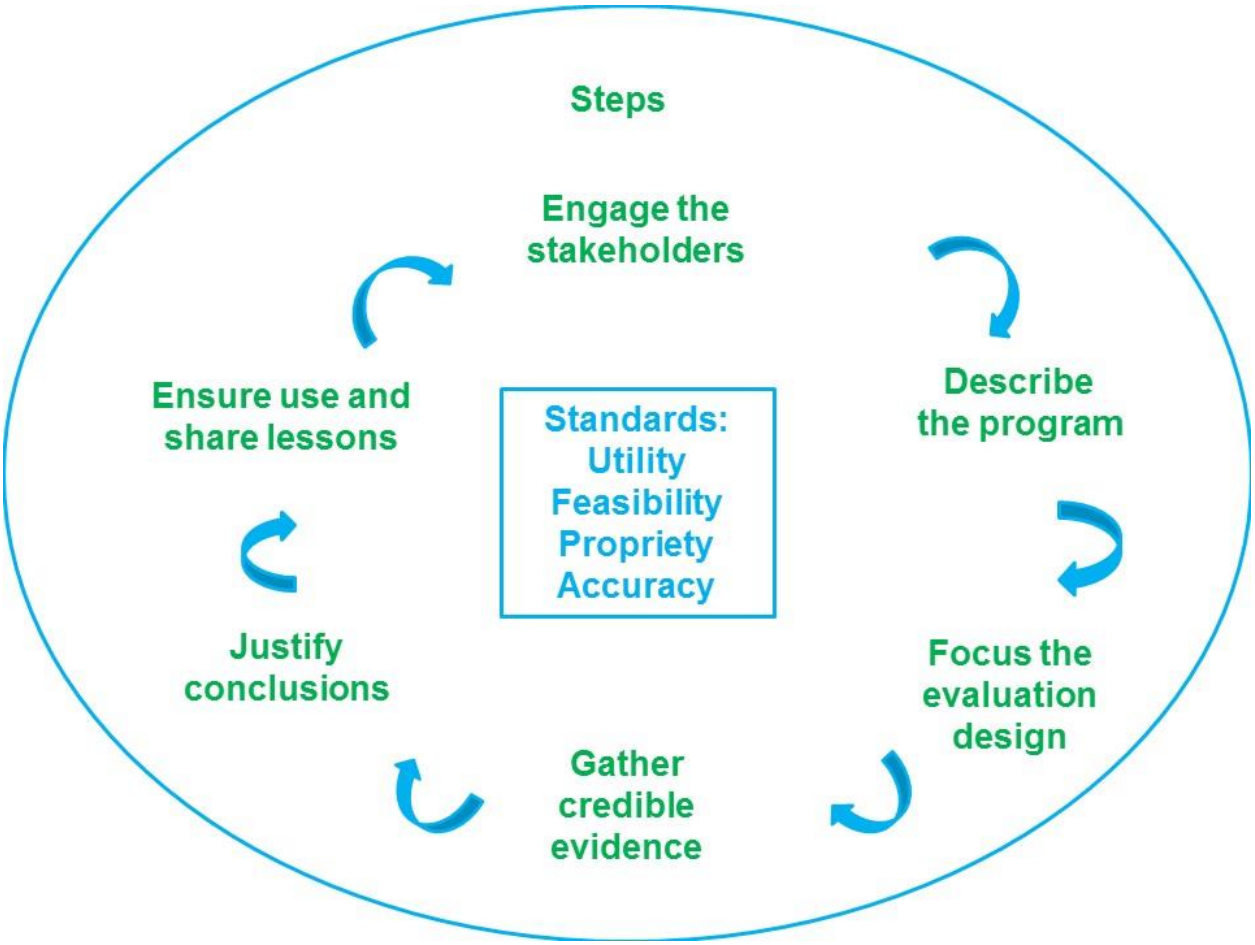

Figure 5: General framework for the evaluation of Gavi support to the strengthening of the health system in Cameroon

Qualitative methods

Qualitative methods are based primarily on document review (DR), key informant interviews (KII), focus groups, and field trips (FT), including direct observation.

Document review

The DR was used to refine the research question, develop the KII topic guides, guide the quantitative analysis, identify key informants (KI), and describe the program. Documents that have been discussed include documentation of Gavi on HSS; evaluations of Gavi's HSS; support proposals and responses from Gavi; annual progress reports; SSS; EPI annual plans; Millennium Development Goals' progress reports; and national health development plans[1-5,10-20].

Key informant interviews

Following the DR and exchanges with the monitoring and evaluation team at Gavi, we developed structured KII topic guides that have been used to interview the KI who have

informed us on the various components of HSS. For this study, three KII topic guides were developed: a first one for stakeholders at the central level, a second for those of the operational level, and a third for the Gavi's KI.

Sample

The KII were conducted with stakeholders from MinSanté and its different directorates, EPI, WHO, UNICEF, bilateral donors, and local partners such as civil society organizations, involved in the implementation of HSS. GAVI and other key players in the HS were also interviewed.

Field visits

FV targeted seven of the ten regions of Cameroon, namely: Adamawa, coastal, Central, Northwest, West, South and Southwest. FV were meant to: 1) verify activities implementation, 2) evaluate the extent to which the objectives have been met, and 3) measure barriers to sustainability.

In addition to KII, we have also developed questionnaires targeting the implementation of HSS activities at the different levels of the HS in Cameroon and activities targeting the IHC. For the choice of the regions and the HD, the following criteria were applied: 1) sociological specificity of the country: Anglophone and Francophone regions, 2) sociodemographic context: two urban HD and two rural HD from each region and 3) EPI performance: a high VC HD and a low VC HD in each urban and rural group of HD. In addition, taking into account the specificity of the program and EPI indicators, some priority HD known for their problems were chosen such as Malantouen in the Western Region, NewBell at Douala in the coastal region, and Djoungolo in the city of Yaoundé where indicators have been mixed in recent years. Table 3 details the sample of HD visited.

Table 3: Sample of districts covered during field visits

Region	Department	Health District	Environment of residence	Number of IHC visited
Adamawa	Viña	Ngaoundéré Urbain	Urban	9
	Viña	Ngaoundéré Rural	Rural	9
Centre	Mfoundi	Djoungolo	Urban	9
Coastline	Wouri	New Bell	Urban	10
Northwest	Mezam	Bamenda	Urban	10
	Ngok-Etundja	Ndop	Rural	10
West	Noun	Malantouen	Rural	10
South	Valley of the Ntem	Ambam	Urban	10
	Ocean	Lolodorf	Rural	8
Southwest	Fako	Limbe	Urban	10
	Fako	Muyuka	Rural	10
Total				**105**

Quantitative methods

Quantitative methods are based on the analysis of secondary data for small area estimates (SAE), the EPI VC data, and financial analysis (FA) of the HSS expenditures.

Small area estimates

We analyzed data from the Demographic Health Surveys (DHS, 1991, 1998, 2004, 2011) and the Multiple Indicators Cluster Survey (MICS 2000, 2006, 2014) to produce the SAE of the tendency of immunization coverage in Cameroon. The SAE give us an estimate at the level of the HD of trends in VC from 1991 to 2015, in order to assess the changes in time and geographical inequalities in these indicators within the country. The VC estimates are obtained from the available household surveys. For each survey, the crude rate of coverage of DTP3 refers to the proportion of children whose mothers or guardians said the child received the vaccination or that the child had documentation of vaccination. Due to the timing of vaccination, we limited our analysis to children aged 12-59 months at the level of the HD and noted the average date of birth of the children in this group. Estimates of the population less than five years of age were obtained for the HD for the same period. Then, we developed a model of small areas to estimate VC of the different antigens. Small area models integrate data at different geographical levels, allowing for the use of all available information, rather than being limited to those sources of data with identifiers of the HD. The SAE give an estimate of trends in the VC from 1991 to 2015 at the level of the HD to assess changes in time and geographical inequalities of the indicators in the country.

EPI vaccine coverage indicators

We obtained data of the EPI VC Indicators at the HD level from MinSanté. These data were used to show coverage in 2011, just before the reprogramming and the selection of priority HD.

Financial analysis

For each HSS disbursement, the FA compares current expenditures to the proposed expenditure in the budgets of proposals, and the planned budgets in the annual progress reports.

Limitations of the evaluation

The limitations of this evaluation pertain to the challenges of the different methods. These include:

- The memory bias among KI because the HSS support in Cameroon began in 2006, nine years ago. Some KI have been involved in implementing HSS for a short period, while others have spent less time at their position. However, DR and the fact that we were able to find a few relevant stakeholders of the HSS were partially able to help us address these two challenges.
- The reserve in the statements of some KI. After the suspension of support in 2011, the government of Cameroon took over financial management control. This control led to the inquiry and judicial entanglements of certain players of both HSS at the central level and the regional level. Some of them who were solicited were reluctant or very reserved in interviews.
- The quality of the EPI VC database. The EPI data suffer from precision both in the numerators and the denominators and thus are not a reliable source for precisely measuring VC and its trends.
- The unavailability of the data from the MICS 2014. Only the preliminary report of the MICS 2014 is available at the time of analysis. Only national estimates of vaccination have been incorporated in this report. Access to the same data could produce a more refined analysis, specifically at the level of the HD.

More so, certain questions have proved difficult to answer, primarily because of two factors: 1) the lack of sufficient data and 2) the lack of time to be able to measure the effect or the results of the evaluated program.

The questions that were the hardest to measure are as follows:

- To what extent the content of the request for support of Gavi was 1) based on complementarity of activities funded by the various partners? (2) based on a realistic diagnosis of opportunities for the country to implement the program and in particular in relation to human resources (quantity and qualifications) required at all levels? (3) based on a rigorous assessment of the specific characteristics of the different regions of the country and especially the urban environment in order to adapt the strategies for action to their own characteristics?
- What was the extent to which communication with the Gavi secretariat was effective in the reprogramming of activities?
- How were monitoring and evaluation activities conducted, discussed by the IACC and used to take corrective action?
- What has been the value added by activities implemented by Gavi's providers and civil society organizations?
- To what extent did the management of the program prove to be reactive to the difficulties encountered?
    - What were the limitations of risk measures undertaken and how were they applied?
    - What were these results (positive or negative) of these measures, and what value or impact did they add?
- To what extent did the joint vaccine financing policy influence coverage, especially for traditional vaccines?
- To what extent can the results be attributed to the Gavi-funded program?

Difficulties

- During the selection of the IHC, the criterion "vaccine service offer" was not taken into account. The list of health institutions available at the central level which resulted in the selection of the IHC was not updated. Thus, some IHC selected did not offer immunization service or were not functional. These were replaced, with the collaboration of the heads of health services of the districts.
- We missed some appointments or endured long waits before we were received due to schedule conflicts or late awareness of the people to meet at the operational level.
- Some actors were sometimes reserved in their statements or did not wish to meet with the evaluation team because they had been reprimanded at several levels of the administrative pyramid and the judicial system for their management of Gavi's funds. They thought the interview would lead them back to legislative trouble.

- The distances between some health centers associated with the poorly maintained roads within the HD made the FV tedious. In some cases, health centers were simply replaced.

Value added from the evaluation

This evaluation adds value through the following points:

- International collaboration for a strengthening of capacities at two international teams
- A mixed methodology that allowed the triangulation of multiple data sources in order to respond with a greater degree of confidence to the evaluation questions
- Completeness of the areas evaluated to assess the relevance, effectiveness, efficiency, and results of Gavi's HSS support in Cameroon
- The use of advanced statistical methods such as the SAE, mastered by very few institutions in the world, in order to determine the trend of the VC and the under-5 mortality in Cameroon
- A rich and effective collection of data in a short period, allowing measurement of the implementation of HSS through a representative sample taking into account the social, demographic, and economic diversity of Cameroon

Robustness of the results

Our analyses were evaluated by a measure of the robustness of findings. This measure took the form of an alphabetical indicator from A or B. A result is considered:

- A: if the conclusions are supported by multiple data sources which are generally of good quality. If data sources were few, the supporting evidence is more factual than subjective.
- B: if the findings are supported by many data sources of lesser quality or if the conclusions are supported by fewer sources of data of good quality, but are based on perceptions more than on facts.

Chapter III: Results

Data collection

The evaluation of the HSS in Cameroon began on August 17, 2015. A document detailing the study methodology was submitted to Gavi on the September 4, 2015.

A total of 148 KI have been met with (Table 4): 11 of MinSanté at the central level, partners in health, seven regional delegates, ten district chief medical officers or representatives of HD, and four of Gavi. One hundred and five heads of IHC were also surveyed.

Table 4: Key informants maintained during evaluation of the HSS, Cameroon, 2015

MINSANTÉ, level Central (11)	MINSANTÉ, operational level (122)	Partners in health (11)	GAVI (4)
-EPI -Division of Cooperation -HSS focal team -Epidemiological surveillance unit -Directorate of the Organization of Care and Health Technology -Health Information Unit -Steering Committee of the Sectorial Health Strategy -Directorate of Studies and Projects -Direction of Disease Prevention, Epidemics and Pandemics -Stakeholders involved in the management of the first phase of HSS	-Regional Delegates (7) -District chief medical officers (10) -heads of IHC (105)	-WHO -UNICEF -AMP -PROVARESC -FESADE -OCASC	HSS and monitoring and evaluation team members

Figure 6 presents, in chronological order, the evaluation timeline since contracting and until the drafting of the first version of the report, including data collection.

We present our results according to Gavi's evaluation domains and questions. The findings with regard to some of the answers are joined or presented in a different order than the questions. **The most relevant results were bolded**. Finally, the annex summarizes the results of the evaluation based on Gavi's evaluation domains and questions.

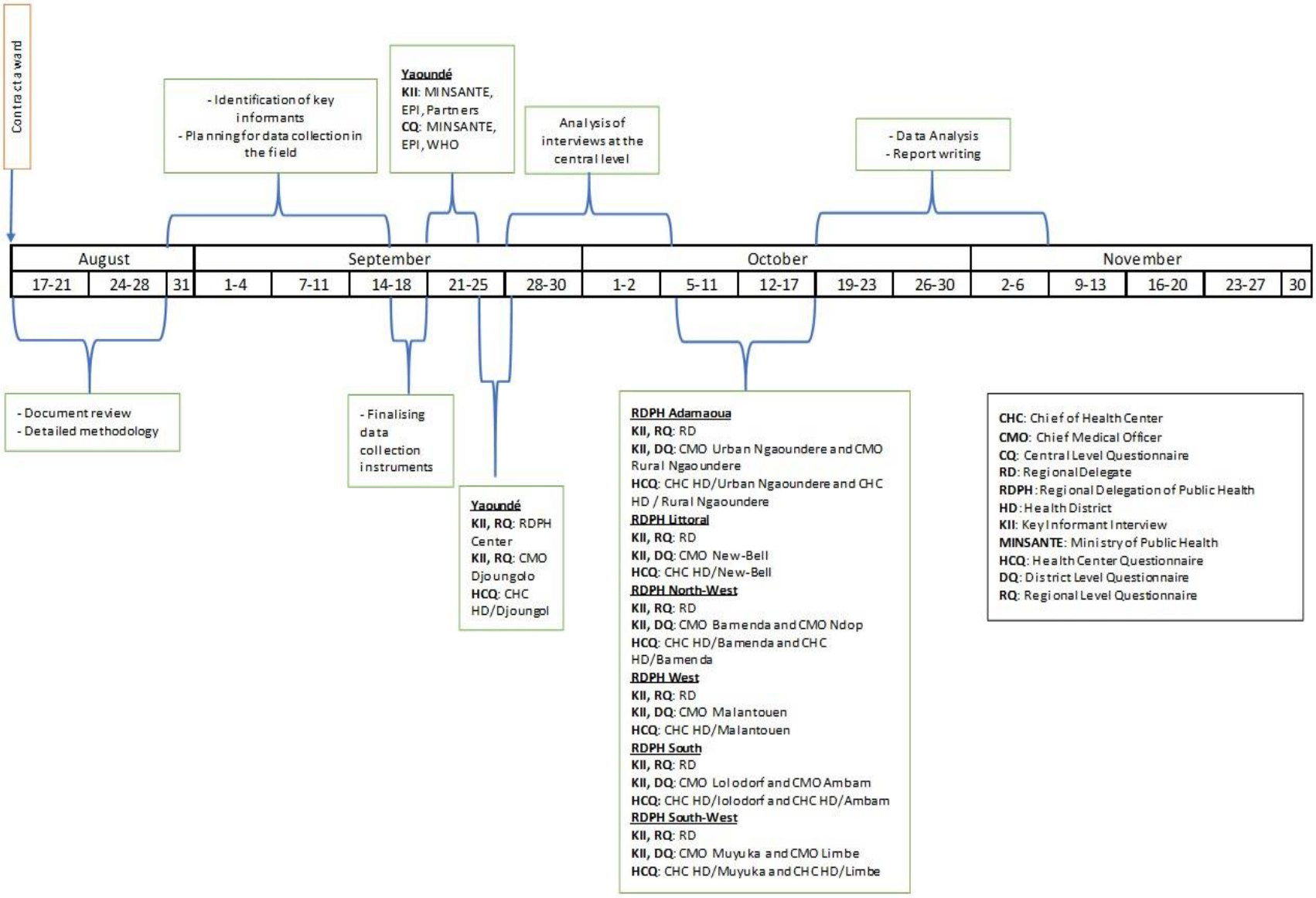

Figure 6: HSS evaluation timeline in Cameroon, August - November 2015

Result 1: An initially rushed HSS application in 2006, leading to a poorly designed program to meet the HSS window opportunity

Evaluation domain	Methods	Robustness of finding
Planning, design and implementation	DR, KII	B

Evaluation questions:

- *To what extent was the request for support developed in consultation with the different partners?*
- *To what extent has the content of Cameroon's request for Gavi's support been:*
  - *Based on a careful assessment of the needs and the main bottlenecks of the HS?*
  - *Based on integrated strategies aimed at addressing the bottlenecks?*
  - *Based on complementarity of activities funded by different partners?*
  - *Based on a diagnosis of the realistic capacities of the country to implement the program and in particular in relation to human resources (quantity and qualifications) required at all levels?*
  - *Based on a rigorous evaluation of the specificities of the different regions of the country and in particular urban areas, in order to adapt the strategies for action to their own characteristics?*
  - *Based on a clear theory of change with strong links between planned activities and the improvement of the HS in general and the EPI in particular in its components of introducing new vaccines and improving VC?*

A decision to request HSS support aligned with the sectoral health strategy

In 2006, while Cameroon was preparing to pilot its sectoral health strategy through a Technical Secretariat, the country was informed by the cooperation network (WHO, UNICEF, Gavi) about the availability of HSS funds[3]. **This appeared to be an opportunity to finance the piloting of the strategy. Thus, this Technical Secretariat became the entity responsible for the HSS, a responsibility for which it was not designed**:

> *...knowing that there is HSS, the exercise was set up by a body which was not there for that. There was only an effect of opportunity, then an ambition too great to implement this program. The first consequence was therefore a submission designed, conducted and developed under the responsibility of the Secretariat which was not originally for it.*

The proposal was accelerated to meet the HSS window opportunity; nevertheless, it was developed in cooperation with the partners in health

The essential point was to develop an application and submit it on time:

The first submission had to be conducted in a rushed way, given the environment in which we had the information and the timetable to be adopted. Chronologically all the exercises were conducted and have continued to be put in place parallel to the application. The application was built at the central level including critical programs such as the EPI and a few representatives of the intermediate level.

With the technical and financial assistance of the partners of health, especially WHO, the secretariat developed the first HSS application. According to the limited number of KI of the era, a HS bottlenecks identification was conducted with the support of the World Bank. Yet, the HSS application evokes only a DR including DHS 2005, the mid-term review of the implementation of the sectoral health strategy for 2001-2010, a 2005 review of EPI, and the mission for the preparation of tools and procedures for the development of the strategy's annual plans of operations. **No real exercise of data collection on the HS was made.** Thus, the activities selected for the HSS simply came from those that the Technical Secretariat should pilot, which were focused on the integration of health activities[1].

Improper choice of HSS activities

According to the KI met, partners did not agree on the choice activities:

At the time there was a lot of tension and diverging approaches between partners. Many felt that the quality approach was wasted money, irrelevant. Some felt that transparency was not sufficient to invest. Therefore the partners joined the process, but they did not all share by the same level of enthusiasm. I believe that WHO and the United Nations were in the front line even if there was a difference on approaches.

Differences have faded under various circumstances. There was a consensus on the principle of adopting the sectoral approach. With the Technical Secretariat in charge, along with the lack of planning guidelines in the HS, the program was then directed towards planning and decentralization of the activities of the HS from the central to the peripheral level.

In the proposal, no explanation indicated a link between the strategies adopted and VC or EPI performance. **Another weak point of the design of the program has been the non-involvement of the peripheral level and the limited involvement of the intermediate one**. The review of the original proposal makes no reference to presence of representatives of the operational level. The meeting minutes indicate the presence of representatives of some regions only during the proposal validation meeting[1.21]. There is an absence of representatives

of the health districts. This is not unique to Cameroon as this has been observed in other countries and seems to be a common weak point in several of the early HSS programs.

Financially, the review of the proposal indicates a complementarity of the funds of the HSS made available by the government and the various partners. As such, those of Gavi are estimated at 50.2% of the total[1]. However, **neither the implementation capacities of the country, nor the regional specificities to adapt the activities, have been taken into account**.

Result 2: A delay in the HSS process and expenditures deviated from the forecasts were followed by an investigation and a suspension of the HSS funds

Evaluation domain	Methods	Robustness of finding
Planning, design and implementation	DR, KII, FA	A

Evaluation questions:
To what extent was the reprogramming of activities justified, well conducted and relevant:

- *What were the main factors leading to the reprogramming?*
- *How has the process been initiated and led? What has been the role of the partners? Has the communication with the Gavi Secretariat been effective?*

Delay in the process and weak planning of the HSS timeline

When submitted in October 2006, the first HSS application targeted January 2007 as a start date for implementation, i.e. in less than three months. **This optimism was the result of poor planning which was not made up for by the health partners, whose role is to provide technical assistance to the country, and to which Gavi seems not to have reacted**. According to the partners and the KI of Gavi, the role of Gavi, apart from funding, was limited to facilitating the process of the development of the proposals. In general, the recommendations of Gavi were intended to ensure that the objectives of HSS are aligned with the objectives of the National Health Development Plan[20]. This opinion is not shared by the KI of the country who found that Gavi, through its focal point, revised the proposals and intervened through its partners.

As observed in all countries having submitted an HSS application at the time, ten months passed prior to the approval of the application. The first disbursement occurred three months after this approval[5]. **The disbursement was not exceptionally late considering the date ofthe approval, but the approval was late considering the submission**. Given the weakness of the application submitted, the Independent Review Committee had a list of clarifications of which the country took some time in providing the necessary explanations. The internal procedures of Gavi and the slowness of the country in meeting the requested clarifications were the reasons provided for all these delays. In comparison, Chad submitted an HSS application a year later. Given the better quality of this application, Gavi had only one clarification to ask. As Cameroon was one of the first countries to request the HSS assistance, lessons about the application and its content were learned and shared from the experience of Cameroon.

Thus, with the delay of funds, a limited number of activities was implemented towards the end of 2007 and all remaining activities were postponed a year. The delay of the activities was more pronounced at the district level. Figure 7 shows the major steps of the HSS between 2006 and 2011.

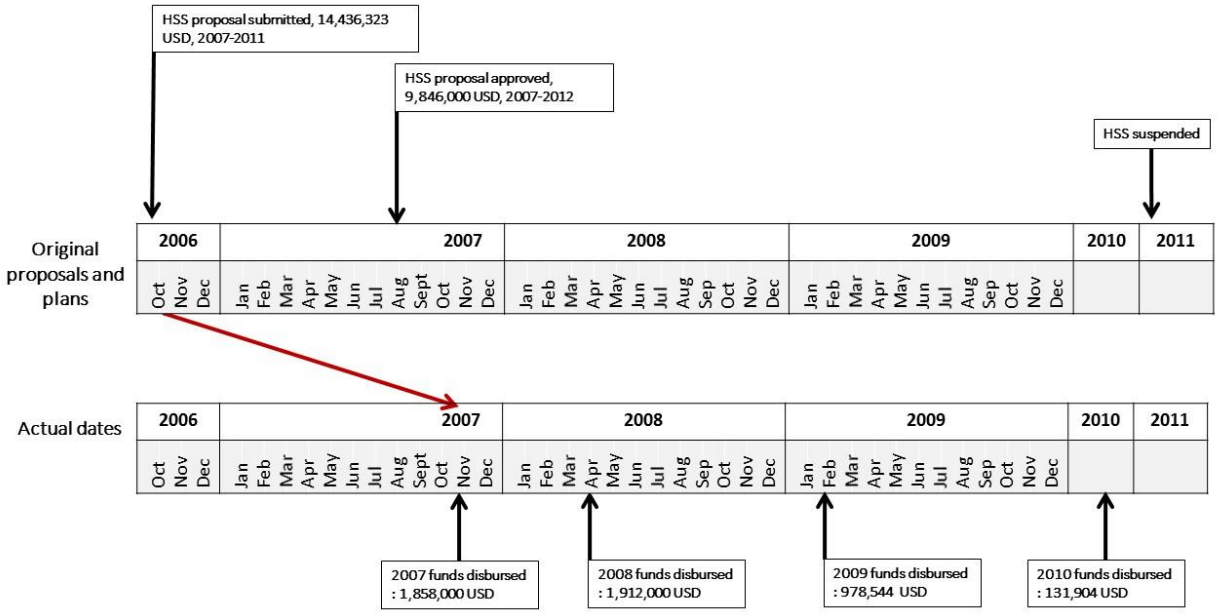

Figure 7: HSS milestones, Cameroon, 2006-2011

Expenditures and implementation of activities deviated from the forecasts

The Technical Secretariat during their tenure managed the HSS funds without systemic supervision. The system in place did not allow transparency for financial management, marked by the absence of supporting documentation for purchases and transfers to districts. According to the KI, the activities were implemented in the spirit of adhering to the original plan. **However, with the absence of clear management standards, the country had been left to guesswork, which enabled a broad interpretation of the spending. As a result, nearly 60% of all activities were implemented outside the original plan**. The implementation of activities was purely accounted for by the Technical Secretariat, without qualitative follow-up of an external entity. The HSS has gone through almost three years of irregularities in spending, a time during which the partners should have noticed the problem and proposed changes. From a psychosocial perspective, this could be explained with one of the following two reasons: 1)

either the partners did not perceive an emergency prompting corrective measures or 2) the situation was perceived as urgent, but the partners did not feel they shared common ground, and thus their sense of responsibility was diffused. In addition to the random management of the Technical Secretariat, neither MinSanté nor Gavi tried to define or develop specific guidelines or a detailed plan of implementation of the activities. Figure 8 presents the current HSS expenditures compared to those proposed and planned during 2007-2011 in Cameroon[5,11,12,14]. It should be noted that almost no expense was reported for the year 2011. This analysis is based on the budget of the original proposal, and the planned budgets and expenditures reported in the annual progress reports. We clearly notice the difference between forecasts and actual expenditure incurred.

In the absence of planned future strategy between activities and immunization, our KI found it difficult to assign an effect of the activities implemented during this period on the EPI or VC. Nevertheless, given the focus of the program on planning, **a culture of planning and coordination developed in Cameroon, a culture that was almost absent until 2007 and to which HSS has contributed significantly**.

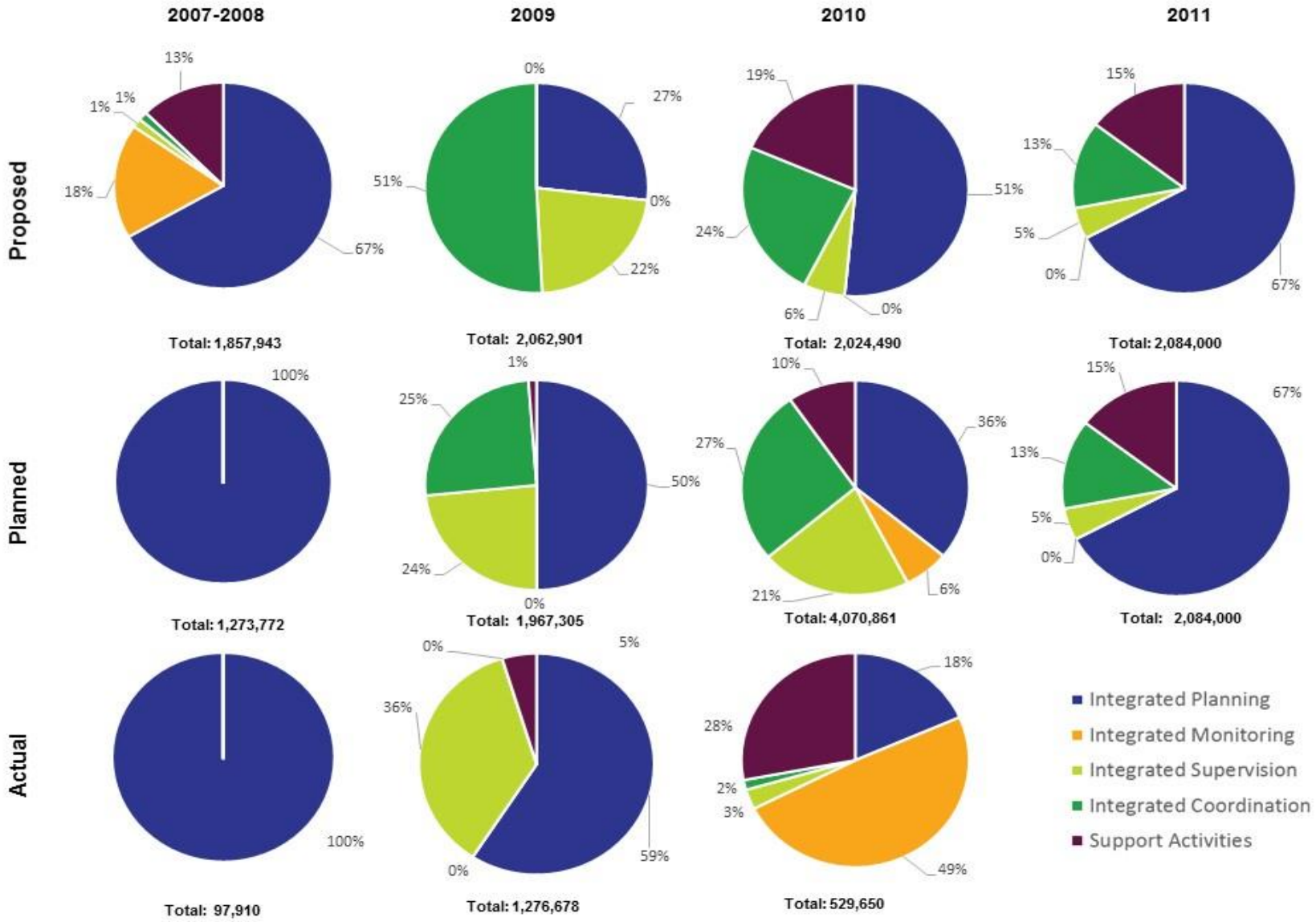

Figure 8: Proposed, planned and actual expenditures of HSS funds, Cameroon, 2007-2011

Suspension of HSS funds

At the end of 2009, Gavi conducted an assessment on the financial management of its funds in Cameroon [6]. This assessment showed the weaknesses of financial management, which served as a first warning for HSS. The review of the financial reports of the HSS in early 2011 and other documents, including an external audit conducted in 2010, led Gavi to evaluate its programs in Cameroon, including HSS. **This detailed and accurate investigation conducted in April 2011 highlighted several irregularities and the lack of control over the finances**. According to our KI, *"There was some blurring in spending procedures, the Gavi fund expenses were not clear, it was not stolen money, but people were using the money for activities that were not eligible, unknowingly, but have been declared ineligible. At the end, it was necessary to reimburse the cash to Gavi."* It is for this reason that Gavi decided to suspend the funds as well as all activities of the HSS program.

Reprogramming of the HSS after recognition of the mistake by the country

With the suspension of funds and activities, the sector-wide approach in place was disturbed with almost a total loss of the concept of harmonization. Cameroon acknowledged the error and agreed to reimburse the ineligible funds. With this recognition by the country, the conflict was resolved and the ongoing process could no longer be blocked. The government requested to resume cooperation so that the acquired money remained in the sector and went to the EPI, which indicators showed as failing despite massive investment from Gavi. Indeed, the interaction with Gavi, as well as its other financial supports, was not interrupted during this entire period. However, with the uncertainty of the procedures used in Cameroon, Gavi could no longer pay the money directly to the state. An assessment of financial management was then conducted and resulted in the signing of a memorandum in April 2013. It was valid for 18 months, detailing procedures, especially the financial ones, for the rest of the HSS[22].

Negotiations between Gavi and the country led to the decision to pay $1.8 billion CFA. Then with the recognition of the shared responsibility of the partners (WHO and UNICEF), this amount was lowered to $1.5 billion. MinSanté designated WHO as a financial manager for the next period and developed a plan for the repayment of the $1.5 billion. This prompted Gavi to agree on reprogramming even before the reimbursement of the money from the country.

Result 3: A well-conceived reprogramming of HSS reflected a serious implication of Cameroon towards improving the EPI and vaccine coverage

Evaluation domain	Method	Robustness of findings
Planning, design and implementation	DR, KII, FA, SAE, EPI data	A

Evaluation questions:
To what extent was the reprogramming of activities justified, well conducted and relevant:

- *On what basis were the new activities identified?*
- *Did the reprogramming take into account the lessons learned from the first phase of implementation?*

Launch of the proposal development process in collaboration with partners and direct involvement of Gavi

Following the agreement with Gavi, a working group of experts on the sectoral strategy and of the EPI was set up at MinSanté to develop a work plan according to which the reprogramming funds would be used. The EPI was from here on involved. Given that WHO was given management of the funds, it naturally became another involved party, as well as UNICEF, given its role in logistics, communication and service delivery. Additionally, and according to our KI: "It was *Gavi who held the strings. They gave directions. There was a draft already proposed for the HSS. After that, there was a second meeting in Egypt where Gavi was present. It was a meeting convened by Gavi. It was in the context of HSS and other things. Cameroon was invited and I went with the Deputy Director of EPI, where we discussed our HSS, and they gave further guidance: how to formulate the budget, indicators, outputs, and inputs. It was the last meeting before the definitive document.*"

The role of Gavi seemed more critical than during the first proposal. Thus, according to another KI, "*Gavi's representative in Cameroon came quite frequently to the country and assisted in the development of the plan, the budget, and the IACC meetings. The idea was that Gavi would put money in the country to strengthen its HS. Now, when there were problems with the reprogramming, Gavi gave no directives but from the agreement from 2013, there were guidelines on the management of the funds. GAVI has been present at all stages. They have no role in the selection of activities; it is us who sorted them out based on the objectives and analysis that we made."*

New activities were based on an excessive effort for the identification of bottlenecks; however, several HD were prioritized without being the least performant in matter of vaccine coverage

During the period of 2010-2012, EPI's performance was declining despite significant investment from Gavi, the State and immunization partners[19]. This triggered an alert by MinSanté as well as the partners. A situational analysis was necessary in order to understand bottlenecks affecting the EPI. Thus in January 2013, all HD were toured through the EPI audit workshops, to identify problems and propose interventions and corrective actions from the ground up with the participation of WHO and other partners who[2] provided their technical support[19]. Given the extent of this exercise, we agree with some of our KI in their opinion of the collection of data. **This effort consumed excessive human and material resources. A representative group could have been enough to learn about bottlenecks while saving time and expenses**.

In short, due to coverage being a complex indicator which depended on several pillars of the HS, all pillars were examined to see what was wrong and what could be fixed:

> "*For example, the operational level complained about the absence of logistics and lack of means, so that is how we decided what to do. On the other hand, there were priorities at the level of the country such as governance which contributed to the choice of the procedures manual. . . . We understood that the HSS targeted the HS in general but we wanted above all to strengthen the HS through the EPI, meaning that HSS results must be read through the results of the EPI.*"

A consultant was hired to conduct the analysis and thus an operational plan for the EPI was developed, from which the HSS activities have been selected. The HSS proposal was developed in Kinshasa, during a workshop with participation of representatives from Cameroon, WHO, and Gavi. It was submitted in May 2013, and approved in November of the same year.

Learned lessons resulted in a better reprogramming proposal, but poor planning and financial management issues continued

This proposal had the advantage of being clearer than the first. **Activities were better articulated, but the plan and goals seemed not to take into account the actual capacity of the country for implementation, as well asthe lengthy procedures for submission, approval and disbursement of funds**. The plan in the new proposal outlined implementation three months after submission and proposed optimistic indicators, such as national immunization coverage in DTP3 at 92%.

Concerning the time required between the submission and the disbursement of funds, poor planning could be explained by the fact that the delay in the first disbursement in 2007 led to a shift of activities for a year with no visible impact on the program. It is also possible that deviations from the forecast for the first period HSS were the major event which overshadowed all others.

However, **the emphasis of activities related to the management and governance, such as the development of manuals for financial management, and training of accountants were clearly the result of lessons learned from the first period** where the lack of manuals and skills were direct causes of the mismanagement of funds.

Although HSS was a national program, the reprogramming only identified 20 priority HD. The criteria for selection of these HD seemed to especially focus on the number of unvaccinated children, and the number of these districts varies between WHO, the Agence de Médecine Préventive, and EPI. This criterion is essential for budgeting, but does not prioritize lower-volume HD. The VC seems to us to be a more relevant indicator to guide the prioritization of HD. A HD may have a high number of unvaccinated children, but can be out-performing other HD if its VC is higher. **Considering the 20 HD that we have been given by WHO, we find that their performance, according to data from the EPI in 2011, was not as bad as elsewhere, while many other underperforming HD were not considered priority** (Figure 9)[23]. Thus, the choice of priority HD was not optimal. As will be seen in the results of HSS, these HD have always maintained a VC higher than the national average and that elsewhere.

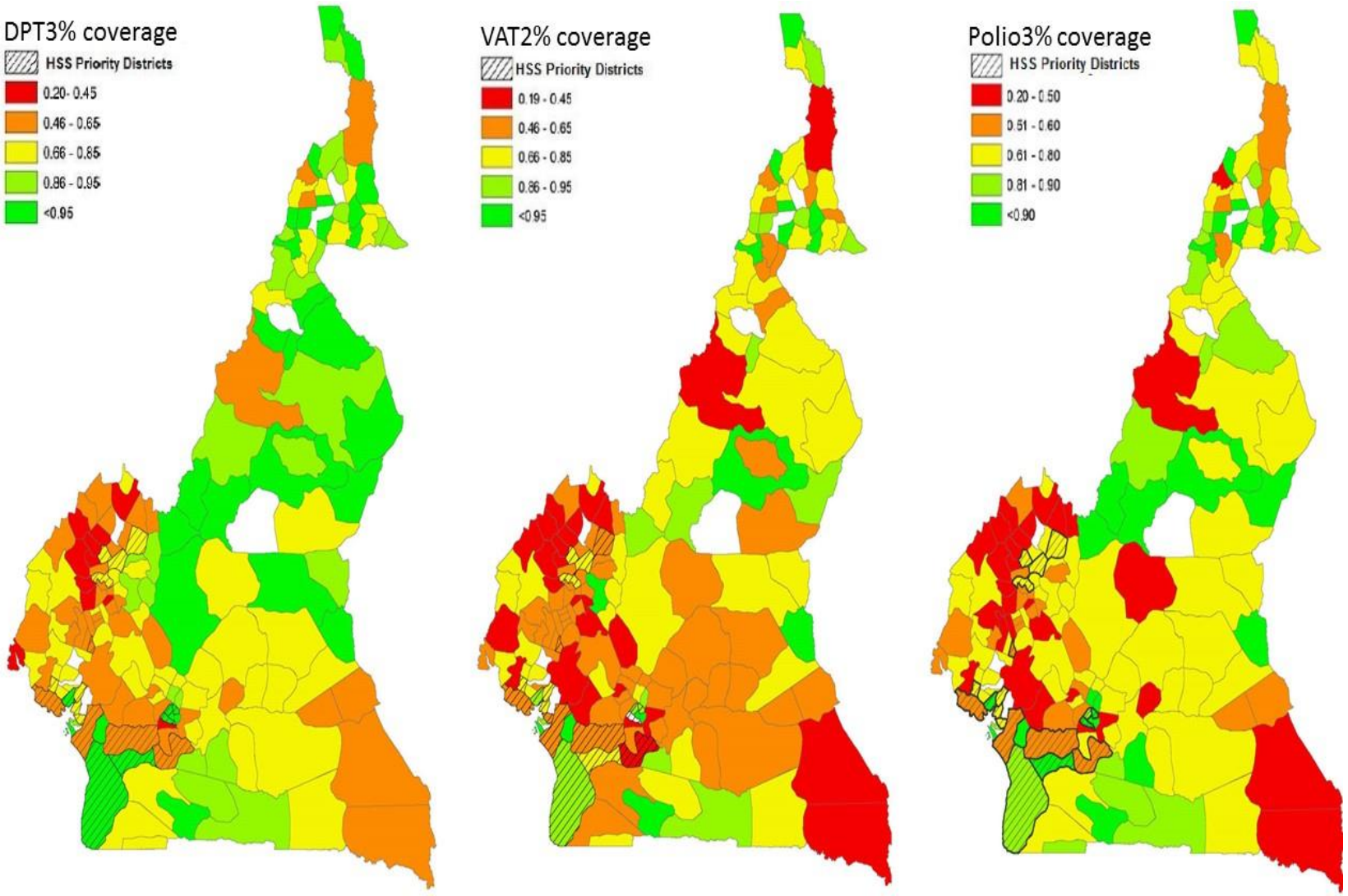

Figure 9: DPT3, VAT2 and Polio 3 coverage, Cameroon, EPI vaccine coverage indicators, 2011

Result 4: Tensions with regard to the role of WHO and mixed opinions on its effectiveness

Evaluation domain	Method	Robustness of the result
Planning, design and implementation	DR, KII, FA	A

Evaluation questions:
To what extent was the channeling of funds through WHO more effective?

- *To what extent was the coordination between the two units well-conducted?*
- *To what extent are the activities of the two units complementary (human resources, expertise, roles)?*
- *To what extent has this measure allowed acceleration of implementation of the activities and improving the efficiency of the program?*

A non-exceptional need for channeling funds through WHO

During the time that negotiations resumed between Gavi and Cameroon for the reprogramming of HSS, with an absence of procedures for organizational and financial management at MinSanté, and with the Gavi's request to go through a partner for the financial management of HSS, MinSanté designated WHO as financial manager:

> "*We chose to go to WHO because we had total confidence in WHO, and we didn't give WHO only Gavi's funds. We even gave our own money to facilitate the implementation.* ***It was not an exception, it was already a practice from our own funds and activities****. We went through WHO as there was a shortage of procedures, and WHO already has its procedures. We also went through WHO as their support modalities are the same as those we use on their own financing, so we are accustomed to their mechanisms*."

The decision was timely and responsive to the circumstances of that time. This spared the country from developing a manual of financial management as a prior condition to reprogramming. As a reminder, the aide-mémoire signed April 28, 2013 was valid for a period of 15 months and could be extended for a period not exceeding three months.

Reduced efficiency and effectiveness due to higher management fees and WHO's internal procedures

The process put in place for the implementation of the reprogrammed HSS consisted of creating two mirror teams at MinSanté and WHO. **The ultimate goal would be a transfer of capacity from WHO to MinSanté through this phase of implementation**.

This process already had impropriety present due to higher program management costs: 7% of the total of HSS funds went directly to the expense of the WHO HSS team, and 10% of the rest were devoted to the management of the program, of which 70% were also devoted to WHO. As reported by our KI, the salaries of the staff of the HSS team at MinSanté were at the same level as those of WHO, which is justifiable in terms of fairness but negatively affects the efficiency of funds[15]. **With regard to the transfer of capacities, the members of the two teams originally come from EPI, but we find that those transferred to WHO gained more experience in working directly with WHO standards**. **In addition, the current team of HSS in MinSanté is not the one that was retained at the end of 2013 at the start of reprogramming.** However according to the KI of MinSanté, **MinSanté has evolved to the point where receipts are better managed and timely**, and a manual of financial management is being developed.

Channeling funds through WHO was not quite as effective. As described above, HSS funds are not the only ones managed by WHO. Unfortunately, the internal procedures of WHO do not separate fund management of a program from those of other partners. In order to grant access to funds for an activity, WHO requests evidence of the use of funds already allocated. With the outbreaks of polio in 2013 and 2014, almost 14 vaccination campaigns were conducted over a period of 13 months. With the lack of human resources, MinSanté was lagging by three months in campaign receipts at the end of 2013. This triggered an embargo in the financial system of WHO, which meant that any disbursement of funds, including those of HSS, were blocked until all supporting documents were received. Therefore, **almost no HSS activity took place during four months at the beginning of the year 2014.** In retrospect, we see that 1) two extensions of 10 and 12 months had already been requested for the reprogrammed HSS and that 2) until June 2015, only 80% ($3.3 out of $4.1 million) reprogrammed funds were spent, in contrast to the original plan that spending was to be completed at the end of November 2014.

Confusion of roles between MinSanté and WHO led to a tension affecting the relations between the two partners

The two mirror teams attend weekly technical meetings of the EPI, monthly meetings focusing on activities and quarterly follow-up meetings. In addition, the two teams participate in all workshops for the development of the guides and documents, such as the complete multi-year plan and annual progress reports. Apart from decision-making during these meetings, especially the monthly meetings, **the activities of the two teams are complementary as WHO provides technical support and manages finance, while MinSanté supports the implementation.**

The first problem emerged here with regard to roles. The classic role of WHO is to provide technical assistance to the country. However, according to our KI, **the WHO team sometimes took decisions and implemented activities, without referring to MinSanté**:

> "*In fact, WHO's mission in the country is supporting the country, technical support which is something good in facilitating things, but in the context of this reprogramming, we sometimes had the impression that WHO had the good intention to do well but exceeded its powers of council. It meant that sometimes they took decisions and the country as expected to follow. At one point there was a leadership conflict, but I think that it was resolved through coordination meetings*."

Although this conflict was resolved through monthly meetings of the two teams, this conflict of roles was perceived as an infringement to the sovereignty of the country:

> "*The second thing is that HSS by definition is to strengthen the health system and its actors and to improve it. Therefore outside of an emergency situation, the passage by an external actor is contrary to this definition. It decreases the governance and autonomy. Therefore the government should be completely responsible, even for errors."*

This tension observed during FV and which affected all the above involved seemed typical to us when a country is subsidized. However, this negative perception of the role of WHO was not limited to MinSanté but also shared by other health partners. For instance, according to our KI, the country had the opportunity to make purchases of motorbikes and vehicles, and the quote came back with twice the amount expected. According to the KI, **the problem in Cameroon is not at the institutional level or due to a lack of ability, but rather at the individual level**. The HSS is neither the only nor the first set of funds managed in the country. Thus the system to manage funds exists, and it is down to a matter of individuals who take advantage of the system for their own gain.

Figure 10 presents a root-cause analysis of this situation of tension between partners. This analysis reflects all events and major causes contributing to the current situation.

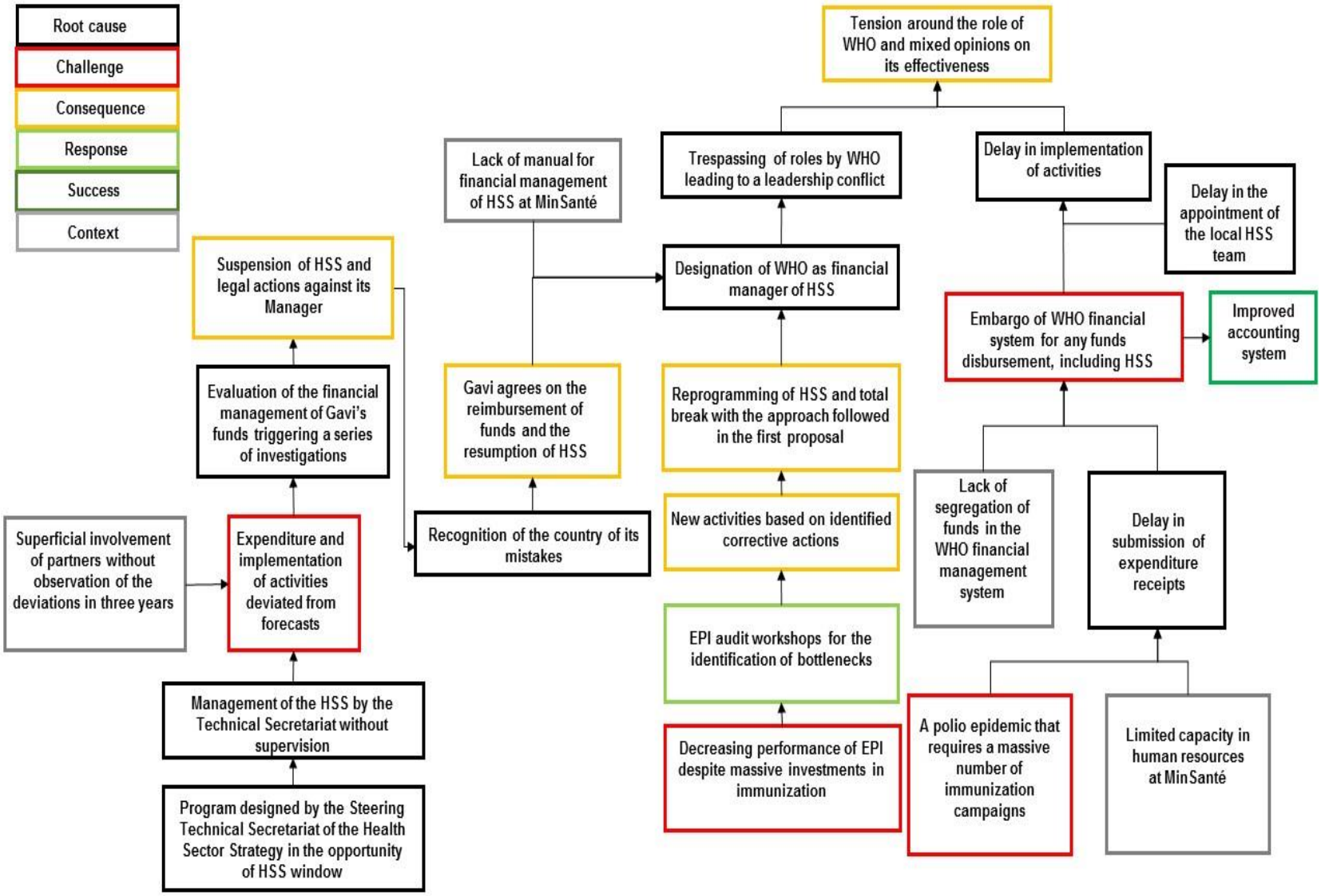

Figure 10: Root-cause analysis of tension around the role of who in the HSS, Cameroon, 2013-2015

Result 5: Late implementation of planned activities

Evaluation domain	Method	Robustness of findings
Planning, design and implementation	DR, KII, FV	A

Evaluation questions:
To what extent have the activities contained in the HSS proposal been implemented such as planned (quality, quantity and terms)?

- *How were monitoring and evaluation activities conducted, discussed by the IACC and used to take corrective action?*
- *To what extent have the activities led by Gavi's providers and civil society been concerted, coordinated and executed with the required quality? What was their added value and how do they compare with the activities of the same nature undertaken by other partners or by MinSanté?*
- *What were the organizational and contextual factors (such as the administrative and financial procedures, as well as the coordination mechanisms in place) that have influenced (positively or negatively) the implementation of activities:*
    - *the impact of the political and social situation in the country on the implementation of the activities (terrorist, refugees, threats, etc.)*
    - *the impact of the epidemics in the country*
    - *the consequences of the suspension of transfers of the Gavi fund on implementation.*
- *To what extent has the management of the program proved to be reactive to the difficulties encountered?*
- *To what extent have the resources and activities been well-coordinated, tracked and reported to Gavi and partners?*
- *To what extent was the commitment and the support provided by the Gavi Secretariat and local partners, both during the proposal development, as well as the implementation, appropriate and sensitive to contextual changes?*
- *What are the lessons learned? What went well and what did not go as well?*

Table 5 details the degree of implementation of activities up to October 2015. Figures 11 and 12 show the implementation of activities over time and at the central, regional and district level (Figure 11), as well as at the level of the IHC (Figure 12). **In the two figures, we observe that the implementation is almost identical in priority and non-priority districts, whether at the level of the HD or the IHC. Also with regard to the activities implemented by organizations of civil society, such as links with the community, we notice an implementation close to 50% taking place especially towards the end of the summer of 2015.** Putting aside the quantitative data collected, during our FV we made several observations, some of which relate to HSS activities and some of which are more general yet essential to the HS in Cameroon. The observation in the field, particularly in the regional delegations in general, and particularly in health zones and health centers, is that the technical

and operational components of the program receive information about the schedule only when activity is almost already underway and in the best cases, the day before the event, reflecting poor coordination between the different levels of the HS. Better coordination and dissemination of information would help stakeholders to better plan their own activities for their respective services.

As for those working on the ground such as vaccinators, the financial compensation that is paid – when this is the case – is not motivating enough to encourage them to effectively conduct their tasks. In most cases, they receive only the money given to them each day (between 1000 and 2000 CFA) that barely allows them to pay for their travel.

The distribution of human and material resources is largely disproportionate between rural and urban areas, as well as between public and private institutions. Indeed, on the ground, we noted that the spatial distribution of health institutions appeared disparate from one area to another. There may be a high concentration of health institutions in a zone and in contrast, a wide dispersion in the other. Also, we noted in some public IHC that there was more than one refrigerator, with the same for motorbikes. However, some health institutions had only one or two personnel, who did not always meet the appropriate qualification level for their work. Nearly all the heads of the IHC in the Adamawa region have offered immunization services without personnel having received prior training. This situation is detrimental to the EPI. Also, trained and qualified personnel need continuing education to be up-to-date on the new medical practices.

Table 5: Implementation of the activities of the reprogrammed HSS, Cameroon, 2015

Domain	Activities	Central level	Regions (7)	Districts (11)	IHC public (48)	IHC private (57)
Community implication	Train 4 members by health areas in routine immunization, especially on the search of lost patients at immunization planning	—	—	73% (8 of 11)	50% (24 of 48)	50% (31, 57)
	Educate 5 women associations by health district on EPI	—	—	45% (5 of 11)	—	—
	Sign partnership agreements with one community organization by district to educate the population on EPI	—	—	55% (6 of 11)	—	—
	Produce education materials on EPI (posters, leaflets, images, vaccination schedule)	100%	71% (5 of 7)	—	—	—
	Distribute education materials on EPI (posters, leaflets, images, vaccination schedule boxes)	100%	86% (6 of 7)	—	—	—
	Sign partnerships agreements with 4 radio community channels by region to disseminate messages about EPI	—	71% (5 of 7)	—	—	—
	Produce and distribute documentary and advertising messages on vaccination on the national radio	100%	—	—	—	—
	Produce and distribute documentary and advertising messages on vaccination on national television	100%	—	—	—	—
Delivery of services	Transport vaccination teams for monthly advanced and mobile strategies	—	—	—	67% (10 of 15)	26% (5 of 19)
	Provide a snack to technical staff providing immunization in advanced and mobile strategies	—	—	—	33% (5 of 15)	32% (6 of 19)
	Provide a snack to community members who conduct social mobilization and search of ignorant people for advanced and mobile strategies	—	—	—	27% (4 of 15)	32% (6 of 19)
	Offer a package of integrated services to remote populations on a quarterly basis	—	—	64% (7 of 11)	—	—

	Organize intensified immunization activities in districts with the largest number of unvaccinated children	—	—	83% (5 of 6)	—	—
	Ensure daily vaccination in fixed strategy in health facilities by adhering to the open vial rule	—	—	—	94% (15 of 16)	32% (13 of 41)
Logistics of the EPI	Equip 50 health centers with a solar refrigerator	—	—	—	1	0
	Acquire and distribute 422 motorcycles to support immunization activities in remote areas	—	—	—	46% (48 22)	9% (5 of 57)
	Procure and distribute 10 vehicles to support supervision in priority districts	—	—	17% (1 of 6)	—	—
	Form EPI providers in health facilities of the 20 priority districts				94% (15 of 16)	46% (19 of 41)
	Form 50 office health chiefs in the preventive maintenance and repair of solar refrigerators	—	—	100% (2 of 2)	—	—
Supervision	Organize the supervision of the EPI CTG trainings in the regions	100% (3 of 3)	100% (7 of 7)	—	—	—
	Organize biannual integrated supervision in at least 80% of the districts	—	—	55% (6 of 11)	—	—
	Organize supervision of integrated training every two months in at least 60% of areas of health	—	—	45% (5 of 11)	—	—
Leadership and governance	Hold monthly meetings for coordination and integrated data review of in all districts		—	64% (7 of 11)	—	—
	Hold quarterly regional coordination meetings	—	29% (2 of 7)	—	—	—
	Hold a meeting to prepare the terms of reference in districts	—	—	82% (9 of 11)	—	—
	Hold a meeting of micro planning in all health facilities of the District with the participation of all heads of health sectors and communities health chiefs	—	—	55% (6 of 11)	71% (34-48)	40% (23/57)
	Conduct a monitoring session in at least 60% of the health areas	—	—	64% (7 of 11)	71% (34-48)	28% (16 (57)

	Train the EPI 10 accountants in the use of TOMPRO management software	—	71% (5 of 7)	—	—	—
	Prepare a handbook on the procedures of the EPI and financial administrative management	0	—	—	—	—
	Organize a semi-annual joint WHO-MinSanté financial audit on the management of financial resources in the regions	—	71% (5 of 7)	—	—	—
	Support monitoring of Gavi's reprogrammed HSS and the management of resources by WHO and MOH based on Performance-based financing	100% (3 of 3)	—	—	—	—
EPI data	Train at least 50% of district management teams on using the data quality self-assessment tool (DQS)		—	89% (8 of 9)	—	—
	Implement 4 DQS tools in at least 30% of health districts during surveillance in 2014	—	71% (5 of 7)	44% (4 of 9)	—	—
	Install 12 teleconference equipments before the end of 2013 (one per regional delegation of health, MinSanté and CTG of EPI)	100% (3 of 3)	—	—	—	—
	Monthly maintenance of phones in health areas	—	—	0% (0/11)	—	—

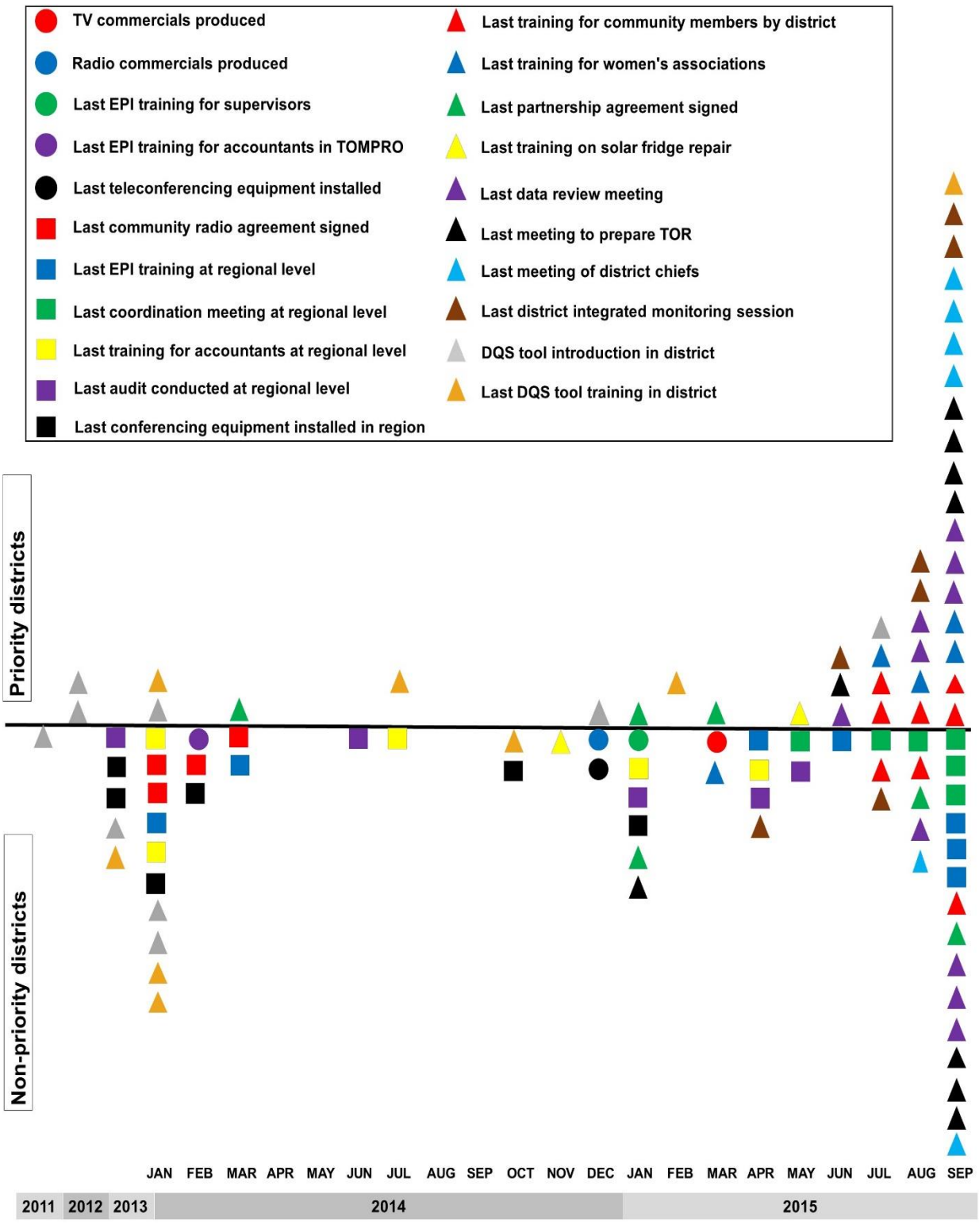

Figure 11: Implementation of HSS reprogrammed activities at the central, regional and district levels, Cameroon, 2013-2015

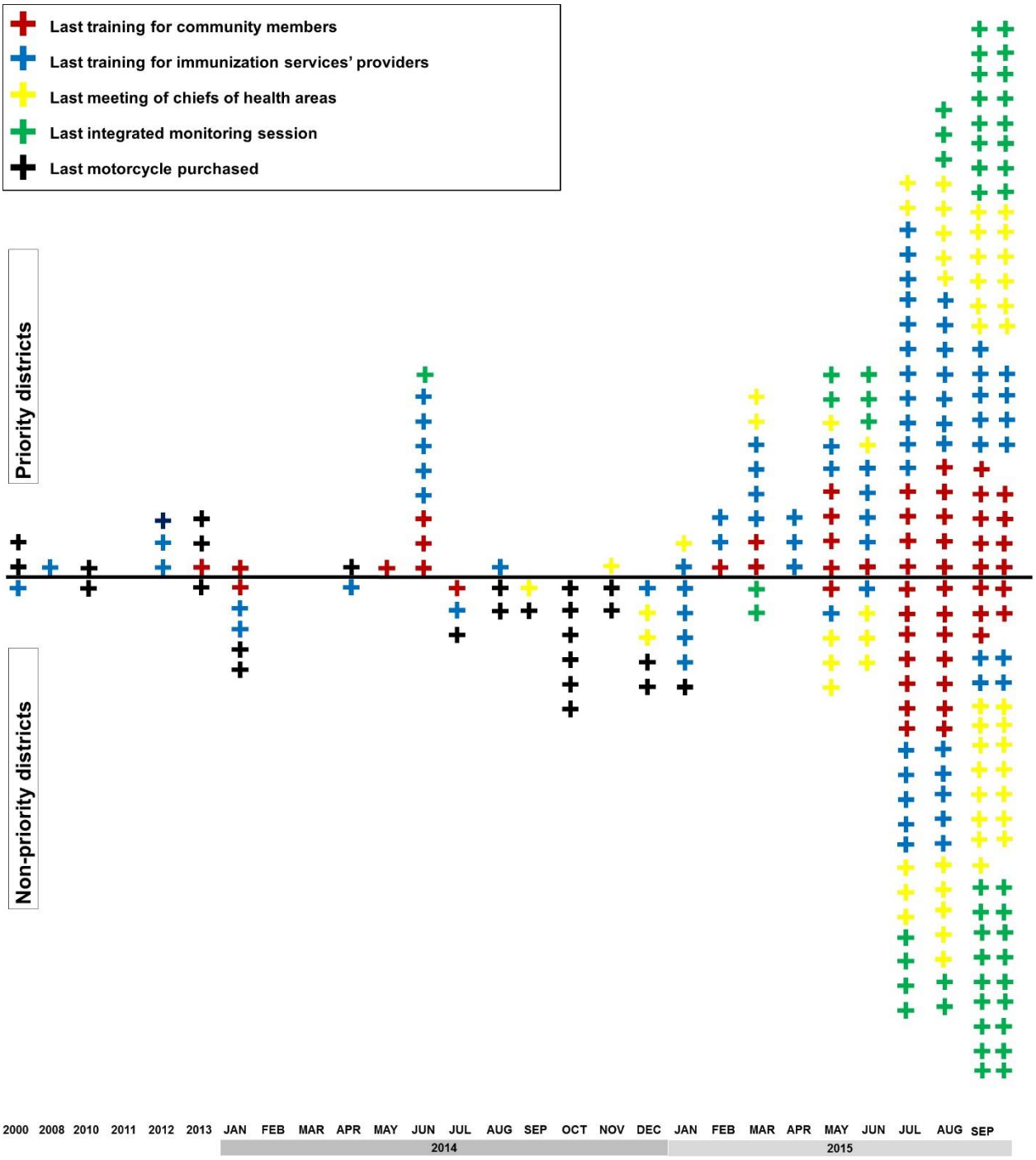

Figure 12: Implementation of HSS reprogrammed activities at the level of the IHC, Cameroon, 2013-2015

Acceptable implementation in a difficult context

The reprogrammed HSS collided with a multitude of obstacles that have slowed its implementation. As noted on the previous figures, activities intensified during the last few months. While certain activities took place early in the program, others were implemented late in certain regions, districts, and health centers. In Figure 11 above, **we note especially the activities occurring at the central and regional level in 2014, with the activities in the districts intensifying especially toward the end of 2015**. Note that the activities combined in January 2014 are mainly due to the bias memory of respondents who did not remember the implementation of the activity in question.

As described in the result above, three major contextual factors have led to the slowdown in the implementation of the program. First, choosing the HSS team at MinSanté was delayed two months until after start of the program. Then the polio outbreak in 2014 both hindered human resources that were already limited and caused a three-month delay in processing the supporting documents. Finally, the delay in providing proof of the polio campaigns led to the embargo of the financial system of WHO, resulting in discontinuation of any substantive disbursement, including those of HSS; therefore, almost no activity was implemented for four months. Indeed, the first half of the year 2014 seemed to have no activity implementation.

Yet despite these obstacles, an acceptable proportion of the HSS activities was implemented as seen in Table 5, showing adaptability of the management of the program.

Proper monitoring and evaluation system due to effective coordination between the partners

Both HSS teams seemed to follow the implementation of activities. Apart from the monthly meetings of coordination attended by partners, as well as the weekly EPI, the two teams regularly conducted field missions to verify the implementation of the program and produce monthly reports documenting the implementation of activities and the progress of the project[24-36]. They also conducted monitoring meetings with the regions every six months. Thus, Gavi received a report almost every three months from WHO, in addition to the tasks carried out by the representative of Gavi in Cameroon, joint meetings, and the mid-term evaluation. Also, as HSS activities are part of the plan of the EPI, they are followed at the same time as those of the EPI. **At the central, regional and even HD level, one team or the other can directly monitor the implementation, while follow-up at the operational level is provided by PROVARESC**

and FESADE, who implement the communication activities in all HD and the Agence de Médecine Préventive in priority districts through formative supervision. For these organizations, given that the implementation of their activities is only at 50%, it is too early to measure the success of their activities and whether they were able to achieve their goals. Thus, our assessment cannot measure the quality of these interventions. This quality could be better estimated if the activities concerned led to an increase in the demand for vaccine among the population. Nevertheless, the representatives of those organizations that have been encountered show a profound knowledge of the program, as well as active participation in the follow-up activities.

Indeed, according to our KI, the follow-up of activities showed that some activities or indicators were almost impossible to achieve. Thus some have been eliminated or adjusted in coordination with Gavi. Some of our KI are not sure that the data is of good quality, but believe that they can be strengthened. As for the tracking of finances, it is provided through WHO, the financial manager of HSS, through a global system.

Indicators retained in the reprogramming are mainly implementation indicators and not only results, which in our opinion constitutes a strong point of the proposal. These indicators will be further discussed in the section of HSS results.

Result 6: Adherence to the original plan in spending but high HSS management cost affecting the efficiency

Evaluation domain	Method	Robustness of findings
Efficiency	DR, KII, FA, FV	B

Evaluation questions:

- *To what extent have the financial resources been used as planned, in accordance with the rules laid down by Gavi and the provisions of the National Manual of Procedures, to an efficient end?*
- *What could be done differently to improve efficiency?*
- *What are the contextual factors that might explain the rate of use of funds received?*
- *Were there delays and bottlenecks in the availability of funds and financial flows, and at what levels? What were the causes and how were they solved? What has been the impact of the regional Gavi accounts?*
- *Were there financial follow-ups carried out at the operational level? What were the limitation of risk measures undertaken and how were they applied? Were the results of these actions (positive or negative) added values or implications?*

The reprogrammed HSS benefited from the WHO's financial system for financial management. As detailed in the report of HSS activities of June 30, 2015, and presented in Figure 13, expenditures were made almost as planned. Thus, in terms of expenditure on activities, HSS is efficient[37].

However, efficiency is not only a question of correct expenditure, but also the effectiveness of spending, purpose and investment area.

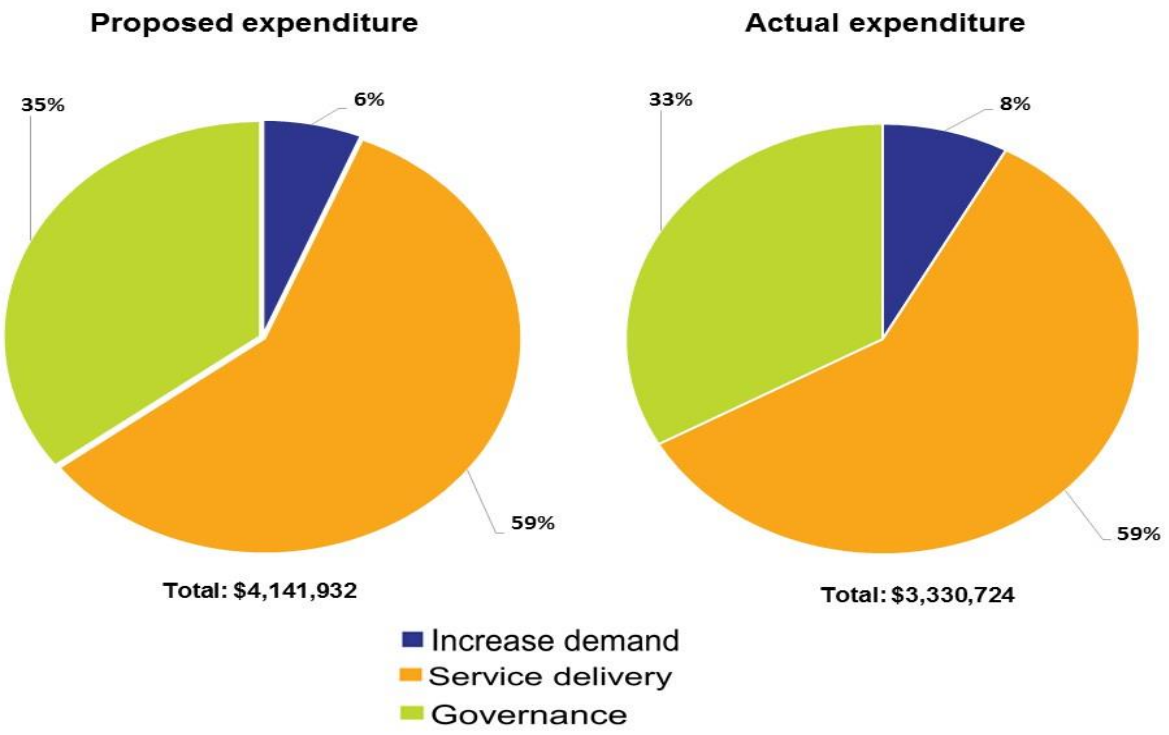

Figure 13: Proposed and actual expenditures of the reprogrammed HSS, Cameroon, 2014-2015

As described in Result 4, while the WHO financial system ensures correct expenditure, this system does not distinguish between different programs' funds. Firstly, because of the delay in receipts from the polio campaigns in 2014, HSS funds were blocked for four months, preventing any HSS activity from occurring. Secondly, almost 15% of the total is intended for management of the program costs. We do not consider that what was spent in this field as a loss, but perhaps in the hands of MinSanté, the management would have cost less. Thirdly, **while the activities selected by the HSS are for the most part necessary, investment in the cold chain process should have been more important, especially as Cameroon is known for a weak cold chain**[38]. The proof lies in the fact that Cameroon has recently lost the equivalent of 250 million CFA of vaccines: "Cameroon has the lowest capacity of cold chain. They take money but do not buy refrigerators; they have a loss of 250 million CFA of vaccines spoiled being subjected to heat above the required standard." The reprogrammed HSS included the purchase of 50 solar refrigerators. Indeed, of the 11 HD that were visited, only two reported that a health center in their territory received a solar fridge, and of the 105 IHC visited during the FV, only one center reported the availability of a solar refrigerator for the storage of vaccines.

Result 7: Average achievement of activities' indicators but remarkable growth in vaccine coverage and reduction in under-5 mortality close to the Millennium Development Goal

Evaluation domain	Methods	Robustness of findings
Results	DR, KII, FV, SAE, FA	A

Evaluation questions:

- *To what extent have certain major activities been effective in reaching their own goals (supervision, training, community mobilization, etc.), and what are the factors that could explain these results (management of human resources such as motivation; rewards of effort; social factors in general; quality of services; relevance of the benefits?)*
- *To what extent has this type of support added value compared to other means of financing the health system in Cameroon? Did it play a catalytic role? Was it complementary?*
- *What have been the unintended consequences (positive and negative) of the HSS program?*
- *To what extent has the joint vaccine financing policy influence coverage worked and especially for traditional vaccines?*
- *To what extent were the expected results of the HSS program achieved? (Refer to indicators of results established by Gavi and those established by the country in its bid and its reprogramming)?*
- *What are the contextual factors that might explain the degree of achievement for certain outcomes (threat of terrorism, epidemics, non-implementation of activities, etc.)?*
- *To what extent can the results be attributed to the Gavi-funded program?*
- *What measures could be taken to improve the effectiveness of the program?*

Progress in immunization coverage and under-5 mortality

In 2006, Cameroon targeted a 90% DTP3 national coverage and mortality and morbidity due to measles reduced by 95% and 90%, respectively.

- **National DTP3 coverage is at 79% in 2014** with 56% of the HD ≥ 80% coverage (74% of priority HD and 54% of non-priority HD). Figure 14 shows DTP3 coverage in 2014 by department. Table 2 of the annex presents estimates of DTP3 coverage by department for the years 2014 and 2015.
- Mortality due to measles was in 2013 at 35 per 100,000 children aged less than five years (111 per 100,000 in the year 2000), according to the Global Burden of Disease Study (the rate for 2015 is still not available)[39].
- **The under-5 mortality by 2015 should be 8.5% (95% confidence interval [CI]: 7.2, 10.1)**[40] (his rate should be 7.5% according to the Millennium Development Goals). Note that the figures for the year 2015 are still not finalized and could have minor revision with the completion of the study.

Vaccination results cannot be attributed only to the HSS of Gavi but to all funding having targeted the EPI during the past years. Table 6 (source: report of the joint assessment) details funding received by Cameroon for vaccination.

Table 6: Financing of immunization in Cameroon, by source, 2010-2014

Year	Total volume	GAVI	State	Other partners
2010	36 858 759	24177 520	8248 188	4433 052
2011	25 955 261	19 310 123	3025 596	3619 542
2012	34710425	24 777 733	3452 776	6479 917
2013	28792783	18120 752	4471 348	6 200 683
2014	39 475981	19 260 742	3951390	16 263 849

Figures 15 and 16 show trends in under-5 mortality and DTP3 coverage. Figure 17 shows the change in DTP3 coverage by department – results are presented at the level of the departments due to the small size of the samples of the surveys analyzed at the level of the HD. These results can be produced at the level of the HD, with greater confidence and with access to data from the MICS 2014. For Figures 14 and 16, **it should be noted that the departments containing priority HD have always had higher immunization coverage than elsewhere**. It should be recalled here as well that our SAE analysis includes only the immunization coverage reported at the national level in the preliminary report on the results of the survey MICS 2014. The results could be changed with access to the same data.

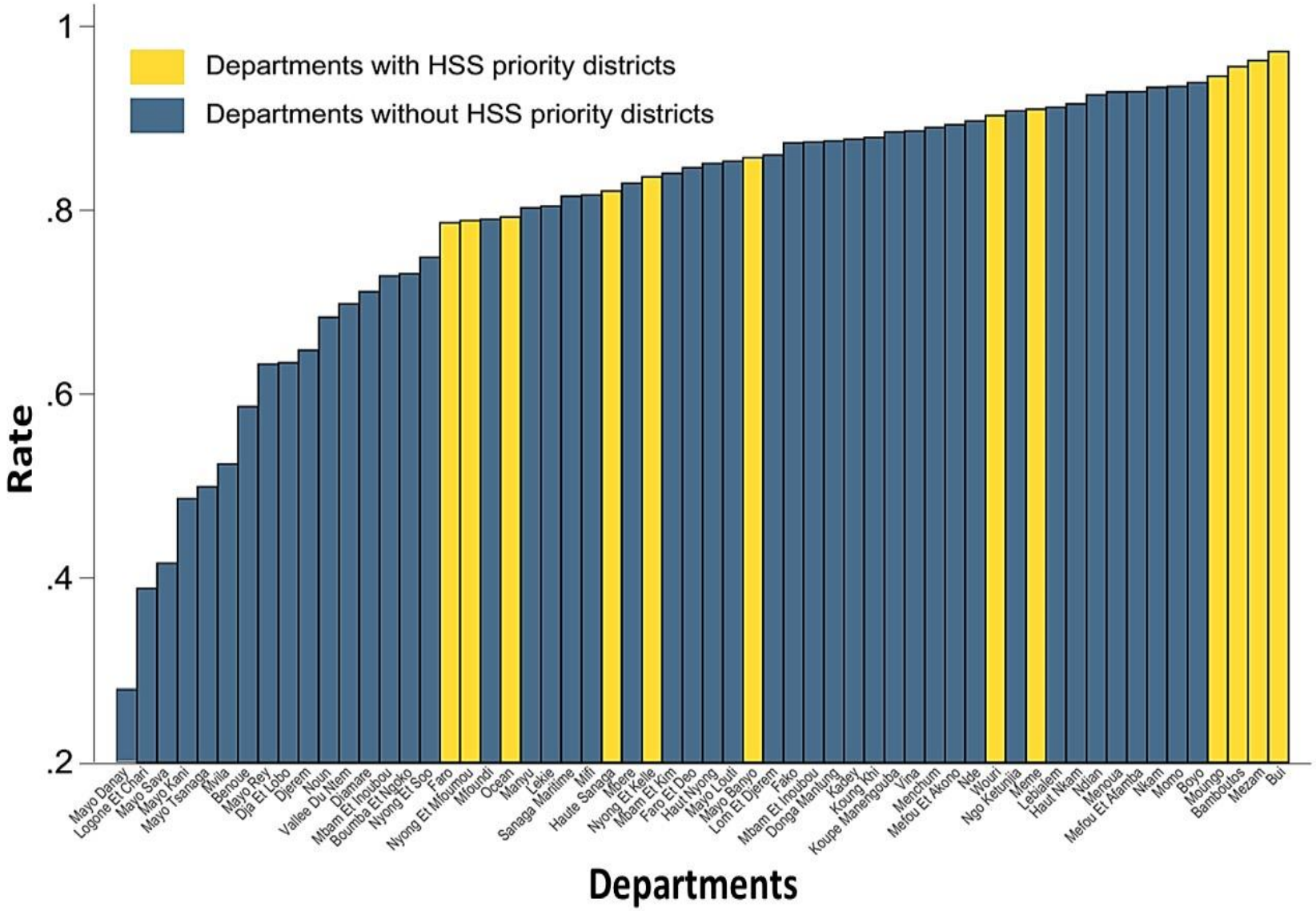

Figure 14: DPT3 coverage by departments, SAE, Cameroon, 2014

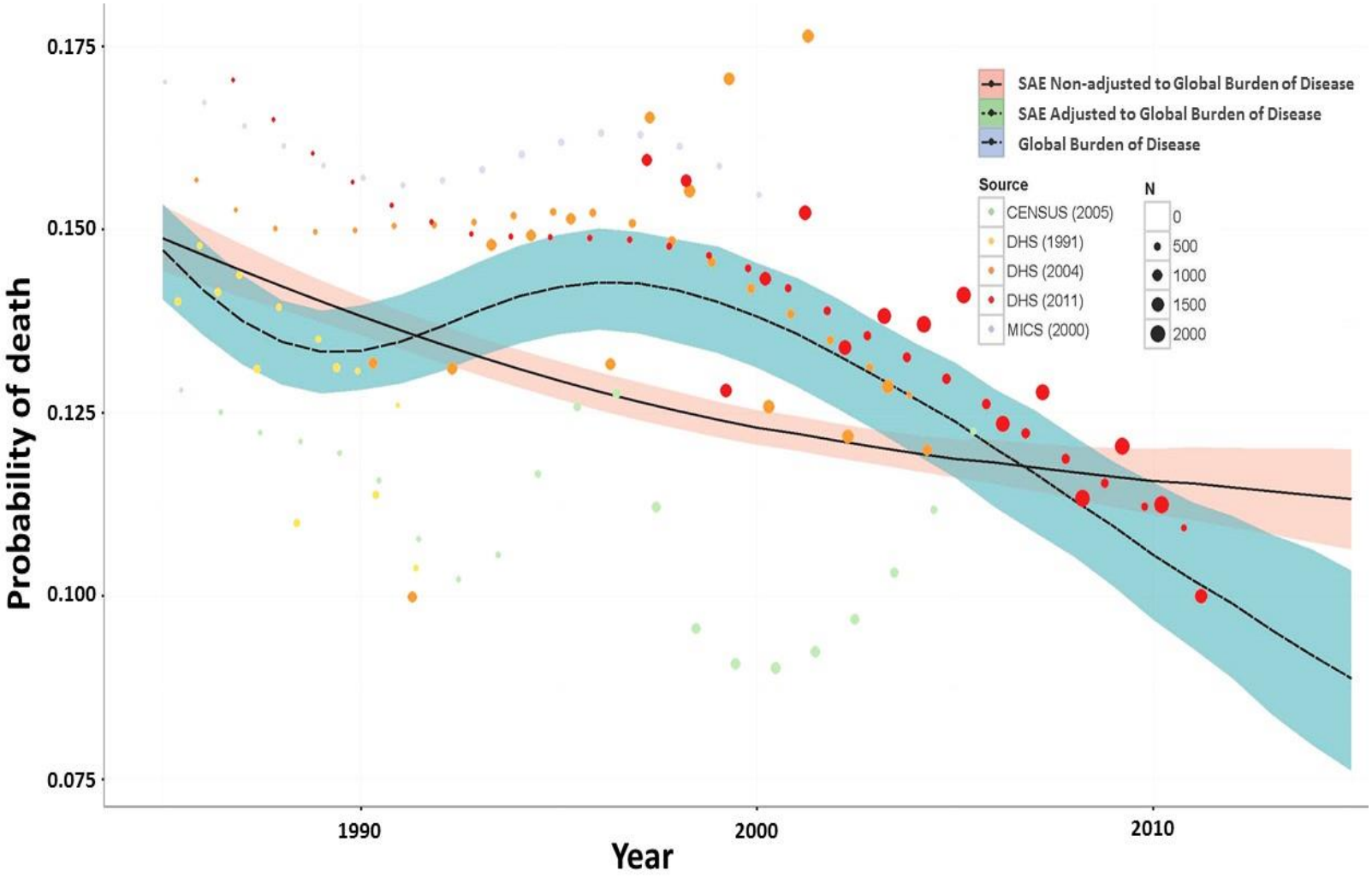

Figure 15: Trends of under-5 mortality in Cameroon, according to the SAE, adjusted, and non-adjusted, to the study of the Global Burden of Disease, and the Global Burden of Disease Study, 1985-2013

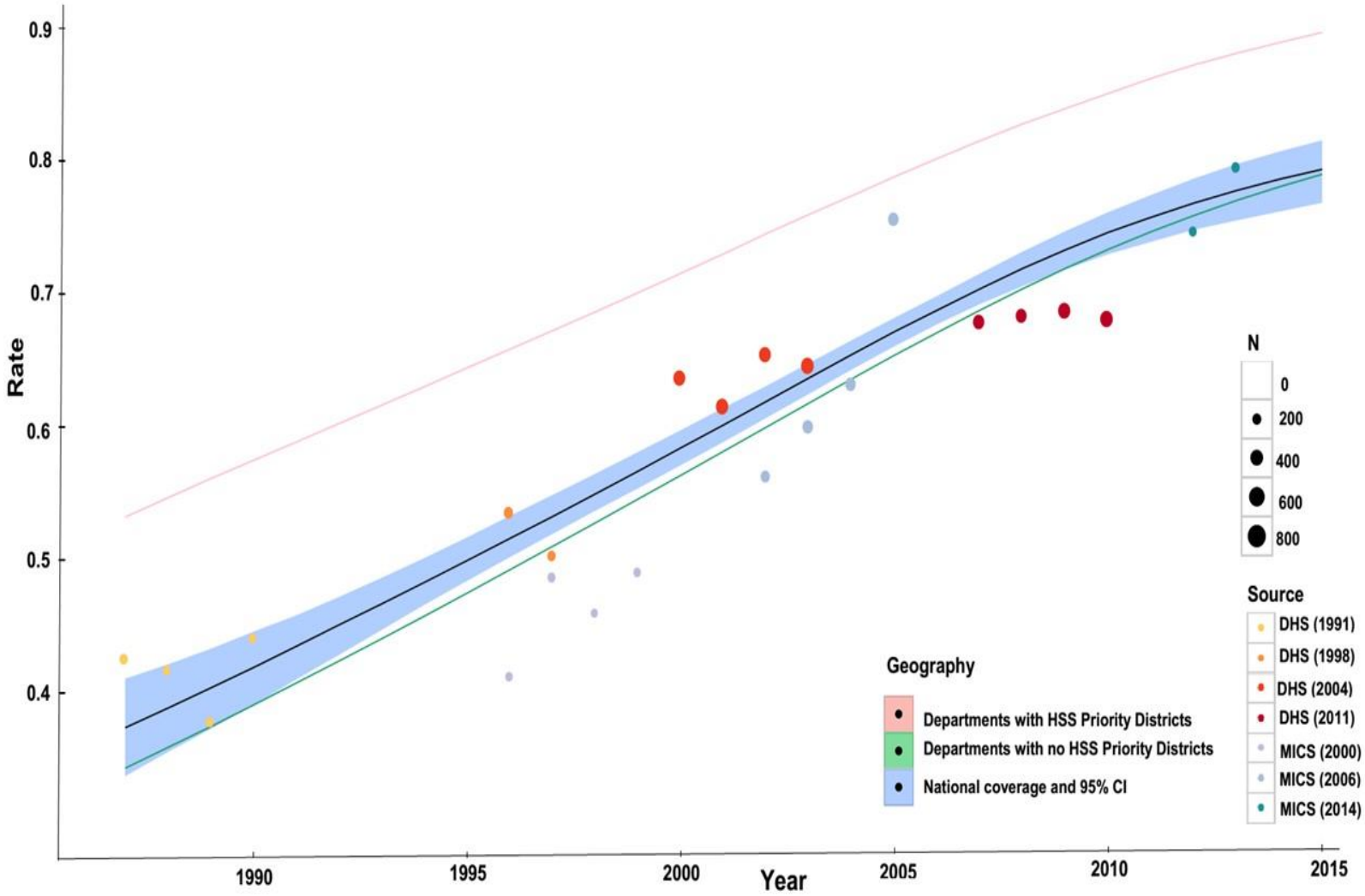

Figure 16: Evolution of DTP3 coverage at the national level, and the HSS priority and non-priority departments, Cameroon, according to SAE, 1985-2015

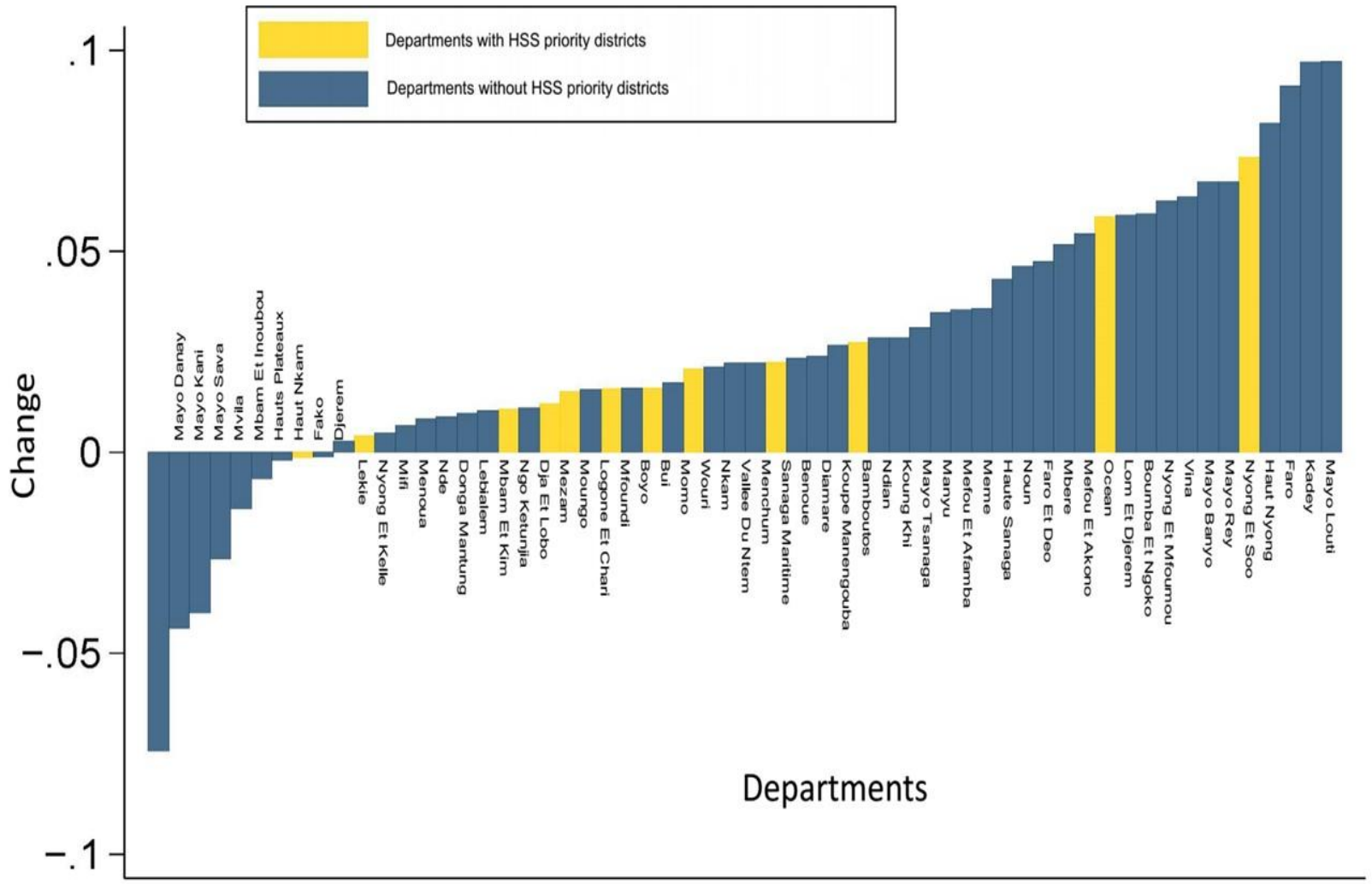

Figure 17: Change of DTP3 coverage at the departments' level, Cameroon, 2011-2014

Average achievement of indicators in a difficult context and with the delay of implementation

Reprogrammed HSS indicators mainly consist of output indicators. In comparison to our KI, Table 7 shows the degree of achievement of these indicators from our FV. Note that the measured implementation is not necessarily a result of only Gavi's HSS.

Table 7: Degree of achievement of the indicators of the reprogrammed HSS, Cameroon, 2015

Objective	Indicators	Results (level)	Target
Involve communities in the EPI in all 181 HD	% of discussions with at least one person trained in EPI	73% (DS) 50% (public CS) 50% (CS private)	100%
	% of HD has formed at least 5 of the women associations in EPI	45% (DS)	100%
	% of HD who have signed agreements of partnership with at least 1 community organization	55% (DS)	60%
Implement at least 80% of immunization in fixed, advanced, and mobile strategies laid down in the health areas	% of children (DTP3) and pregnant women (TT2) vaccinated in advanced and mobile strategies	–	15%
	% of children (DTC-Hep_Hib3) and pregnant women (TT2) vaccinated in strategies fixed	–	70%
	% of children (DTC-Hep_Hib3) and pregnant women (TT2) vaccinated all the quarters in remote areas	–	15%
	National immunization coverage in TPD-Hep_Hib3	DPT3: 79% (2014)	88%
	National immunization coverage in MV	78% (2014)	87%
	Ratio of the HD with VC DTC-HepB-Hib3≥80%	DPT3: 56% (2014)	85%
	Specific dropout rate	–	8%
Strengthen the logistical support of the EPI at the operational level	% of health facilities identified with solar refrigerator	18% (DS) 2% (public CS) 0% (CS private)	100%
	% of HD identified with service providers who have been trained in EPI	100% (public CS) 90% (CS private)	100%
Implement at least 50% of the supervision at all levels	Supervisions by the GTC EPI completion rate	100% (regional)	100%
	% of areas of health having at least a motorcycle	49% (public CS) 15% (CS private)	50%
Strengthen the leadership, coordination and governance in 100% of regional delegations and in at least 80% of the HD of health	% of regional delegations which hold coordination meetings	91% (DS) 86% (regional)	60%
	% of EPI accountants trained in the use of management ANN_WANGECI software	71% (regional)	100%
Improve the quality and completeness of the data of the EPI in at least 50% of the health areas	% of the HD in which at least one Member is formed to the DQS	89%	40%
	% of the teleconference equipment installed	100% (central)	100%
	Completeness of the RMA of EPI in the HD	–	100%
	Timeliness of RMA's of EPI in the HD	–	70%

Given the context in which the reprogrammed HSS has been implemented, it was impossible to achieve such indicators as planned. For example, **the activities pertaining to links with the community, implemented by civil society organizations were implemented toward the end of 2015. Thus, it is difficult to measure an effect of these activities before at least one or two years and through something like a survey of VC**. The factors affecting these results are described in the previous results (delay in the HSS process, delay in the appointment of the HSS team at MinSanté, WHO embargo and reduced efficiency due to costs of program management). However, in our opinion what has been done reflects the commitment of all HSS leaders. **What we mostly observed is the will of the national team to restore the image of MinSanté, which was tarnished in the first phase of the HSS, by doing their best during the reprogramming and with the help of the WHO team.** Regarding the indicators of activities, the results can be at least partially attributed to the HSS of Gavi because this is the program that allowed their implementation. However, it is premature and difficult to measure whether these activities have achieved their objectives. Indeed, the degree of implementation reported by WHO KI, and in the annual progress report, is very close to our results from the FV. Thus, we encourage the continuation of this system.

Mostly positive unexpected outcomes

The HSS has allowed the realization of several unplanned facts. According to our KI, partners tend to interact more frequently (such as through coordination meetings), but also position themselves for receiving financial support during the next HSS, a role which is not normally theirs.

Despite the plight of the first phase of the HSS, this step has contributed to the establishment of a culture of planning and coordination that did not exist before. Similarly, despite the negative effect of WHO's embargo of the financial system in 2014, the requirement of receipts has strengthened the accounting system, a culture that also did not exist previously. On the other hand, our KIs appreciate the holistic approach to HSS which affects several areas of the HS and all regions of Cameroon.

However, two unintended negative consequences resulted from this HSS. First, a huge effort was invested to assess deviations between 2009 and 2012, and then to reprogram HSS. Then, due to the implementation being delayed several months in 2014, the program had to be extended twice because of the embargo on the finances.

Finally, it is difficult to say that HSS has played its catalytic or supplementary role. Both HSS proposals in 2006 and 2013 show a complementarity of funding through partners. However, as will be seen later for sustainability, several HSS-funded activities are of limited sustainability and could have offered an opportunity to complement the HSS fund by other sources. Here, too, we believe that the HSS management cost on the part of WHO could have been an opportunity for partners, such as WHO, to provide complementarity of funds supporting its team HSS fees.

Result 8: Sustainability of gains conditioned on the availability of funding and the culture of accountability

Evaluation domain	Methods	Robustness of findings
Sustainability	DR, KII	B

Evaluation questions:
How are the achievements of the HSS program at different levels (national, regional, and operational) sustainable from a financial and program-level point of view?

The domains targeted by the HSS are not all of the six domains of HS as defined by WHO, specifically the demand generation through the implication of the community. With the delay of the HSS in general, the implication of civil society organizations was also delayed. Thus, the activities of the HSS that are supposed to be implemented by these organizations and strengthen ties with the community in order to increase demand for vaccination, are still in their beginning stages. These links require more time before being well-established and strengthened enough to lead to the desired objective. With the end of the HSS, if a new HSS does not provide for a relay of these activities, or if another source of funding is not found, it would be difficult not only to ensure their sustainability, but simply to see any gains. We cannot yet really appreciate the effect of the implication of civil society organizations given their late involvement and the recent implementation of most of their interventions.

Regarding service provision, many of the activities implemented also require continuity of funding. For example, while acquiring motorcycles or vehicles is sustainable, the cost of maintaining them is not, and should then be provided with a fund other than HSS. This is also the case of the telephone fleet. This tool requires a high cost of telecommunications that the State has interest in covering. Such activity could not be funded by sources such as HSS, which can be renewed at most one more time. Like the telephone fleet, all acquired logistics, such as the cold chain, also require a maintenance plan to ensure their sustainability.

The area that we find more sustainable would be governance. We have seen how, through this HSS, cultures of coordination and accountability have been established. It is difficult, but not impossible, for such achievements to be lost. For example, because of the financial system of WHO, the accounting system of MinSanté/EPI has been strengthened through easier and more systematic collection of receipts. **However, until September 2015, the financial management manual was still not finalized. Thus, this culture of accountability could easily be lost if a**

system is not implemented to enforce it. This concept applies to the majority of the governance activities. For example, we see that there was a strengthening of supervision activities. However, if these activities are not made under written standards and adopted, they could lose their effectiveness. Apart from the manuals, a continuous monitoring system should be put in place to take corrective actions when necessary.

In the domain of strengthening the EPI, we observed during the FV that advanced strategy approaches are promising and likely to contribute to the improvement of the VC. But vaccination campaigns during which the mobile approaches are most commonly used are expensive. Thus investment in routine immunization could increase both the efficiency of the funds and the sustainability of the gains at the same time.

Because Cameroon will no longer be eligible for assistance from Gavi in five years, an exit plan should be prepared, not only for this HSS, but for the future, in order to ensure the sustainability of the achievements of Gavi or any other partner in the HS.

Result 9: conclusions and lessons for the future

Evaluation domain	Method	Robustness of findings
Lessons for the future	DR, KII, FA, SAE, FV	A

Evaluation questions:
What are the important lessons that can be drawn to enable:

- *Better design and implementation of the HSS program in the future?*
- *A revised design, monitoring and evaluation of the HSS of Gavi programs in general?*

Lessons learned from the original 2006 HSS

1. Rushing the HSS application to meet the HSS window opportunity led to a poorly designed program in 2006.
2. The lack of a specific exercise for the identification of bottlenecks along with the exclusion of the intermediate and peripheral levels have led to improper selection of activities and which did not show a clear link with vaccine coverage.
3. The decision point to assign the management of HSS to the Technical Secretariat responsible for piloting the sectoral health strategy, its supervision, and the absence of clear guidelines from Gavi on the implementation and financial management have led to a random implementation and a deviation from the forecasts.
4. **Despite the drawbacks, a culture of planning and coordination was born in Cameroon, a culture that was missing until 2007 and to which HSS has greatly contributed.**
5. Non-compliance with the original plan led to a waste of resources invested in the investigation of deviations and then in reprogramming.

Lessons learned from the reprogrammed HSS 2013

1. **The reprogramming of HSS has been well-thought-out, in collaboration with partners, all levels of the HS, and in direct involvement of Gavi.**
2. The identification of bottlenecks consumed excessive human and material resources.
3. Activities are better articulated, but the plan and the objectives do not seem to reflect the real capacity of the country to implement.
4. Investment in the cold chain could be more pronounced, given the weakness of this domain in Cameroon.

5. Indicators in the reprogramming proposal are mainly implementation indicators and not just results, which is a strong point of the proposal.
6. Priority districts have, for the most part, performed better than elsewhere in VC since before 2011.
7. The timely decision to designate WHO for the financial management of HSS was excellent and prevented a long wait, during which the country would have needed to develop its own system of financial management of HSS.
8. The oversight of the management model implemented consisting of the supervision of HSS by the Division of Cooperation and the direct involvement of partners, specifically WHO, led to a better respect of the original plan and budget.
9. **The role played by WHO at the program level led to the strengthening of the accounting system, adherence to the original HSS spending plan, and created a culture of accountability at MinSanté**.
10. On the other hand, the efficiency and effectiveness of the program have been reduced due to higher management fees and the internal procedures of WHO that blocked the implementation for several months.
11. A confusion of roles between MinSanté and WHO at the level of governance led to tensions affecting the relations between the two partners.
12. **The system of monthly meetings has created a good environment for the resolution of conflicts and allowed a good monitoring of activities.**
13. The objective of transferring skills from WHO to MinSanté was not reached, given that both teams come from EPI and the local team was replaced during the program. Rather, it was the team that went to WHO that gained experience working directly according to WHO standards.
14. The late implementation of planned activities seems acceptable given the difficult context that the program went through (delay in the HSS process, delay in the appointment of the HSS team at MinSanté, the polio outbreak, WHO embargo, and reduced efficiency due to costs of program management).
15. With an implementation level of 50%, intermediate results were also achieved at 50%, while 80% of the budget was already consumed by July 2015.
16. **Implementation is almost identical in the priority and non-priority districts.**
17. The District Chief Medical Officers encountered are not always informed of the source of funding for their activities. Also, the technical and operational teams receive the

information, most of the time, when the activity is almost already underway and in the best of cases, the day before the holding activity.

18. The delay of the financial management manual poses a risk to the new accountability culture.
19. **Links with the community through this HSS, are at the beginning stage with an implementation close to 50%.** Thus, an effect of this domain on the VC is difficult to measure before at least one or two years.

Common lessons from the original and reprogrammed HSS

1. The two programs were weakly planned vis-à-vis the time needed for the process of submission, approval, and disbursement of funds and the start of implementation.
2. The delay of funds and poor planning especially delayed activities at the peripheral level in 2007 and 2014.
3. Sustainability of gains is conditional on the availability of funding and the strengthening of the management of the HS.
4. Neither of the two programs have considered a plan to ensure the sustainability of the gains, or a certain exit plan at the end of HSS, and this will be crucial for the next HSS.

Chapter IV: Recommendations

We develop here a list of recommendations based on our observations during the data collection, as well as on the data collected, the analysis, and the results. We refer readers to the outcome or findings that led to the development of each recommendation.

Recommendations to the MINSANTÉ and EPI

Design of the new HSS application

- The design of HSS should be done through consultation with different stakeholders in general, and especially those who are not at the central level **(Results 1, 3, 5)**.
    - We recommend a total involvement of different sub-sectors of the HS: public, private (private for-profit, nonprofit, denominational, and secular), to the extent that the EPI is no longer an option in health institutions.
- The identification of bottlenecks would be better conducted based on a collection of data from a representative sample of the IHC and interviews with the those at the operational level of the HS and the community, especially the isolated populations **(Result 3)**.
- For the activities of the overall strengthening of the health system, it is essential to consider the domains where investment could be more sustainable and which would really strengthen the system as a whole. (Effort could be routed from 1) management and governance, human resources and health information, to 2) logistics, health services, and medical products **(Results 5, 7, 8)**.
    - Given the importance that financial management has occupied in the history of the HSS in Cameroon, we recommend the strengthening of this domain prior to submission of the HSS application. Management mechanisms must be known before the disbursement of funds. Thus the finalization of ongoing financial management manuals is paramount.
    - We recommend special attention, in the HSS II, to the demands being generated. The implementation of activities in this field should be closely followed during the first year. At the end of this first year, a decision could be taken whether these activities should continue to be funded at the same level or whether funding should be reprogrammed or reviewed.
    - Human resources are a great weakness of the HS in Cameroon. MinSanté in general, as well as HD services need to increase their human resources to be able to meet the expectations of their populations and partners.
    - We recommend that Cameroon invest more in its health information system.

- Consider training heads of regional delegations and HD in the production of health statistics reports.

- The selection of activities should take into account **(Results 6, 7, 8)**:
  - Efficiency: funds must be invested so as to maximize the results.
  - Sustainability: funds must be invested in sustainable domains and activities.
  - The catalytic role of HSS: the cost of activities should not be covered in full by the HSS, but rather benefit from other donors.
- The HSS application should distinguish what areas and activities should be financed by the HSS and which of these should be financed from other funds or partners **(Result 7)**.
- We recommend a greater budget allocation for training and the transport of vaccinators and those in charge of social mobilization. Thus, other funds should be ensured to provide rewards and per diems as fair compensation **(Results 5, 7)**.
- An equitable distribution of human and material resources would be more efficient **(Result 5)**.
- In case the country decides to prioritize HD for HSS II, 2014 VC would be the ultimate indicator for the selection of these districts **(Results 3, 7)**.
- On sustainability, if vehicles (motorcycles and 4 x 4 cars) of some HD and IHC supply is effective, it remains no less that their operating conditions are the sole responsibility of their main user. Their effectiveness is hence limited. Thus, it would be essential to secure funds specific to this use, which also meets the catalytic role of the HSS. This same principle applies to the telephone fleet which is essential, but whose maintenance and operation costs are high and should not be covered by HSS **(Results 6, 8)**.
- It is up to MinSanté to decide whether WHO should continue in its role as financial manager, or regain its role as partner providing technical assistance. An option to consider would be to split the difference: MinSanté could manage the funds' activities and go through partners, including WHO and UNICEF, for equipment purchasing **(Results 4)**.
- Realistic planning should take account of the process of submission, approval and disbursement of funds. The beginning of the implementation should take account of this process **(Results 2, 3)**.

Implementation

- The composition of the HSS team should be configured in advance of implementation. One option would be to form a team comprising individuals from the two current mirror teams within MinSanté to draw on their experience **(Results 4, 5)**.
- HSS activities must be integrated into annual work plans of the HD and IHC **(Result 5)**.

Monitoring and evaluation

- An active mapping of health institutions on the national territory is necessary for their monitoring **(Result 5)**.
- We recommend that a collaboration between the HSS management and the health information unit be formed, which is likely to inform on Gavi's activities. Also, the regional delegations and the HD should be trained in the production of analytic reports of health statistics **(Result 5)**.
- We recommend utilizing indicators of activities or outputs used for the reprogrammed HSS. Also, methods to track indicators on the activities could be strengthened and activated at different levels of the HS **(Result 5)**.

Recommendations to WHO and health partners

- The role played by WHO has considerably strengthened the accounting system of the EPI. Therefore, we recommend a transfer of this expertise in the finalization of financial management manuals to assist the country to conserve and enhance the culture of accountability born through the implementation of the reprogrammed HSS **(Results 6, 8)**.
- Any role played by WHO, and other partners, should not be paid from the HSS. HSS funds should be devoted only to its implementation in order to ensure optimum efficiency **(6 results)**.
- We encourage the system of meetings and newsletters to be set up for monitoring of the reprogrammed HSS. At this point, the partners could offer technical assistance in the monitoring and verification of the implementation on the ground **(Results 5, 7)**.
- Implementation of rescheduled activities was not different, nor has it led to a difference between the priority HD VC and elsewhere. Thus, we will not be able to advice on continuing the geographical designation to selected partners for the implementation of activities. It is up to MinSanté to consider if it should be the case or not **(Results 5, 7)**.

- Key actors (Agence de Médecine Préventive, civil society organizations, or others) should be clearly identified, and their role should be determined during the design of HSS **(Results 5, 7)**.

Recommendations to civil society organizations

- These organizations included in the HSS II should put forth the same effort in implementing the reprogrammed HSS in order to contribute to the same effect of meeting the level of demand for services and the VC **(Results 1, 3)**.

Recommendations to Gavi

Design

- We recommend that Gavi be represented during the development of HSS applications in order to contribute to the discussion on the choice of HSS activities, or at least the HS domains to target.
- Gavi should clarify its purpose of the HSS support: is it only for EPI activities or for the strengthening of the HS globally? This distinction would have wide implications for the design of the program, especially regarding the areas to focus on and activities to choose. We recognize that this involvement could be larger than for the specific case of a single country.
- Gavi and its partners should help countries reflect the catalytic role of HSS in their application. Explanations regarding the integration of the activities, the complementarity of funds, and the choice of strategies could be included in the guidelines. This area could also be strengthened through the participation of Gavi in the design of applications **(Results 1, 3, 7)**.
- Gavi should ensure that the country knows the procedures to be followed in the financial management and the implementation of HSS. Documents relating to the administrative and financial management procedures must be validated and agreed upon by both parties (MinSanté and Gavi) before the funds are disbursed or implementation starts **(Results 1, 2)**.

Implementation

- During the implementation, it is important to strengthen frameworks for permanent consultation between GAVI and the country in order to ensure better monitoring of the HSS **(Outcome 5)**.

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Annex

Table 1: Key findings of the evaluation of the strengthening of the health system of Gavi in Cameroon by questions and areas of assessment

Domain	Assessment issues	Results
Development, design, and implementation	To what extent was the request for support developed in consultation with the different partners?	The decision to seek support for the strengthening of the system of health (HSS) was aligned with the strategy sectoral health (SSS). The proposal was developed in cooperation with the partners in health, but especially accelerated for the HSS opportunity.
	To what extent the content of the request for support of Cameroon in Gavi has been: -Based on a rigorous assessment of needs and the main bottlenecks of the health system -Based on integrated strategies aimed at addressing bottlenecks. -Based on a realistic diagnosis of opportunities for the country to implement the program and in particular in relation to human resources (quantity and qualifications) required at all levels -Based on complementarity of activities funded by the various partners. -Based on a rigorous assessment of the specific characteristics of the different regions of the country and in particular urban areas, in order to adapt the strategies for action to their own characteristics. -Based on a theory of change with strong links between planned activities and the improvement of the health system in general and the vaccination program, in particular its components of introducing new vaccines and improving immunization coverage.	With the technical and financial partners of health assistance, especially the World Health Organization (WHO), the Secretariat of the sectoral health strategy steering developed the first HSS application. A health system bottlenecks identification exercise was conducted with the support of the World Bank. The different partners had not agreed on the choice of activities but differences have faded under various circumstances. There was a consensus on the principle of going to the sectoral approach. In the application, there was no indication of a link between the strategies adopted and coverage or the performance of the EPI. Financially, the review of the proposal indicates a complementarity of the funds of the HSS made available by the government and the various partners. As such, those from Gavi are estimated at 50.2% of the total cost. A weak point of the design of the program was the non-involvement of the peripheral level and the limited involvement of the intermediate level. All the same, neither the ability of the country towards the implementation nor regional specificities towards the adaptability of the activities, have been taken into account.

	To what extent the reprogramming of activities was justified, well conducted and relevant: -What were the main factors that led to the rescheduling of activities? -How has the process been initiated and led? What has been the role of the partners? What communication with the Gavi Secretariat that has been effective? -On what basis has new business been identified? Has reprogramming taken into account the lessons learned from the first phase of implementation?	The Technical Secretariat in its time, has managed funds without systemic supervision. The system in place did not allow transparency for financial management, marked by the absence of supporting documentation for purchases and transfers to districts. However, with the absence of clear standards of management, the country was left to trial and error. This has enabled a broad interpretation of the spending. As a result, nearly 60% activities have been implemented beyond acceptable limits. At the end of 2009, Gavi began a series of evaluation on the financial management of its funds in Cameroon. These evaluations have highlighted several irregularities and the lack of control on finances. It is for this reason that Gavi has decided to suspend the funds and thus all the activities of the HSS program. With the suspension of funds and activities, the sector-wide approach in place has been disturbed with almost a total loss of the concept of harmonization. Cameroon acknowledged the error and agreed to reimburse the ineligible funds. With awareness from the country, the conflict was resolved and could no longer block the ongoing process. The government requested that it resume cooperation so that the acquired money remains in the sector and goes to the EPI despite a massive investment of Gavi. MinSanté designated WHO as a financial manager for the next period. New activities were based on an additional effort for the identification of bottlenecks. This effort had to consume human resources and material excess. Activities are better articulated, and emphasis of activities related to the management and governance, such as the development of financial management manuals and training of accountants, are clear lessons learned from the first period. However, the plan and the objectives do not appear to take into account actual capacity of the country for the implementation and submission procedures, approval and disbursement of funds. However, several sanitary districts were prioritized while being less efficient in immunization coverage.
	To what extent have the new measures of channeling funds to WHO been an effective measure: -To what extent was the coordination between units of the Department and who well-conducted? -To what extent are the activities of the two units complementary (human resources, expertise, and roles)? -To what extent has this measure allowed accelerating implementation of the activities and improving the efficiency of the program?	The decision to send HSS fund management to WHO was timely and in response to the circumstances of the time. The process that was put in place for the implementation of the reprogrammed HSS was the creation of two mirror teams from WHO and MinSanté. The ultimate goal would be a transfer of powers from WHO to MinSanté through this phase of implementation. The activities of the two teams complement the abilities of WHO to provide technical support and manage finance, while MinSanté supports implementation. Unfortunately, this process experienced a setback with higher management of the program costs. With regard to the transfer of powers, the members of both teams are originally from EPI, but we find that those parties who have gained experience working directly according to WHO standards. In addition, the current team of HSS in MinSanté was not retained at the end of 2013 at the start of the reprogramming.

		MinSanté has also evolved to the point where the exhibits are better managed, as a financial management manual is being developed. The flow of funds to WHO was not quite effective. Due to the internal procedures of WHO, where it is not customary to separate the management of the funds of a program from those of the other partners, an embargo was placed in the financial system that blocked any disbursement of funds and almost no HSS activity took place during four months at the beginning of 2014. There is also some tension around the role of WHO. The classic role of WHO is to provide technical assistance to the country. However, according to key informants, the team from WHO sometimes made decisions and were responsible for the implementation of activities without consulting with MinSanté. Although this conflict was solved through monthly meetings of the two teams, this role expansion was seen as an infringement of the sovereignty of the country. This tension observed during field visits and which affects the parties mentioned, seemed typical to us when the country is subsidized. Unfortunately, this negative perception of the role of WHO is not limited to MinSanté, but also shared by other health partners.
	To what extent have originally planned and reprogrammed activities been implemented as structured (quality, quantity and terms). Special attention must be paid to the following issues: -To what extent was monitoring and evaluation activities conducted, discussed by the CCIA/CCAA and used to take corrective action? -To what extent have Gavi providers and civil society-led activities been concerted, coordinated, and executed with the required quality? What was their added value and how did they compare with the activities of the same nature undertaken by other partners or by the Ministry of Health? What were the organizational and contextual factors (such as the administrative and financial procedures, and coordination mechanisms in place) that have influenced (positively or negatively) the implementation of activities? Special attention must also be paid to:	The reprogrammed HSS faced a multitude of obstacles that slowed its implementation. We noticed especially the slowdown of the activities at the central and regional levels in 2014, while the activities in the districts have intensified especially towards the end of 2015. Three major contextual factors have led to the slowdown in the implementation of the program. First, the choice of the MinSanté team was delayed by two months at the start of the program. Then the polio outbreak in 2014 both hindered human resources that were already limited and caused a three-month delay in processing the supporting documents. Finally, the delay of the proof of polio campaigns led to the embargo of the financial system of WHO, resulting in discontinuation of any substantive disbursement, including those of HSS; therefore almost no activity was implemented for four months. Yet despite these obstacles, an acceptable proportion of the HSS activities was implemented. The implementation is almost identical in the priority districts and non-priority districts, whether at the level of the health districts or integrated health centers. Also with regard to the activities implemented by organizations of civil society, such as links with the community, we notice an implementation close to 50%, taking place especially towards the end of the summer of 2015. For these organizations, given that the implementation of their activities is only 50%, it is too early to measure the success of their activities and whether they were able to achieve their goals. Thus, our assessment cannot measure the quality of these interventions. The two teams HSS seem to follow the implementation of activities. Aside from monthly coordination meetings and weekly meetings of the EPI, the two teams lead field missions to verify the implementation of the program and produce monthly reports documenting the implementation of activities and the progress of the

	-the impact of the political and social situation in the country on the implementation of the activities (terrorist, refugees, threats, etc.) -The impact of epidemics in the country - The consequences of the suspension of transfers of Gavi fund on the implementation. - To what extent the management of the program proved to be reactive to the difficulties encountered. -To what extent have the resources and activities been well coordinated, monitored and deferred to Gavi and partners? -To what extent is the commitment and the support provided by the Gavi Secretariat and local partners, both during the process of implementation during the phase of implementation, appropriate and sensitive to contextual changes? What are the lessons learned?	project. They also conduct monitoring of the regions with meetings every six months. At the central regional, and health level, one or the other district teams can directly monitor the implementation, while follow-up at the operational level will be provided by PROVARESC and FESADE, which are implementing communication activities in all HD and AMP in the priority HD through supervision.
Efficiency	To what extent have the financial resources been used as planned, in accordance with the rules laid down by Gavi and the provisions of the National Manual of Procedures, in an efficient manner? -What could be done differently to improve efficiency? -What are the contextual factors that might explain the rate of use of funds received? - Who had delays and bottlenecks in the availability of funds and financial flows, and at what levels? What were the causes and how are they solved? What has been the impact of the regional Gavi accounts?	Reprogrammed HSS has benefited from the financial system of WHO for financial management. The expenditures were incurred as planned. Thus, in terms of expenditure on activities, HSS is efficient. However, efficiency is not only a question of correct expenditure, but also the effectiveness of spending, purpose and investment area. Firstly, because of the delay in proof of polio campaigns in 2014, HSS funds were blocked for four months, preventing any HSS activity from occurring. Secondly, almost 15% of the total is intended for management of the program costs. Thirdly, while the activities selected by the HSS are for the most part necessary, investment in cold chain should have been more important, especially as Cameroon is known for a weak cold chain.

	-Was there financial follow-up carried out at the operational level? What were the limitation of risk measures undertaken and how were they applied? What were the results of these actions (positive or negative) and were they added values or implications?	
Results	To what extent have certain major activities been effective reaching their own goals (supervision, training, mobilizing community, etc.), what are the factors that could explain these results (management of human resources such as motivation, rewards of effort;social factors in general; quality of services; relevance of benefits?) -To what extent has this type of support added value compared to other means of financing of the health system in Cameroon? Has it played a catalytic role? Was it complementary? -What have been the unintended consequences (positive and negative) of the HSS program? -To what extent has the joint vaccine financing policy influenced coverage, especially for traditional vaccines -To what extent were the expected results of the HSS program achieved? Were the indicators of results established by Gavi and those established by the country in its bid and its reprogramming effective? -What are the contextual factors that might explain the degree of achievement of outcomes (threat of terrorism, epidemics, non-implementation of activities, etc.)? -To what extent can the results be attributed to the Gavi-funded program?	National DTP3 coverage is at 79% in 2014 with 56% of the HD to cover ≥ 80%; It should be noted that departments containing priority HD have always had higher coverage than elsewhere. The infant and child mortality by 2015 would be 8.5% (95% CI: 7.2, 10.1). Vaccination results cannot be attributed only to the HSS of Gavi but to all funding having targeted the EPI during the past years. Reprogrammed HSS indicators are mainly consist of output indicators. Due to the context in which the HSS reprogramming was implemented, it was impossible to achieve such indicators as planned. For example, the activities of links with the community implemented by organizations of civil society were implemented toward the end of 2015. Thus, it is difficult to measure an effect of these activities before at least one or two years and through something like a survey of VC. Despite the plight of the first phase of the HSS, this step has contributed to the establishment of a culture of planning and coordination that did not exist before. Similarly, despite the negative effect of WHO's embargo of the financial system in 2014, the requirement of receipts has strengthened the accounting system, a culture that also did not exist previously. Our KIs appreciate the holistic approach to HSS which affects several areas of the HS and all regions of Cameroon. Finally, it is difficult to say that HSS has played its catalytic or supplementary role. Both HSS proposals from 2006 and 2013 show a complementarity of funding through partners.

	-What measures could be taken to improve the effectiveness of the program?	
Sustainability	How are the achievements of the HSS program at different levels (national, regional, and operational) sustainable from a financial and program-level point of view?	As Cameroon will; no longer be eligible to receive support from Gavi in five years, an exit plan should be prepared, not only for this HSS, but for the future, in order to ensure the sustainability of the achievements of Gavi or any other partner in the health care system. With the end of the HSS, if the relay of these activities is not provided by a new HSS, or if another source of funding is not found, it would be difficult to ensure the sustainability of the activities implemented and achievements.
Lessons for the future	What are the important lessons that can be drawn to enable: -Better design and implementation of the HSS program in the future? -Review of design, monitoring and evaluation of the HSS of Gavi programs in general?	The design of HSS should take into account better consultation with different stakeholders. For the activities of the overall strengthening of the health system, it is essential to consider the areas where investment could be more sustainable and which would strengthen the system as a whole. The selection of activities should take into account efficiency, sustainability, and the catalytic role of the HSS. HSS funds should be devoted only to its implementation, in order to ensure optimal efficiency. We recommend that Gavi is represented during the development of applications in order to contribute to the discussion of the choice of activities for the HSS, or at least the HS to target areas. Beyond only Cameroon, Gavi should clarify the purpose of the HSS support: is it for only EPI activities, or to the strengthening of the HS globally?

Table 2: Coverage in DTP3 at the level of the departments estimates of small areas, Cameroon, 2014-2015

Region	Department	DTP3%, 2014	95% CI	DTP3%, 2015	95% CI
Adamaoua	Djerem	64,77	35.59 - 85.64	64.69	32.56 - 86.86
Adamaoua	Faro and Deo	84.61	63.69 - 96.23	85.86	63.93 - 97.07
Adamaoua	Mayo Banyo	85.98	72.30 - 95.03	87.70	73.58 - 96.19
Adamaoua	Mbéré	81.67	63.89 - 92.82	83.09	63.67 - 94.21
Adamaoua	Viña	88.48	78.54 - 94.46	90.06	80.00 - 95.77
Centre	Haute-Sanaga	82.91	61.13 - 95.13	84.06	60.63 - 96.15
Centre	Lékié	80.43	63.91 - 91.16	80.46	61.80 - 91.86
Centre	Mbam and Inoubou	72.84	54.54 - 86.04	72.32	51.37 - 87.07
Centre	Mbam and Kim	83.99	59.81 - 96.04	84.32	57.51 - 96.78
Centre	Mefou and Afamba	93.34	81.46 - 98.47	94.17	81.65 - 98.90
Centre	Mefou and Adams	89.69	71.00 - 98.02	90.99	72.19 - 98.54
Centre	Mfoundi	78.88	69.04 - 86.59	79.37	68.43 - 87.82
Centre	Nyong and Kelle	83.63	56.85 - 96.94	83.66	54.35 - 97.47
Centre	Nyong and Mfoumou	79.02	57.90 - 92.62	80.73	58.54 - 94.21

Centre	Nyong and Soo	78.62	54.63 - 93.33	80.59	55.39 - 94.94
Est	Boumba and Ngoko	74.86	53.82 - 89.78	76.53	53.42 - 91.63
Est	Upper Nyong	85.08	70.32 - 94.11	87.14	72.17 - 95.60
Est	Kadey	87.72	74.28 - 95.99	89.95	77.25 - 97.21
Est	LOM and Djerem	87.33	76.76 - 94.23	88.86	77.96 - 95.52
Extreme Nord	Diamaré	69.83	51.55 - 83.43	70.55	50.12 - 85.25
Extreme Nord	Logone and Chari	38.89	20.68 - 60.44	39.42	19.49 - 63.35
Extreme Nord	Danay Mayo	27.78	13.86 - 46.21	25.60	11.55 - 45.31
Extreme Nord	Mayo Kani	48.66	26.00 - 72.21	47.26	22.82 - 73.25
Extreme Nord	Mayo Sava	41.63	21.71 - 63.46	40.37	19.06 - 64.50
Extreme Nord	Mayo Tsanaga	52.41	36.76 - 67.15	53.41	35.79 - 69.82
Littoral	Mungo	94.56	87.52 - 98.14	94.97	87.47 - 98.46
Littoral	Nayi	92.88	76.97 - 98.90	93.41	76.22 - 99.18
Littoral	Sanaga Maritime	82.08	65.36 - 92.16	82.72	64.12 - 93.27
Littoral	Wouri	90.29	84.24 - 94.46	90.89	84.23 - 95.21
Nord	Benue	58.64	42.65 - 72.86	59.38	41.17 - 74.89
Nord	Faro	73.09	45.32 - 91.25	75.55	46.05 - 93.37
Nord	Mayo Giulia	85.31	73.09 - 93.49	87.68	75.48 - 95.09
Nord	Mayo Rey	63.27	50.25 - 75.94	65.38	51.11 - 78.86
Nord Ouest	Boyo	93.87	81.82 - 98.80	94.25	81.30 - 99.05
Nord Ouest	Bui	97.25	91.51 - 99.54	97.61	92.04 - 99.69
Nord Ouest	Donga Mantung	87.53	71.65 - 95.86	87.74	70.23 - 96.46
Nord Ouest	Menchum	88.63	66.12 - 98.34	89.19	65.25 - 98.73
Nord Ouest	Mezam	96.27	90.58 - 99.03	96.58	90.57 - 99.23
Nord Ouest	Momo	93.44	82.51 - 98.31	93.88	82.29 - 98.70
Nord Ouest	NGO Ketunjia	90.95	74.40 - 98.32	91.21	73.30 - 98.66
Ouest	Bamboutos	95.60	87.82 - 99.01	96.22	88.66 - 99.30
Ouest	Haut Nkam	92.53	73.84 - 99.20	92.39	71.50 - 99.32
Ouest	Highlands	87.39	67.97 - 97.26	87.09	65.43 - 97.68
Ouest	Koung-Khi	87.90	64.32 - 98.01	88.62	64.57 - 98.47
Ouest	Menoua	92.85	80.07 - 98.34	92.99	78.86 - 98.68
Ouest	MIFI	81.51	62.03 - 92.89	81.59	59.14 - 93.92
Ouest	NDE	88.98	68.89 - 98.10	89.16	68.22 - 98.44
Ouest	Noun	68.36	52.29 - 81.60	69.79	51.92 - 83.78
Sud	Dja and Lobo	63.41	41.15 - 80.85	63.74	39.00 - 82.27
Sud	Mvila	49.95	29.75 - 69.88	49.09	27.02 - 70.86
Sud	Ocean	79.28	63.13 - 90.79	80.92	63.82 - 92.57
Sud	Valley of the Ntem	71.14	44.54 - 89.21	71.75	42.24 - 90.79
Sud Ouest	Fako	85.73	67.54 - 95.98	85.61	65.09 - 96.52

Sud Ouest	Kupe Mwanenguba	89.31	75.66 - 96.43	90.00	75.18 - 97.22
Sud Ouest	Lebialem	91.17	75.97 - 98.19	91.40	74.51 - from98.58
Sud Ouest	Manyu	80.27	54.91 - 94.72	81.19	53.32 - 95.87
Sud Ouest	Even	90.79	79.13 - 97.01	91.71	79.71 - 97.67
Sud Ouest	Ndian	91.54	74.76 - 98.40	92.25	74.28 - 98.81
National	National	79.64	76.21 - 80.73	80.55	76.87 - 81.59