

Research Article

A Proposed Methodological Approach for Assessing the Sustainability of Expanded Programmes on Immunisation in Developing Countries

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Abstract

Objective: Based on a study [1] assessing the sustainability of the expansion of the Expanded Programme on Immunization (EPI) in the Gambia this paper presents an approach to assessing immunization programmes in developing countries.

Methods: The methods consist of a stakeholder analysis framework [2], incorporating indicators of financial sustainability of immunization programmes, complemented by a resource map tool and utilization of data from the EPI, government and donor records, and several interview and data collection approaches.

Results: The results show that the majority of stakeholders strongly support the use of additional resources for improving the EPI's infrastructure and funding and, therefore, the sustainability of the EPI, and they would also press for such improvement before any attempt to introduce new vaccines. The results further demonstrate that yearly contribution of each of the actors has been irregular, and generally the contribution of donors remained greater than that of Government; that the nature of decision-making on EPI expenditure varies according to the level at which decisions are made, with, for instance, officials of donors and Government making decisions on the use of EPI resources based on Government policy, prepared projects and budgets; and that, generally, providers are faced with several problems that affect their effectiveness and, therefore, the efficiency of the EPI and providers have many proposals to the problems that they consider the best use of additional resources.

Conclusion: The proposed methodological approach can help in transforming at least three main challenges facing researchers, policy makers and practitioners in particularly developing countries: lack of a better understanding of the management and political process involved in the EPI, the flow of resources and expenditures and how they are used within the immunization system, and how to better use limited resources in the immunization system.

Key words: *Methodological Approach, Assessing, Sustainability, Immunisation*

Introduction

Immunisation is using a vaccine to protect people from getting a disease. It is one of the most important weapons for protecting individuals and the community from serious diseases. Assessments of immunisation programmes over the past 26 years have conventionally concentrated mostly on logistical and epidemiological aspects of the programmes. Also, such assessments have focused on systematic evaluations of the cost and financing of programmes [3]. But, health care systems are complex entities that involve many decision-makers who may have different agendas. Furthermore, policy development is a complex process which frequently takes place in an unstable and rapidly changing context, subject to unpredictable internal and external factors.

Information on the technical features of methods of measuring financial sustainability of immunization is found in relatively few published studies as well as published and unpublished reports, including one reports [3] dealing with health care costs and financing in general. Almost all these studies and reports [4] came from or focus on developing countries. Although small, the data can be considered under two specific facets: first the issue of programme costs and financing and, second, the potential sources of data to measure sustainability itself.

The aim of evaluating programme costs and financing is to know how much the programmes cost, what the major components of

these costs are and where the funds come from. Estimates are then made of what countries and their partners will need to spend in the future, usually in the next five years, to provide immunization services with acceptable levels of coverage. Also, studies go on to estimate the additional cost of adding new vaccines, as well as cost per capita, per dose, and for a fully immunized child for purposes of evaluating cost-effectiveness. With systematic evidence on costs and financing, policy-makers in countries can know if current resources can be used more efficiently without affecting quality. They can also develop a funding plan for sustainability that incorporates mechanisms to mobilise new local resources and to see if the total range of financing strategies is being utilised. Consequently, the financial sustainability issues/concerns are considered in various degrees. Studies were carried out in Morocco, Bangladesh, the Ivory Coast, and Colombia [3], Pakistan, Nepal, Uganda, Vietnam and Ghana [5].

To obtain financial sustainability data, usually rapid appraisals are conducted to develop a cost and financing structure and initiate a dialogue on sustainable funding strategies. The assessment teams in

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Kaddar et al's [3] case studies, for example, obtained cost and financing data from documents and in-depth interviews with key informants in each country's Ministry of Health, Ministry of Finance, and private sector; and among donors and the international community. Data were collected at sub-national as well as at national levels.

These studies have provided useful information for situating the study [1] on which this paper is based with regard to measuring the component of funding sustainability, but were insufficient concerning questions on other aspects of sustainability of immunization. Specifically, they are inadequate in answering the questions of where additional resources should be directed, and how adding vaccines would affect the infrastructure and sustainability of the programme. These issues that must be considered in looking at programme efficiency and sustainability are better dealt with using the integrated approach to measuring the sustainability of immunization developed for the study.

The literature shows that several kinds of tools can be used in the measurement of financial sustainability of immunization programmes. But at least three kinds of tools appear to be more important. An example of one is the Immunisation Financing Assessment Tool [6], a tool for assessing immunization programme financing at the country level. USAID's Department of Partnerships for Health Reforms (PHR) created this immunization-financing tool in response to the need for national and local authorities, and non-governmental organisations in developing countries to have detailed systematic information on immunization financing. The information allows such countries to more effectively use limited resources, identify financial issues and prepare for improvements in immunization programmes. A similar tool, the Common Assessment Tool for Immunization Services [7], has been developed by the WHO.

The other kinds of tools are sets of criteria and indicators. For example, there is the set of criteria developed for GAVI [8] to judge potential indicators for measuring the financial sustainability of immunization. These criteria are validity and reliability, availability of data, relevance to workers' ease of explanation, applicability to varied country contexts and correspondence to high-priority policies and/or programmatic actions. On the basis of these criteria, Levine et al developed several indicators (See Table 1) that can be used by countries for measuring the financial sustainability of their immunization programmes.

While the framework for analysis that the Immunisation Financing Assessment Tool provides may be useful in providing information that can be used by stakeholders in financing the EPI (it shows whether internal sources - central government, local government, health insurance, private sector, etc - are being used for financing capital and recurrent costs. It also shows how the support of external sources - donors, development banks and international organisations - has been targeted), it lacks sufficient information on issues such as control of financing (e.g. Global Alliance for Vaccines and Immunisation (GAVI) funds controlled by Govt.), commitment of financing (short-term, long-term, fixed-term/open-ended?), reliability of funder and conditions of funding. Also, it considers costs such as capital or recurrent costs. All costs should be shown as recurrent for purposes of assessing the sustainability of an ongoing programme (e.g. capital goods are replacements, not investments - if a vehicle needs to be replaced every five years it costs \$2, 000 per year, not \$10, 000 every 10 years)

When looked at in terms of their appropriateness to the goals, objectives and questions of assessing the sustainability of immunization programmes, both the IF tool and Common Assessment Tool for Immunization Services, like the studies on sustainability of immunization mentioned above, prove to be useful for measuring the component of funding sustainability but, as indicated above,

inadequate with regard to questions on other aspects of sustainability of immunization that the alternative integrated approach used in this study can deal with more sufficiently.

The approach to assessing immunisation programmes proposed here consists of a stakeholder analysis framework [2], incorporating selected indicators of financial sustainability of immunization programmes [8], complemented by a resource map tool and utilization of data from the EPI, Government and donor records, and several interview and data collection approaches. The stakeholder analysis questionnaire and the resource map tool were developed to address the objectives of the case study [1] carried out in the Gambia on which the proposed approach is based. These objectives are to (1) identify different tools for measuring the sustainability of the EPI (2) identify institutional and behavioural factors which affect the efficiency and sustainability of the immunization service and (3) identify policy recommendations for improving or maintaining the level of immunization services

The instruments of the stakeholder analysis provide opportunities for determining whose interest in immunisation systems should be taken into account, but more importantly to assess where people think the system works and where it does not work, and if different parties have contradictory incentives. Furthermore, the complementary resource map tool gives a better understanding of the flow of resources and expenditures and how they are used with the immunization system, together with the management and political process involved. To demonstrate this approach, the paper presents an example [1] below with the aim of showing how this approach has been used successfully for organizing and compiling data that focus on questions of power, relationships, processes and accountability in EPI systems and enhancing better understanding of current issues and questions of sustainability in EPI systems.

The roots of stakeholder analysis are in the political and policy sciences, and in management theory where it has evolved into a systematic tool with clearly defined steps and applications for scanning the current and future organizational environment [9].

The stakeholder analysis was used in the early 1930s in the U.S within strategic management in the private sector to include all the groups who have an interest in the business [10]. Here, the rationale for paying attention to stakeholders is that they are in a position to influence the well - being of an organization or the achievement of its objectives.

In health management, stakeholder analysis has usually been associated with organizations trying to achieve particular goals and advantages in its relationships with other organizations, by identifying potential allies and building alliances or reducing potential threats [11]. However, it appears from the literature [1] that there was relatively less use of the approach in health care in general and in the EPI in particular, despite the framework being applied successfully for many years in the area of management.

Furthermore, during the past ten years in industrialized societies the focus of health policy research has changed from a retrospective analysis of the processes of health policy analysis in various environments to a relatively more systematic and less intuitive, structured and prospective stakeholder analysis carried out by organizations and development managers [12]. This important methodological difference between stakeholder analysis and the conventional methods of health policy analysis makes this study significant. Also, the study is prominent because the involvement of stakeholder improves the relevance and quality of the research and increases the use of results [13]. By increasing the utilisation of results the lessons learnt could be used to further develop and re - organise immunisation programmes. In this paper policy actors are considered as interest groups, as well as active or passive players (persons or

organisations) on the policy scene that might be related to or affected by the health policy.

However, as already mentioned, policy development is a complex process which frequently takes place in a changeable and quickly unstable context, subject to uncertain internal and external factors. As a cross-sectional view of an evolving picture, the use of stakeholder analysis for foreseeing and managing the future is time-limited and it should be correlated by other policy analysis approaches [9]

This paper therefore proposes an integrated approach to assessing immunization systems, which as indicated, consists of a stakeholder analysis tool that includes indicators of financial sustainability of immunization programmes, and a complementary resource map tool that is suited to this specific application area, together with data from the EPI, government and donor records, and several interview and data collection approaches. This proposed approach will allow planners of immunisation programmes in developing countries in particular to identify groups that will be affected by proposed activities, their reactions to prospective changes and the roles they might play in assisting or blocking them. With this information in hand, planners can develop strategies for involving relevant central and local officials and communities, including users of the service, in reform. It is important to focus also on the users of the service as their attitudes and beliefs influence their demand for immunisation [14], which in turn influences the sustainability of immunisation programmes [8]. If roadblocks to consensus loom too large, funding can be postponed-or cancelled-until conditions for success can be achieved. This information can then be used to develop strategies for managing these stakeholders where there are broad disagreements, to facilitate the implementation of specific decisions or organisational objectives, or to understand the policy context and assess the feasibility of future policy directions such as estimating the current level of total financing for the EPI and the prospects for increasing funding through mobilisation of local and external funding; estimating the allocation of spending to priority EPI programmes and population groups, and assessing the financial importance of key players in the EPI as a guide to the development of reform strategies.

The aim of this paper is to advocate a way of looking at how best to address the issues in immunisation programmes using stakeholder analysis complemented by a resource map and other assessment techniques. After this introduction, the paper outlines the proposed approach giving an example of how it was used successfully in a study in the Gambia [1]. Finally, the paper makes a conclusion. This article provides not only guidelines for the application of stakeholder analysis in immunisation, but also additional methodological data to the stakeholder analysis and resource map frameworks that are not identifiable in the literature [1], namely, the inclusion of indicators of financial sustainability in the stakeholder analysis and the organisation and compilation of data on questions of power, relationships, processes and accountability in the EPI in both the stakeholder analysis and resource map. Knowing what indicators stakeholders consider important and the extent to which the actions have been implemented will help the country propose in its financial sustainability plans country – specific indicators tied to its immunisation policy and programmatic actions. While this paper is based on the Gambian EPI study, the discussions are equally pertinent to other immunisation programmes in particularly developing countries.

The Proposed Methodological Approach

This section describes the proposed methodological approach to measuring the sustainability of immunization programmes. As has been mentioned, this integrated approach consists of a stakeholder

analysis framework [2], incorporating selected indicators of financial sustainability of immunization programmes [8], complemented by a resource map tool and utilization of data from various sources. Also, as indicated above, the main concept of this methodological approach is related to using stakeholder analysis and resource mapping to serve as useful means for organizing and compiling data that focus on questions of power, relationships, processes and accountability in EPI systems, and addressing in studies current issues and questions of sustainability in the EPI sufficiently. The importance of this for health systems assessment is well reflected in the literature [15]. The growing popularity of stakeholder analysis reflects an increasing recognition of how the characteristics of stakeholders – individuals, groups and organizations – influence decision-making processes [16]. Stakeholder analysis can be used to generate knowledge about the relevant actors so as to understand their behaviour, intentions, interrelations, agendas, interests, and the influence or resources they have brought – or could bring – to bear on decision-making processes. This information can then be used to develop strategies for managing these stakeholders, to facilitate the implementation of specific decisions or organizational objectives, or to understand the policy context and assess the feasibility of future policy directions. However, as indicated, as a cross-sectional view of an evolving picture, the use of stakeholder analysis in the complex health systems and policy processes for predicting and managing the future is time-limited and it should be complemented by other policy analysis approaches [9], such as the methods of resource mapping and utilization of data from various sources as proposed in this paper.

Using this approach, studies can focus on the analysis of stakeholder characteristics and definitions [2]: *interests* in, for example, the issue (or policy) of whether to decentralize aspects of EPI management or outsource EPI support functions will help policy-makers and managers better understand the stakeholders' position and possible ways of addressing their concerns. It is crucial to identify possible stakeholder *alliances* because alliances can make a weak stakeholder stronger, or provide an avenue to influence several stakeholders by dealing with a single stakeholder. For the same reason, it is also important to determine the stability of stakeholder alliances. The amount of *resources* that a stakeholder has and his/her ability to mobilize such resources and the durability of such stakeholder *power* are an important characteristic that will determine the force with which the stakeholder might support or oppose the issue or policy. Knowing whether or not a stakeholder has *leadership* will assist policy-makers and managers focus on those stakeholders who will be more inclined to actually show their support for or against the issue or policy and convince others to do so. Added to these adopted generic characteristics is the stakeholder's *agreement or disagreement on several indicators of financial sustainability of immunisation programmes, and his/her opinion on the extent to which the actions have been taken or implemented by Government*. These indicators (Table 1) fall under nine dimensions: sustained high demand for immunisation and reducing barriers to accessing immunisation; efficient vaccine procurement; efficient immunisation services; reliable and sufficient funding for vaccines; reliable and sufficient funding for labour and other non-vaccine recurrent costs; reliable and sufficient funding for capital investment; timely resource flow from source to service delivery points; balance between public and private financing; and effective mobilisation and management of supplementary, external resources and long-term financing.

Knowing what indicators stakeholders consider important and the extent to which the actions have been implemented will help the country propose in its financial sustainability plans

country- specific indicators tied to its immunisation policy and programmatic actions. The following section describes the stakeholder analysis tool.

Stakeholder Analysis Tool

The stakeholder analysis tool consists of four sections focusing on several stakeholder characteristics. Based on a review of the literature and PHR country experiences [2] these characteristics have been identified as the most important because:

1. Stakeholder knowledge is important in identifying stakeholders who oppose the issue of whether to use additional resources for improving the EPI infrastructure and not for introducing new vaccines due to misunderstanding or lack of communication.

2. The stakeholder's position on the issue of whether to use additional resources for improving the EPI infrastructure and not for introducing new vaccines is crucial to whether or not he/she will block its implementation.

In addition, the tool incorporates qualitative statements of indicators that provide a basis for measuring progress towards the financial sustainability of the EPI. These statements (Table 1) include those focusing on the issues of providing reliable and sufficient funding for the EPI, as well as statements dealing with improvement in the supply chain, based on a broad definition of financial sustainability of immunisation [8]. Table 1: Levine et al indicators of financial sustainability of immunisation programmes

Efficiency in the supply chain

Sustained demand and reduced barrier to access: Identifying levels of existing knowledge of and demand for immunization, Sponsoring public information and social mobilisation programmes, Managing public information, Conducting a situational analysis to identify critical barriers, Developing targeted programmes to reduce barriers (new delivery strategies through public or private sectors)

Efficient vaccine procurement: Using international procurement mechanisms

Efficient immunisation services: Systematically assessing sources of waste, Developing and implementing targeted programmes to reduce waste, with quantitative endpoints, Exploring potential for outsourcing support functions

Reliable and sufficient resources

Steady and sufficient funding for vaccine: Forecasting requirements accurately, Developing line-item in national budgets, Fostering political action/or legal mandate for baseline funding levels

Steady and sufficient funding for labour and other non-vaccine recurrent costs: Estimating total programme costs, Promoting allocation of resources on the basis of cost-effectiveness and public finance principles, Developing line-item in national budgets, Fostering political and/or legal mandate for baseline funding levels, Determining the potential for private sector partnerships, Determining the potential for insurance coverage of immunization

Steady and sufficient funding for investments (capital costs): Putting aside funds annually, based on amortisation schedule, Protecting investments for immunisation programme in national budgets

Stable resource flow to service delivery points: Creating complete and accurate sub-national plans, developing line items in sub-national budgets, Earmarking funds and establishing performance targets for sub-national entities

Balanced public-private financing: Assessing current patterns of

use and financing, Identifying barriers to greater private - sector participation and low-cost ways to overcome them

Effective mobilisation and management of supplementary, external resources and long-term financing: Demonstrating increasing national commitment by adopting efficiency measures and assuring consistent relative domestic contributions, Demonstrating commitment to "additionality", Coordinating support, and utilising financial planning tools, Negotiating long-term financing (Levine et al 2001)

The tool starts with an introductory section that the interviewer can read to the stakeholder. It includes mostly open-ended questions requiring the stakeholder to provide more than a simple "Yes" or "No" answer. Indirect questions are included wherever possible to prevent unreliable answers. Where necessary, several questions are posed in order to obtain information on one characteristic or statement of indicator. Also, tables for summarising stakeholders' ratings on the indicators are included. The following section outlines the complementary resource map tool.

Resource Map Tool

The resource map framework describes in detail the flow of resources and expenditures and how they are used within a system. When assessing health care strategies and policies, there is generally a lack of information on the management and the political process involved. Studies can use the strategy of resource mapping to organise and compile data that focus on questions of power, relationships, processes and accountability in the EPI.

The resource map questionnaire is divided into three categories of organisational roles on the provision of resources (a source of support or aid; can be financial, technological, political, and other [17] for EPI-related activities: *Sources of finance*- organisations or persons providing resources for EPI-related activities.

Financing Intermediaries- organisations or persons through whom resources are channelled to service providers.

Providers- service providers who receive resources from financing intermediaries, or directly from financing sources for carrying out EPI-related activities.

Questions under the *sources of finance* category focus on expenditures which organisations make within a five- year period, the EPI-related activities for which organisations provide resources and the amounts (quantities) spent on each activity. For the *financing intermediary's* category, the focus of the questions is on resources that are channelled through organisations in a year and the amounts, procedures for securing more needed resources, where funds go from organisations and how funds are used and decision-making about the movement and use of funds. Questions under the *provider's* category centre on sources of resources used for EPI-related activities, the specific functions for which funds are used, decision-making about the use of funds and coverage for each vaccine. In addition, questions focus on opinions about present and potential problems, funding levels, the best use of additional resources and how to improve immunization services.

There is an introductory section that the interviewer can read to the respondent. The tool includes mostly open-ended questions, a few structured questions, and a list of EPI-related activities to enable respondents to indicate the EPI-related activities for which their organisations provide resources.

To explain the methods more clearly, the paper describes the following example of how the approach was used in the study [1] to assess the sustainability of the expansion of the Expanded Programme on Immunisation in the Gambia. A principal objective

of the study relates to identifying appropriate tools for measuring the financial sustainability of the provision of immunisation services in the Gambia. There are a number of important points that made this necessary. First, there were no appropriate tools for the study. This is because, as has been mentioned, while some tools identified in the literature may prove useful for measuring the component of funding sustainability of immunisation programmes, they were insufficient with regard to questions on other aspects of sustainability. Second, there are several stakeholders involved in the EPI who might have different agendas concerning the best policy to follow. The role of the proposed methodological approach, which other methods fail to include or inadequately address, is to enable stakeholders to provide their opinion concerning policy issues, such as whether to use limited resources for improving the EPI infrastructure and funding, not for introducing new vaccines, which is the question explored by the study [1] on which the proposed methodological approach is based.

The study was conducted by the writer as principal researcher and a trained research assistant who organised the qualitative and quantitative data obtained for these assessments, searched for themes, items and patterns, validated the information obtained and interrelated various themes to provide a comprehensive structure to the data.

Empirical Illustration

Stakeholder Analysis

Method: We followed the guidelines for conducting a stakeholder analysis by [2]. First, as part of the planning process of the whole study we secured resources and support for the analysis, defined the purpose of the analysis and identified uses of the results, and developed a plan and timetable. We established these requirements before proceeding with the next steps.

Second, also as part of the study planning process, we selected and defined a policy. The Gambia is one of the smallest countries on the West Coast of Africa where levels of vaccination coverage are high by African standards [18]. Because of the success of the EPI there has been an obvious pressure to utilize the infrastructure more by adding new vaccines to the EPI. This is an agreeable policy considering the efficacy of new vaccines like Hepatitis B. But such a policy should only be considered where the infrastructure is capable of sustaining both it and any additional vaccines, and where it is the best use of limited immunisation resources. It can be argued that in these circumstances the Gambia may be better of using additional resources to strengthen or improve the EPI.

In fact the sustainability of the EPI has been the major concern of the key stakeholders of the programme, particularly the policy-makers, health planners and providers of immunisation services since 1998 when the financial support provided by UNICEF ceased and the government took over the financing of the routine vaccines. Since then yearly contribution of each of the actors has been irregular, and generally the contribution of donors remained greater than that of Government. While the proportion of donor financing increased considerably, due primarily to spending on vaccines by donors like Global Alliance for Vaccines and Immunisation (GAVI), the proportion of Government's financing decreased greatly, due to poor economic climate. To make the programme financing sustainable government is expected to contribute over 50% of the EPI funding, which it has not been able to do in recent years.

Once the policy has been selected and defined, we identified key stakeholders. This task focused on the identification of key groups and individuals relevant to immunisation financing and sustainability. Initially, we identified all actors who could have an interest in the policy. However, since resources, time, and finances for the analysis

was limited the list of stakeholders to be interviewed was prioritised. The compilation of the priority list of stakeholders was guided by these questions: Who cares about immunisation financing and sustainability? Who is likely to act, or could be convinced to act? Who has the potential to influence the outcome? Who is likely to be affected by the consequences of the reforms on immunisation financing, both positively and negatively? Our total sample was 20 key stakeholders, consisting of six kinds of priority stakeholders at the central, divisional and facility levels. They were top officials of the Department of State for Health & Social Welfare, the manager and staff of the EPI, Programme Managers of NGOs like the Catholic Relief Services, Programme Managers of donors like the WHO and MRC, heads of divisional health teams, and hospital administrators. The second stage dealt with the assessment of the political resources of relevant groups and individuals and their roles in the political structures to determine their relative power for the financing and sustainability of the immunisation programme. The third stage concentrated on evaluating their present position on the financing and sustainability of the programme, including their underlying interests and the intensity of their commitment.

Two distinct modes of analysis were combined: interest group analysis and bureaucratic politics analysis. The former analysis consisted of understanding those social groups that are seeking to press the government in a particular direction, including private business and non-governmental organisations. The latter analysis focused on the competition between the government and individuals. Such stakeholders relevant to the immunisation programme include both players outside and inside government. The analysis also included consideration of the activities of international agencies, like the World Bank, UNICEF and the World Health Organisation.

The power and influence of each of the players listed above (the groups and individuals who are relevant to immunization financing and sustainability) were estimated. An assessment of the following for each player was conducted:

- The player's political resources and place in the political system, which determine the political capacity to influence policy decisions

- The player's interests, position, alliances and commitment, which will influence how the player's resources, and how much of those resources will be used in improving the financing and sustainability of the EPI.

The political resources that were concentrated on included tangible resources like money, organisation, equipment and offices, all of which affect a group's ability to influence decisions on the financing of immunisation. The political resources also included intangibles, such as information on immunisation and related problems, as well as relevant substantive expertise, which allows the group to develop a position, group alliances and the group's visibility and legitimacy.

The assessment of how each group's views and position on immunisation financing focused, first, on the group's interests, as this might determine the political position of the group on the issue of whether to use additional resources for improving the EPI infrastructure and funding and not for introducing new vaccines. Then the positions that the players have taken publicly were examined, and the intensity of each group's current position on the issue was described.

Results

Summary of the study major findings on the Stakeholder Analysis: Table 1 presents a summary of the results and the analyses of the results on the stakeholder analysis

Resource Map

Method: Drawing on the stakeholder analysis framework and traditional National Health Accounts (NHA) methodology, a three-

phase process was used involving 1) the identification of information sources; 2) data collection; and 3) the analysis and dissemination of results.

An exhaustive inventory of public and private - sector organisations and agencies involved in EPI-related activities was made. These organisations were categorized as *sources of financing, financing intermediaries* and *service providers* based on the NHA classification of flows of funds. These sources are organised, intermediaries and end users by whether they are in the public or private sector. However, funds may of course flow *between* the public and the private sectors. Information on EPI expenditures and uses of funds was obtained from top DOSH&SW officials, including EPI officials, officials of donor agencies at the central level, as well as from providers at divisional and facility levels.

A comprehensive estimation of the total amount of resources available to the EPI might firstly be based on funds available for the EPI from the Department of State for Finance & Economic Affairs, and fee income. In a developing country like the Gambia, where private expenditures are 80% of total health expenditure, it is also necessary to obtain projections of resources coming from, for example, private firms and voluntary organisations. As well as providing an estimate of the amount of money available for immunization, resource projections will also inform decisions about priorities for public spending. The preparation of national accounts, which relates sources and uses of funds, was especially useful in such estimation [19].

To organise, analyse and present the data four matrices were constructed. Each chart was divided between public and private expenditures. The total cost was consistent or equal across all of the matrices.

-Matrix 1 shows the flow of resources from funding sources to intermediaries.

-Matrix 2 shows the flow of resources from intermediaries to providers.

-Matrix 3 shows the flow of resources from intermediaries to functions (i.e. immunization activities)

-Matrix 4 shows the flow of resources from providers to functions.

Several basic sets of tables are created to illustrate the financial flow of funds between financing sources, financing intermediaries, providers and functions. These tables are used to organise and tabulate EPI spending data. In addition, the analysis involved a comparison of the factors of power, relationships, processes and accountability to provide an understanding on how the political process affects the flow and use of resources and the financial sustainability of the EPI.

Results

Summary of the study major findings on the Resource Map Study: Table 2 presents a summary of the results and the analyses of the results on the resource map study

Conclusion

This paper presents a proposed approach to assessing the sustainability of immunisation programmes with the aim of transforming at least three main challenges facing researcher, policy makers and practitioners in particularly developing countries:

-Lack of a better understanding of the management and political process involved in the EPI.

-Lack of a better understanding of the flow of resources and expenditures and how they are used within the immunisation system

-Lack of a better understanding of how to use limited resources in the immunisation system

The approach is applicable especially in situations where there is a need to seek stakeholders’ opinions concerning policy-making on resources and expenditures issues in the EPI to determine whose interests should be taken into account, but more importantly to assess where stakeholders think the system works and where it does not work, and if different parties have contradictory incentives. The details of the approach are shown by the example described by Sarr [1]. The usefulness of the methodological approach rests on the better understanding it provides of the management and political process in the EPI, the flow of resources and expenditures and how they are used within an immunization system, and how these factors affect the sustainability of the EPI.

Table 1: Summary of the study major findings on Stakeholder Analysis.

Study Objectives and Questions	Study/Data Used	Major Findings
<p>Objectives:</p> <p>1. To Identify different tools for measuring the financial sustainability in the provision of immunisation services in the Gambia</p> <p>2. To Identify institutional and behavioural factors which affect efficiency and sustainability of immunisation services</p> <p>3. Make policy recommendations for improving or maintaining the level of immunisation services in the Gambia</p> <p>Questions:</p> <p>1. Is the EPI sustainable?</p> <p>2. Is the funding sustainable?</p> <p>3. How does adding vaccines affect sustainability?</p>	<p>Stakeholder Analysis Study</p> <p>Interviews</p> <p>Government data on EPI financing</p> <p>Donors’ data on EPI financing.</p> <p>EPI implementation data</p> <p>Health service data</p>	<p>Stakeholder Analysis Study</p> <ul style="list-style-type: none"> The majority of stakeholders who are generally knowledgeable about the issue strongly support the use of additional resources for improving the EPI’s infrastructure and funding and, therefore, the sustainability of the EPI. Depending on the position they occupy in Governmental and non-governmental organisations, stakeholders support or oppose the issue, however, the majority of them want to see the EPI’s infrastructure improved, irrespective of the positions they hold in their organisations, and they would also press for such improvement before any attempt to introduce new vaccines. Stakeholders’ interests, alliances, resources and leadership on the issue reflect their positions, with stakeholders funding new vaccines and pressuring for their introduction, as well as those in Government at policy levels tending to oppose the issue because it excludes introduction of new vaccines, while service providers tend to place more emphasis on the need to improve EPI infrastructure and funding. However, generally there appears to be a clear recognition of the important role donors play, so both supporters and opponents of the issue would ally with organisations providing funding for the EPI, including donors like GAVI that pressures for the introduction of new vaccines. Generally, the stakeholders feel that adding new vaccines to the EPI would mean, among other things, additional costs that could affect the efficiency and sustainability of the EPI.

Table 2: Summary of the study major findings on the Resource Map Study

	<p>Interviews</p> <p>Government data on EPI financing</p> <p>Donors' data on EPI financing.</p> <p>EPI implementation data</p> <p>Health service data</p>	<ul style="list-style-type: none"> • During the period 1997 to 2003 yearly contribution of each of the actors has been irregular, and generally the contribution of donors remained greater than that of Government through out the period. • While the proportion of donor financing increased considerably, due primarily to spending on vaccines by GAVI, the proportion of Government's financing decreased greatly, due to poor economic climate. • Resources pass through one main intermediary, the DOSH&SW, which in turn transfers resources on to the ultimate providers of services. • There was increased spending in health facilities, which is consistent with service delivery in such facilities, but there was a relatively higher weight of spending in public facilities when compared to spending in private facilities
		<ul style="list-style-type: none"> • Most of the expenditure is utilized in facilities for the activity of vaccine supply and quality, with private facilities receiving a relatively smaller share of the expenditure. • There were no expenditures on research and evaluation, and monitoring and supervision activities in both public and private facilities, and none on programme management in private facilities. • The nature of decision-making on EPI expenditure varies according to the level at which decisions are made, with officials of donors and Government making decisions on the use of EPI resources based on Government policy, prepared projects and budgets, and donor conditions, while the use of EPI funds at the provider level, particularly at the level of the health facility, are predetermined by decisions taken at central level. • Generally, providers are faced with several problems that affect their effectiveness and, therefore, the efficiency of the EPI and providers have many proposals to the problems that they consider the best use of additional resources.

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