Booklet C.2: Estimating future financial resource needs

This booklet describes how managers can use cost information to estimate future financial resource needs. Often health sector budgets are based on past expenditure and expectations of available resources, rather than on what is really required to scale-up interventions to reach health sector targets, such as the MDGs. Therefore, a number of global initiatives have been set up that encourage such needs-based estimates as part of health sector planning. This booklet will discuss why this exercise is useful for sexual and reproductive health managers and how this can be organized.

This booklet addresses questions like:

- Why would I want to estimate future resource needs?
- How do I start estimating financial resource needs estimation?
- Does an estimate of financial resource needs exclude human resource and other needs?
- How is an estimate of resource needs linked to the budget?

C2.1 Why estimate future resource needs?

There are several good reasons for estimating the resources needed to implement SRH services in the future. The way to do it will depend on the objective of the exercise. The following objectives are most common:

Advocacy

One of the main reasons for calculating future resource needs is to advocate for increased resources for SRH. These estimates of future needs are not constrained by the available resources but determine how much would be required to deliver services in order to meet pre-defined targets (e.g. health MDGs). As such, these estimates are ambitious, constrained only by the capacity to increase coverage of services gradually from current levels to what is required to reach the targets. Of course, the investments required to scale up coverage in such a way, such as human resource upgrading and infrastructure improvements, need to be included in the resource needs as well.

Once the resource requirements for a specific package of interventions are known, they can be compared to the actual available resources. The financing gap between the cost of achieving targets and current levels of available resources is a powerful tool to present to potential donors and policymakers. The difference between what is available and what is required indicates the extra funding needed to deliver a specific package of services.

In recent years, several international health agencies, such as UNAIDS, have made estimates of the costs of reaching global targets for the main primary health care interventions.

Estimating global resource needs for AIDS – UNAIDS

Through an extensive process of consultations and using revised methods, UNAIDS updated the estimates of the resource needs for an expanded response to AIDS in low- and middle-income countries between 2006 and 2008 (August 2005).

According to this publication, global resource requirements amount to US$ 15 billion in 2006, US$ 18 billion in 2007 and US$ 22 billion in 2008 for prevention, treatment and care, support for orphans and vulnerable children (OVC), as well as programme and human resource costs. However, the same report mentions a funding gap between resources available and those needed of at least US$ 18 billion from 2005 to 2007.

And as the publication mentions: *"This data has increasingly become strategic information for negotiations among donor countries and agencies and between donors and recipient countries."*

Within a country, SRH programme managers may wish to do the same and demonstrate the resource requirements of reaching national sexual and reproductive health goals (e.g. as stated in the national health sector strategy or poverty reduction strategy). This information, combined with information on available resources, can be useful for advocating for more resources from external donors, but also for higher budget allocations from national government.

Estimating national resource needs – Ghana

In 2004, the Millennium Project estimated MDG needs in several different countries, including Ghana. For the health sector, the preliminary estimates suggested Ghana needed to spend on average US$ 24 per capita annually between 2005 and 2015 on MDG health interventions (with an average of US$ 2.30 for maternal health and US$ 5.60 for HIV and AIDS prevention, care and treatment).

This was compared with the actual health spending at the time of US$ 12 with US$ 7 coming from the government. Moreover, the human resources estimate also indicated the need for a significant increase in the number of doctors and nurses to meet the need for basic health services.[1]

Strategic appraisal

Estimates of resource needs can also be used as an input to determine a strategy for interventions. There are different possible strategies to reach sexual and reproductive health priorities, and each will have different implications for resource needs. In this case, both the costs and the effectiveness of interventions will be projected forward.

For example, it may be useful to compare different ways to deliver family planning services: at fixed clinics or through mobile units. For each option, it can be estimated what coverage is possible in the next five years and what resources are required to reach this level of coverage. Of course, an estimate of resource needs will be one of many inputs in strategic decision-making.

Often an estimate of future resource needs is a requirement in project or programme proposals for donors. It is important to balance the estimates of a programme's future financial needs with the gains that are expected to result from its implementation. This will help justify the investment to possible funders.

Financial planning and budgeting

Estimating resource needs can also be used in financial planning and budgeting. While estimates of resource needs for advocacy are directly linked to often ambitious targets, financial plans and budgets are more constrained by available resources or the budget envelope.

[1] Millennium Project, Millennium Development Goals Needs Assessment. Country case studies of Bangladesh, Cambodia, Ghana, Tanzania, Uganda, Working paper, 17 February 2004

An example of this kind of financial planning is the **Medium Term Expenditure Framework** that many governments use. Within this wider government process for allocating resources, different government departments will make a financial plan for the next five years. And within the health department, the SRH programme will also have to determine the resources required for the near (medium-term) future. This medium-term financial planning will often be accompanied by a detailed budget for the first year of activities. A budget differs from a financial plan or expenditure framework in that it is usually more detailed and clearly lays out financial responsibilities (a budget holder) for each activity or budget item.

Assessing affordability

Finally, an overview of how the resources required for an intervention develop over time is also useful to assess its affordability and ensure that it can be adequately financed. Over time, costs will change as, for example, coverage increases, prices change and the efficiency of implementation improves. It is important to know whether current and future financing sources are sufficient and reliable enough to cover the costs throughout the duration of the intervention.

When assessing future costs for determining affordability or when comparing different strategies, it is also crucial to acknowledge any resource savings that occur because of the intervention for which the costs are estimated. For example, additional investments in family planning services can result, when well implemented, in reduced needs, and thus costs, in the field of maternal and newborn health. These savings should be taken into account when looking at resource requirements.

Table C2.1 illustrates costs and savings for family planning for five different countries. This study was part of a resource needs estimate.

Projected costs of meeting the unmet need for family planning and resulting savings in maternal and newborn care (2005-2015).[2]

	Bangladesh	Cambodia	Ghana	Tanzania	Uganda
Family planning	62	26	13	13	67
Other maternal and newborn health	-103	-56	-28	-45	-266

C2.2 Different ways of estimating future resource needs

The methodology used to estimate resources for a particular package of health interventions depends first of all on the objective of the estimate and the kind of information most suitable for that purpose. As a result, resource needs estimates can range from a health sector-wide estimate based on the health MDGs up to 2015, to more detailed estimates of costs of the SRH programme over the medium term (three to five years), to a very detailed budget for SRH activities in the coming months. However, the process of estimating the costs of future activities will follow the same basic steps and principles (C2.3).

[2] Source: Data from Vlassoff, M. and S. Bernstein. 2006. Resource Requirements for a Basic Package of Sexual and Reproductive Health Care and Population Data in Developing Countries: ICPD Costing Revisited. Background paper prepared for the UN Millennium Project

It is important to note that some estimates focus on required resources (for advocacy reasons), while others are more considerate of the available resources (more often used in financial planning). In general there are two types of estimate (see box C2.1 for a comparison):

Zero-based resource needs estimate

This approach starts from scratch ("zero") by assessing needs on the basis of epidemiological and demographic data and target coverage rates. The methodology focuses on what the targets are (outcome), what needs to be done to achieve those targets (outputs) and what resources are required for these activities (inputs). This can be done for any disease programme as well as for different areas of health system development (e.g. human resources, infrastructure, and health information systems).

This approach requires large amounts of information but enables more radical change at the start of a new budget planning cycle. As such, these estimates can be made more or less ambitious, depending on assumptions made about the capacity to reach the pre-determined targets. The idea behind this methodology is that the implementation of the health sector strategy is more or less restricted by the capacity to implement it (coverage rates), rather than by financial constraints.

In its most ambitious form, the objective of this type of a resource needs estimate is to advocate for increased funding, both domestic and external, for the health sector. It does this by showing how many resources are required (or missing, in the case of a financing gap) to deliver a comprehensive package of health interventions and meet the pre-defined targets (e.g. those defined in the national Poverty Reduction Strategy).

A robust, zero-based resource needs estimate requires a lot of time. Therefore, if there is a need for a rapid indication of resource requirements, simplified methodologies have to be used. The simplest form of this would be to accept an aggregated cost estimate for a basic package of health care, for example between the US$ 12 from the World Bank or US$ 34 from the Commission for Macroeconomics and Health, and multiply that by the population to obtain a very basic idea of the resource needs.

More realism can be brought to this methodology by acknowledging a gradual scaling up from current coverage rates and health expenditure to the international standards as described above. Moreover, these international estimates can be adjusted to account for country-specific strategies and data. Assumptions about the rate of scaling up, productivity changes, expansion of services beyond the essential package, investments in infrastructure etc can also be added to the projections, depending on the data and time availability.

Incremental or mark-up resource needs estimate

Another approach is called 'incremental' because future resource needs are estimated as either a straight increase or decrease of the existing expenditure or budget (see box C2.1). The current expenditure is marked up with a percentage change for the next year. This approach does not require any re-assessment of need, even though it might acknowledge changes in the future, such as increased government budget allocations to health. This method is often used in financial planning and budgeting.

For example, the Ministry of Planning and Development might ask the Ministry of Health to submit preliminary estimates for the health budget for the next five years based on the past budget and factors such as economic growth, inflation, increasing

government budget, expected donor contributions, and expectations about the future share of government expenditure allocated to the health sector. As such, this estimate will reflect the available resources rather than the required resources.

Clearly, this choice of methodology serves different objectives and information needs. These estimates can provide an indication of the overall resources expected to be available to the health sector in the future. This is important information for the development of a health sector strategy, as limited resource availability will make difficult decisions on priorities inevitable. This kind of estimate can also be used in work on **financing mechanisms**, whereby the aim is to assess how the resources available can be expanded through different ways of financing health sector expenditure (Booklet C3). In order to do so, estimates of expected future resources are crucial.

However, past budgets - or available resources - might be insufficient to deliver the services planned for the next five years, or these resources might have been spent inefficiently (not giving best value for money), so that they are not a good basis from which to project resources forward. These projections will also not be explicitly linked to the health sector targets. As such, they do not give as much information about what can actually be achieved with the projected resources.

Box C2.2 – Incremental budgeting for contraception

Previous years

Year	Population 000's	Cost of condoms	Number of condoms purchased 000's	Budget 000's
3 years ago	1000	1	2000	2000
2 years ago	1020	1.05	2060	2163
1 years ago	1040	1.103	2122	2340

Budget for this year will be based on the same 2% population growth, 5% inflation in cost of condoms, and 3% increased demand for condoms. The expected financial requirements will then be 2531 (= (1.103 x 1.05) x (2122 x 1.03)). This increase follows the same trend as the past three years.

Something in-between

In practice resource needs estimates fall in-between these two methodologies. Zero-based resource needs estimates, focused on reaching pre-determined targets, will only be credible if they are somewhat linked to past experiences. As such, they will have to acknowledge the available resources, current coverage rates and past trends in scaling-up, which indicate the available capacity to reach those set targets. For example, many countries have estimated the resource requirements for reaching the health MDGs by 2015 using elaborate zero-based estimates. However, as part of the government budget process they also submit shorter-term estimates for the Medium-Term Expenditure Framework or annual budget, which are often more incremental.

Box C2.3 - Estimating resource needs for a condom programme

Knowing the total cost per condom and the number of condoms distributed last year, the cost per condom is multiplied by the expected number of condoms to be distributed in future, whereby the growth of condom provision is…

In case of incremental resource needs:
…the same in the next five years as it has been in the last five year (e.g. linked to population growth).

In case of zero-based resource needs:
…based on population growth and planned increases in coverage in the next five years (possibly working towards a specific target to be reached in year five).

This example is of course a gross simplification! We are assuming the cost per condom covers all costs of the programme, including transport, programme management, information and education campaigns, and other costs.

C2.3 How to estimate future resource needs

Regardless of the approach or purpose of resource needs estimates, they all need to be credible in order to be useful. The process of the resource needs estimate in itself plays an important part in the acceptability of the final estimate, which is essential for advocacy and planning. The process should be transparent and open to scrutiny. A participatory approach is important, not only to generate buy-in, but also to ensure that the latest available information on for example unit costs or demand is used in the estimate. Furthermore, because a resource needs estimate requires a lot of time and effort, it needs to be well organized to reduce the burden of data collection on programme managers and implementers.

In this booklet we focus on the zero-based resource needs estimates, which are often used for the economic appraisal of programmes. In general, different approaches all follow the same six steps.

1. WHAT: Defining the scope of the estimate

The scope of the estimate defines which SRH programmes will and will not be included in this estimate. For a credible estimate, the scope, and the process of determining it, needs to be very transparent. Ideally, it is linked to the SRH programme strategy, or whatever defines key priorities. Within an SRH programme, interventions and activities have to be identified that are essential to achieve the goals of the strategy. For example, an SRH manager might decide to concentrate on "maternal health", within which "increase the coverage of emergency obstetric care".

2. WHO: Estimating the population in need

Secondly, for each intervention or activity selected, the population in need has to be identified to determine the demand for services. So, for example in the case of emergency obstetric care, the population in need would be the number of births for which emergency services might be required. This is based on the number of women of reproductive age, the country's birth rate and the annual percentage of births in the country that require emergency services.

Estimating the demand for a service is a challenging field of work for epidemiologists and demographers rather than economists. However, useful information on the population in need can be obtained from national health surveys or programme-specific monitoring. The national institutes of statistics are often a useful source, as are

the WHO Burden of Disease studies.[3] If no information is available for a specific country, assumptions can be made on the basis of data from other, comparable countries (e.g. for Mozambique one could look at other countries in Southern Africa, except for South Africa).

3. HOW MANY: Establishing baseline and target levels for coverage of services

Only when universal coverage is achieved will the number of people requiring a certain intervention or treatment be the same as the number of people who will actually receive it. Currently, only a percentage of the people who need services actually have access to them. Only those cases that actually receive treatment should be costed.[4] Therefore, the projected number of people who require the different interventions (step 2) has to be multiplied with coverage rates for specific interventions or general health services, to arrive at an estimate of the number of people actually serviced by the system.

Current coverage rates vary for different interventions. Moreover, coverage rates are expected to increase in the medium term, because of improvements in the health system as well as specific efforts by SRH programmes. For example, for maternal health, there will be targets for reducing mortality rates. This would require an increase in the coverage rate of maternal health services. Often national health strategies will mention the target coverage rates for the coming years. For example, a target could be to increase coverage of maternal health services from 40% of the country to 60% within 10 years. The speed at which coverage is increased depends on the capacity of the health system, but will generally only be gradual (unless much more is invested).

It is worth stressing that changes in coverage of an intervention will also affect costs of implementing it. On the one hand, the costs per person may go down as coverage grows (e.g. because of the ability to buy equipment or drugs cheaper in bulk or because of lower overhead costs per person). For example, as a clinic sees more clients, buildings and equipment may be used to their full capacity thus reducing average capital cost per patient. The same may happen when interventions are expanded nationally, as management, supervision, training and other activities may become more efficient. This is called '**economies of scale**'. However, on the other hand, the costs per person may go up as increased coverage means including those harder to reach, which often needs more time and effort and, thus, higher costs per person. For example, expanding coverage from urban to rural areas will increase transportation costs for drugs and supplies and might increase the cost of human resources (e.g. mobility premiums, housing). In this case, economists talk about 'diseconomies of scale'.

4. HOW MUCH: Cost assessment

Once it is known how many people will receive a service (step 3), it is time to assess the costs of providing these services per person. There is much more information on this in Booklet A3. In short, the costs per intervention should include all "ingredients" used to deliver the service, for example both the direct costs of service delivery and the programme costs. The costs of service delivery are the supplies and drugs and other material used for the intervention. For example, in the case of emergency obstetric care - a caesarean section, for example - the costs would include the syringe and drugs for anaesthesia, suture, medication and so on. Programme costs do not occur at the point of service delivery but are essential to ensure the service is

[3] See Global Burden of Disease (GBD) Estimates 2002.
http://www.who.int/healthinfo/bodgbd2002revised/en/index.html

[4] As such there is an implied assumption that if people need services, they will use them when they are available (full utilization of services).

actually delivered. Examples include specialised training for service providers, development of protocols and guidelines, management costs, information and education campaigns, monitoring and evaluation, and transport.

It is important to note that neither of these costs includes the costs of human resources and health facilities. This is because these costs occur for the health system as a whole and, therefore, they should not be linked to any particular programme. The human resource and infrastructure costs should be estimated separately for the whole health sector.

Continuing with the same example, the total intervention costs for a specific intervention would be:

Women requiring emergency service (e.g. C-section)	Step 2
x	
% women with access to emergency services	Step 3
x	
Average cost per woman of intervention (e.g. C-section)	Step 4
+	
Programme costs (e.g. training midwives and nurses)	

For each year of the resource needs estimate, excluding health system costs

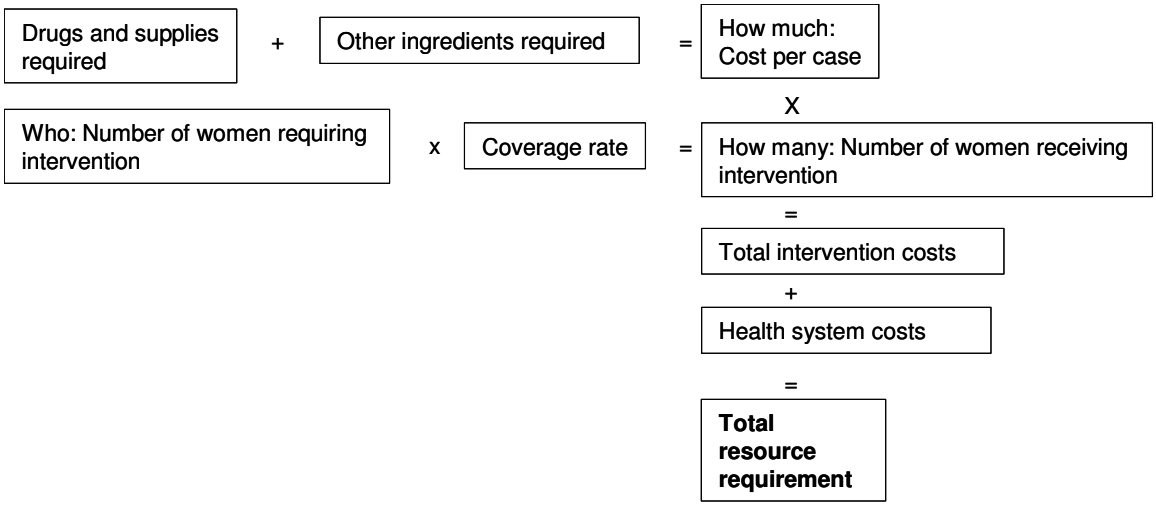
However, most often, such detailed cost information is actually not available. There will probably not be enough time to do a costing study as discussed in Booklet A2 either. Therefore, costing studies, previous budgets, websites of international organizations (e.g. UNFPA, WHO, UNICEF) and interviews with service providers can all be used to obtain a credible indication of the overall cost per person served (rather than adding the costs of all ingredients used to provide the service). For example, it is easier to find an estimate of the cost per caesarean section through literature reviews or expert interviews than to find information on the costs of all ingredients used for the caesarean section. It is important to note that sufficient time needs to be allocated to the collection of such data, which should also allow for validation of final figures, so that the outcome, the estimate of future financial resources, is credible.

Though using an existing cost study saves time on data collection, the results still need to be analysed carefully to make sure they are suitable for you to use. For example, the geographical region or the scale of the activity might differ, which would also affect the unit costs (more on this in booklet A3). Furthermore, there are studies that use unit costs for an ideal world without inefficiencies and wastage. Although you would not want to encourage wastage in your financial planning, it might be useful to at least acknowledge that using "ideal world costs" might lead to an underestimate of the real resource requirements.

5. TOTAL: Budget compilation

Finally, in order to get one estimate of the resource requirements for the whole package of interventions, it is necessary to:

- Add the costs (both service-delivery and programme costs) of each treatment or intervention (e.g. emergency obstetric care)
- Add all intervention costs of the interventions in the programme under investigation (e.g. maternal health and health information systems)
- Add the cross-cutting health system investments (e.g. human resources, health information systems, infrastructure, development of health policies, etc)



The resource needs estimate, annual and total, should be realistic given the government's budget and the allocation to the health sector within that budget. This might require downsizing the resource needs estimates for particular programmes. Therefore, once the resource needs estimate has been compiled, an analysis is needed of the proportion of funds that would go to different areas. This should be compared to the strategy (acknowledging that some interventions require more resources than other).

There are tools available to help managers assess existing capacity, or the ability to move from current levels of service delivery towards the target levels. One such tool is the Marginal Budgeting for Bottlenecks tool (MBB), developed by the World Bank, WHO and UNICEF. This takes managers, planners and policymakers through a process in which they identify resource bottlenecks, in other words, where resources are available and where there is a shortage. It also allows managers to assess the impact of removing these bottlenecks.

6. SCENARIOS: Addressing uncertainty.

Because there is often only limited data available (e.g. on incidence and prevalence of different diseases, coverage rates or unit costs of interventions), the final estimate will be based on several assumptions or proxies, instead of actual figures. This is inevitable and does not necessarily mean the results are invalid. However, it is crucial that all assumptions are discussed and cleared with the technical experts, to ensure they are suitable and acceptable for the specific context in which they are used.

Once a resource estimate has been compiled in this way, it is also important to assess the sensibility of the estimate to the assumptions. This can be done by looking at alternative scenarios (e.g. what if not 124 but 150 specialised medical doctors would have been trained by 2015? What if the prevalence of HIV is 14% instead of 12.2%?).

Summary

This booklet has described different methods for estimating future costs, depending on the purpose of the exercise as well as the time and data availability. The six steps for all resource needs estimates (be they for advocacy or budgeting), should be of use to programme managers as they are often directly responsible for financial plans and budgets. Economists can help with some of the issues of the resource needs estimate (e.g. adjusting costs), but by following the reasoning of the six steps, and by paying attention to the process, managers can ensure the resource needs estimates are as accurate and credible as possible.