

MODULE 11

Calculating the cost of benefits using the RAP model

Duration: 5 hours

Prerequisites: Modules 2, 3, 4, 6, 7, 8, 10



Key questions:

1. What are the different cost projection tools used by the ILO?
2. What is the role of the RAP model?
3. What is the structure of the RAP model?
4. What are the different steps in using the RAP model?
5. What are the possible sources of data?
6. What are the advantages and limitations of the RAP model?



Objectives:

This module aims to give policy-makers, practitioners, and stakeholders working on social security in a country a basic understanding of costing social protection policy options. When all stakeholders have a broad understanding of the costing process, it can facilitate policy discussions on designing and implementing various programmes and schemes. The module explains the RAP model used in the ABND exercise with practical examples and includes a group activity where participants can use the RAP. The module also introduces the data required to use the RAP, possible sources of data, and the limitations of the RAP model.



Overview:

This module includes a presentation on calculating the cost of benefits using the RAP model. In addition, the module includes two practice sessions where participants are asked to use the RAP model and to present the assumptions and results of their calculations to other groups.

What are the different cost projection tools used by the ILO?

The ILO has used a range of financial models and costing tools over the years. The ILO's International Financial and Actuarial Service (ILO/FACTS) works on financial planning and financial management of social protection schemes. ILO/FACTS services include exchange of statistical information on social security, building of national statistical reporting systems, actuarial reviews of schemes, economic and budgetary analysis, development of social budget models, and conducting research on social protection concepts, methodology, and policy issues. ILO/FACTS also provides capacity

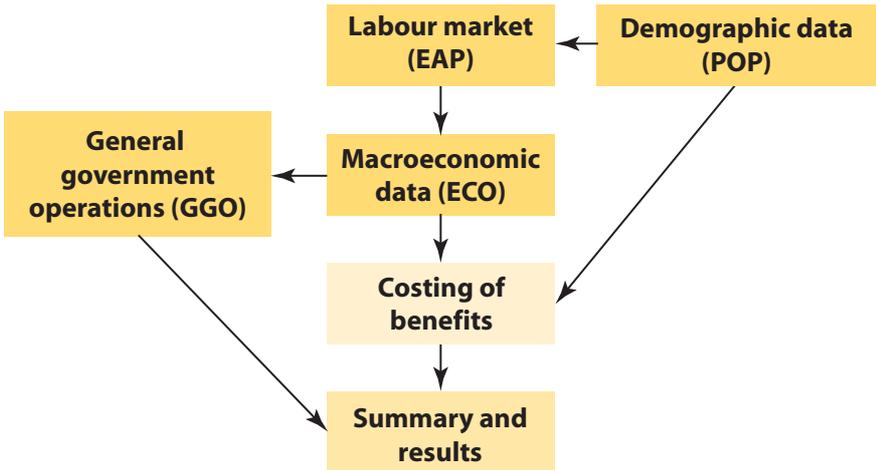
building for national social protection agencies, governments, and workers' and employers' organizations.

Although the ILO's Social Budget Model performs a comprehensive modelling of social expenditures, it requires in-depth training and experience to use. This gave rise to the RAP model. This compact and flexible tool can be used by everyone. It provides a quick and simplistic cost estimate for various social protection policy options.

What is the role of the RAP model?

The RAP forms part of the second step of the ABND exercise. After transforming broad policy recommendations into policy options or scenarios, the costs of proposed social protection provisions are estimated and forecast over a ten-year period using the ILO RAP model. This costing exercise aims to provide realistic cost estimates to be used for discussions on available fiscal space and government budget reallocations, in turn helping with the prioritization of possible social protection policy options.

Figure 12. The ILO RAP model



What is the structure of the RAP model?

The ILO RAP model is an Excel tool that comprises three steps. In the first step the user inputs data; the second step calculates the cost of several social protection benefits; and the third step calculates the cost of combined benefit packages and presents the results of the RAP model. Additionally, a preliminary analysis of the affordability of the proposed recommendations is conducted.

First step: Inputting data into the blue sheets

The first type of worksheets (blue sheets) is used to input data.

Statistical data about the population of the country, its labour market, economic situation and forecasts, and government operations need to be collected by the participant and entered into the RAP model. Five worksheets need to be completed:

1. Demographic framework (POP worksheet) – Population data per single age and sex are inputted together with population projections.
2. Labour participation rates (LPR worksheet) or activity rates (AR worksheet) – Male and female labour participation rates are entered per age group together with projections.
3. Economically active population (EAP worksheet) – The worksheet contains the result of data from the POP worksheet multiplied with data from LPR/AR worksheet. Note that the EAP or labour force is defined as all persons of both sexes above the legal working age who are willing and able to work. It includes the employed (including self-employed) and the unemployed.
4. Macroeconomic framework (ECO worksheet) – Various economic indicators are recorded and projected, including the inflation rate, average monthly wage, minimum wage, poverty line, poverty rate, GDP growth rate, GDP at constant price, GDP at current price, GDP deflator, labour productivity, unemployment rate, and so on. These indicators will be used to calculate and project the cost of social protection provisions and to express these cost estimates as a percentage of GDP.
5. General government operations (GGO worksheet) – The worksheet provides information on the government’s revenues (tax and non-tax) and expenditures. This information will be used to express the cost estimates of proposed policy options as a percentage of the government’s expenditures. GGO status quo (SQ) gives the government revenues and expenditures assuming that no additional social protection benefits have been implemented. Another worksheet, GGO benefits, gives the government’s revenues and expenditures assuming that additional provisions to complete the social protection floor in the country will be implemented in the near future.

Historical data and projections are required to calculate the cost of the social protection benefit packages and to project this cost over several years.

Second step: Calculating the cost of various scenarios

In the second step, the participant calculates the cost of various scenarios under the different SPF guarantees. Several worksheets can be generated (at least one per SPF guarantee). Some of the guarantees may be subdivided into several worksheets as indicated in the table below:

Table 4. Examples of worksheets created for each guarantee of the SPF

SPF guarantee	RAP model Indonesia	RAP model Thailand
Access to essential health care, including maternity care	Health HIV	Maternity
Basic income security for children	Child	Child
Basic income security for persons of active age	Working age Disability	Sickness Working age Disability
Basic income security at a nationally defined minimum level for older persons	Old-age pensions	Pension

The cost is calculated in absolute terms (in national currency), as a percentage of GDP, and as a percentage of government expenditures. The costs are then projected until 2020.

The cost of implementing a scenario is calculated as:

$$\text{Cost} = \text{Number of people in the target group} \times \left(\text{Cost of benefits per head} + \text{Administrative cost per head} \right)$$

The number of people in the target group is calculated from the POP, EAP, and ECO worksheets. The number of people equals the target population multiplied by the coverage (percentage of target population covered).

$$\text{Number of people in the target group} = \text{Target population} \times \text{Coverage}$$

Examples of target populations are given below:

- all poor and near poor population;
- children of poor households and of a certain age group;
- all children of a certain age group;
- all informal economy workers;
- all pregnant female workers in the informal economy;
- all residents living with disabilities;
- all residents above 60 years of age; and so on.

The target population is projected to increase or decrease in line with a number of factors, such as:

- growth patterns of the overall population or for specific age groups;
- evolution of fertility rates (for the maternity package);
- evolution of school attendance (for scholarship programmes).

Coverage depends on the current coverage of the target group and increases according to a reasonable take-up rate which may be decided in consultation with stakeholders. In countries such as Thailand, for instance, where all citizens have a 13-digit identification number, the take-up rate of a universal scheme was assumed to be very high (50 per cent coverage in the first year, 80 per cent in the second year, and full coverage by the third year). The take-up rate of targeted programmes was lower since targeted schemes are more complex to administer and establish than universal schemes. In countries that have not yet established national registry databases and identification of the poor systems, take-up rates will be assumed to be much lower for both universal and targeted programmes.

The cost of benefits per head may be decided based on discussions with stakeholders. For instance, the level of income transfers may be designed as a percentage of the poverty line, of the minimum wage, or based on the levels of transfers provided to other groups in the population. The per capita cost of the health care package may be based on an improved benefit package compared to an existing one. In all cases, the level of benefits should be increased every year in proportion to inflation, wage increases, changes in minimum wages, or other factors.

Administrative costs per head should be based on administrative costs of similar programmes, bearing in mind that the administration of targeted programmes is usually more costly than that of universal schemes.

Third step: Presenting the final results

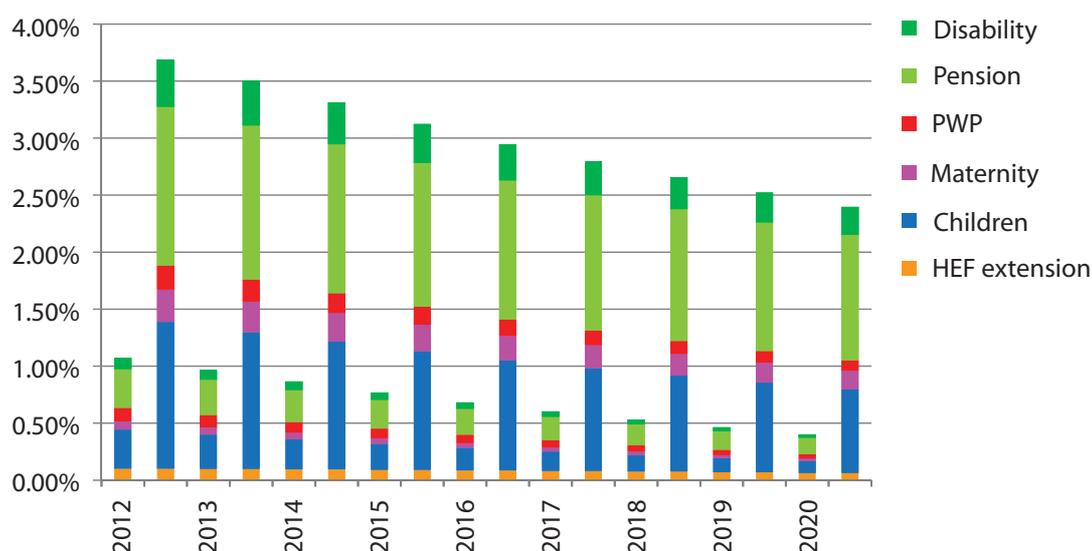
The third step is to organize and consolidate the final results of the RAP model in a specific worksheet named “Summary”. Several combined SPF benefit packages are developed, including a choice between low and high cost packages, thus providing governments with several options. The results of the cost calculations and projections are expressed in national currency, as a percentage of GDP, and as a percentage of government expenditures. Results of the costing exercise for consolidated packages in Cambodia, Indonesia, Thailand, and Viet Nam are presented below.

In Cambodia, individual policy proposals were calculated, on the basis of which the following combined low and high benefit packages were proposed:⁹

- The low combined benefit package includes a maternity benefit targeting poor pregnant women (option 3); a cash transfer for poor children aged 0-2 (option 4); a Public Works Programme (PWP) targeting ten per cent of extremely poor households (option 6); the extension of HEFs to all poor households (option 8); an old-age pension for elderly poor aged 65 and above (option 10); and a disability pension for the poor (option 12).
- The high combined benefit package includes a universal maternity benefit (option 3u); a universal child allowance for children aged 0-2 (option 4u); a PWP targeting ten per cent of poor households (option 7); the extension of HEFs to all poor households (option 8); a universal old-age pension for elderly aged 65 and above (option 10u); and a universal disability pension (option 12u).

Based on these two combinations, the cost of a complete SPF package for Cambodia was projected at between 0.4 per cent and 2.4 per cent of GDP by 2020.

Figure 13. Cost estimate of low and high combined benefit packages in percentage of GDP in Cambodia



Source: J-C. Hennicot, ILO RAP model for Cambodia, 2012.

⁹ For the full list of policy options and details of calculations/combined benefit scenarios see pp. 13–27 of the report: J-C. Hennicot: *Cambodia: Financial assessment of the National Social Protection Strategy for the Poor and Vulnerable* (Geneva, ILO, 2012).

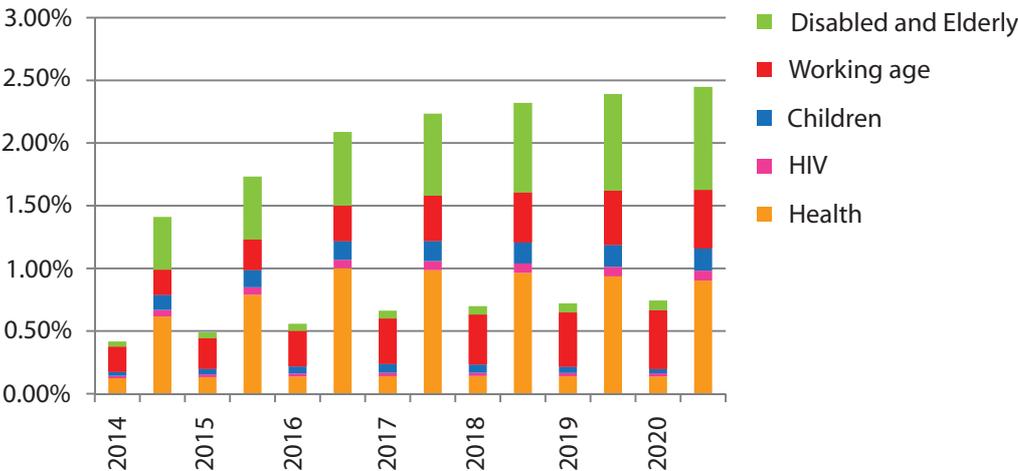
While performing the cost estimation exercise in Cambodia, the main assumptions included a high GDP growth rate and a rapid decline in the poverty headcount. The graph shows that the cost of implementing the scenarios becomes less over time.

For the Indonesian costing exercise, two possible low and high scenarios of combined benefits were proposed:¹⁰

- The low combined benefit package includes extension of health insurance to all poor and vulnerable at third class moderate level (health scenario 1); preventive HIV treatment for the most-at-risk population and curative care for all people living with HIV, including mother-to-child-transmission protocols (health scenarios 6 and 8); extension of the cash transfer programme to all poor children (children scenario 1); establishment of a PWP linked with vocational training targeting 25 per cent of informal economy workers by 2020 (working age scenario 1); extension of non-contributory disability allowance to all people with severe disabilities (elderly and disabled scenario 1); and extension of a non-contributory pension to all vulnerable elderly aged 60 years and above (elderly and disabled scenario 2).
- The high combined benefit package includes provision of first class health insurance benefits to the entire informal economy population (health scenario 5); preventive HIV treatment for the sexually active population and curative care for all people living with HIV, including mother-to-child-transmission protocols (health scenarios 7 and 8); establishment of a universal child allowance (children scenario 3); establishment of a PWP linked with vocational training targeting 25 per cent of informal economy workers by 2020 (working age scenario 1); extension of the non-contributory disability allowance to all people with severe disabilities (elderly and disabled scenario 1); and establishment of a universal pension for all elderly aged 55 years and above (elderly and disabled scenario 3).

Based on these two combinations, the cost of completing the SPF in Indonesia was calculated to be between 0.74 per cent and 2.45 per cent of GDP by 2020.

Figure 14. Cost estimate of low and high combined benefit packages in percentage of GDP in Indonesia



Source: S. Satriana and V. Schmitt, ILO RAP model for Indonesia, 2012.

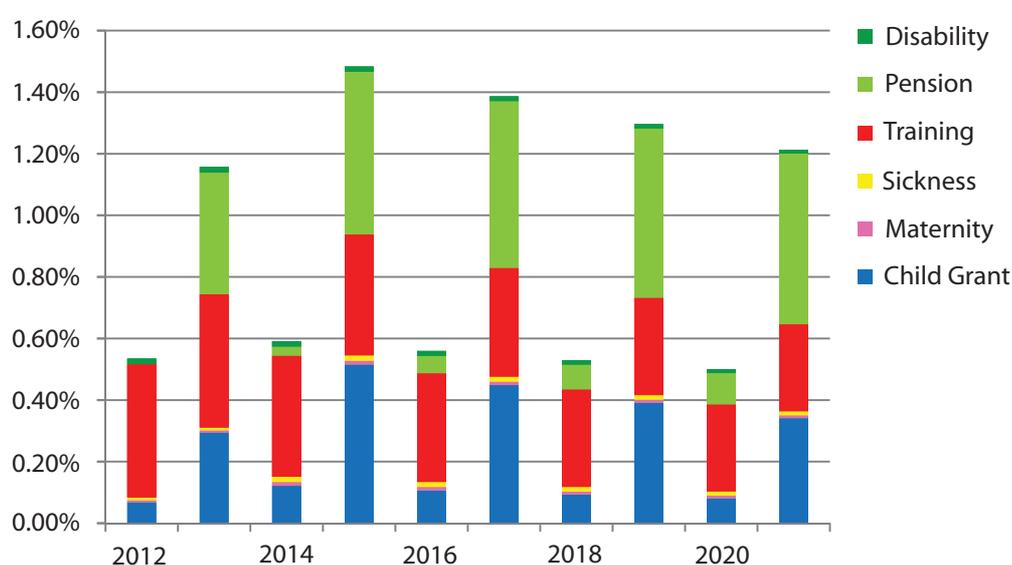
¹⁰ For the full list of policy options and details of calculations/combined benefit scenarios, see pp. 59–73 of S. Satriana and V. Schmitt: *Social protection assessment based national dialogue: Towards a nationally defined social protection floor in Indonesia* (Jakarta, ILO, 2012).

As in the Indonesian ABND costing exercise, a low and a high scenario for combined proposed schemes were considered in Thailand:¹¹

- The low combined benefit package includes the establishment of a universal child support grant for all children aged 0–3 (children scenario 1); introduction of a maternity allowance for all women working in the informal sector, a sickness benefit for all informal economy workers, a vocational training programme for informal economy workers including an allowance for the poor, and an increased disability allowance benefit (working age scenarios 1, 2, 3 and 4); and indexation of benefits under the Government's universal non-contributory old age allowance (old age scenario 1).
- The high combined benefit package includes the establishment of a universal child support grant for all children aged 0–12 (children scenario 5); introduction of a maternity allowance for all women working in the informal sector, a sickness benefit for all informal economy workers, a vocational training programme for informal economy workers including an allowance for the poor, and an increased disability allowance benefit (working age scenarios 1, 2, 3 and 4); and an alternative non-contributory allowance for older people with benefits expressed as a percentage of the nationally defined poverty line (old age scenario 2).

Based on the two package options, completing the SPF in Thailand would cost an estimated 0.50 to 1.21 per cent of GDP by 2020.

Figure 15. Cost estimate of low and high combined benefit packages in percentage of GDP in Thailand



Source: V. Schmitt, T. Sakunphanit, and O. Prasitsiriphol, ILO RAP model for Thailand, 2013.

Though the graph is simplistic, it provides a discussion point among stakeholders for expanding social protection in the country. It gives an idea of where Thailand stands with regard to establishing a comprehensive social protection system. The country has already achieved the social protection

¹¹ For the full list of policy options and details of calculations/combined benefit scenarios, see pp. 52–70 of V. Schmitt, T. Sakunphanit, and O. Prasitsiriphol: *Social protection assessment based national dialogue: Towards a nationally defined social protection floor in Thailand* (Bangkok, ILO UN Country Team Thailand, 2013).

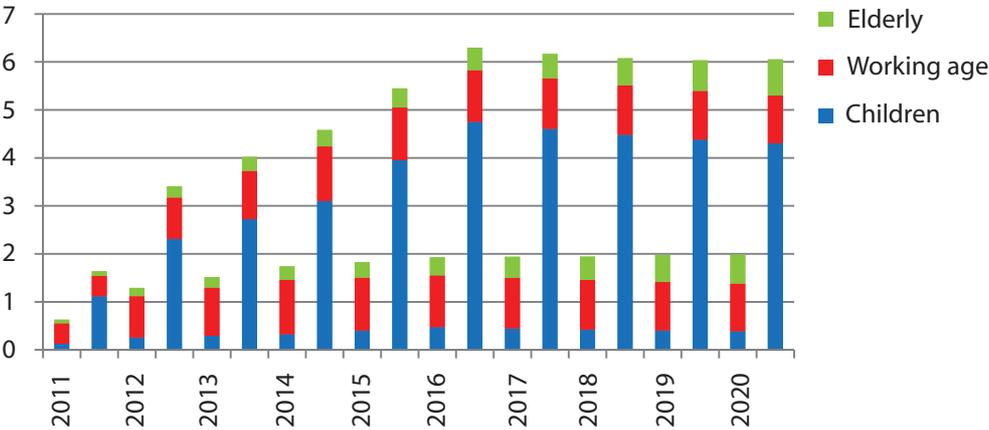
floor for health care. As a result, none of the policy options presented in the graph are related to health care.

In Viet Nam, costing exercises were carried out for four different social protection packages comprising different combinations of proposed benefits. The low and high scenarios for combining proposed schemes are summarized below:¹²

- The low combined benefit package includes a targeted child benefit for all poor children limited to two children per family (scenario 2b); a targeted old age pension benefit at the level of the poverty line for all uncovered elderly (scenario 1); and an employment guarantee scheme of 100 days per household per year combined with social assistance for those who are unable to work and employment and training services, including training allowances, to facilitate return to employment and creation of microenterprises (working age scenario).
- The high combined benefit package includes a universal child benefit (scenario 1); a universal old age pension with a reduced benefit level if receiving a pension from the contributory social insurance scheme (scenario 2); and an employment guarantee scheme of 100 days per household per year combined with social assistance for those who are unable to work and employment and training services, including training allowances, to facilitate return to employment and creation of microenterprises (working age scenario).

Based on the two package options, closing the SPF in Viet Nam would cost an estimated 1.98 and 6.06 per cent of GDP by 2020.

Figure 16. Cost estimate of low and high combined benefit packages in percentage of GDP in Viet Nam



Source: M. Cichon, F. Bonnet, V. Schmitt, C. Galian, and G. Mazeikaite, ILO RAP model for Viet Nam, 2011.

¹² For the full list of policy options and details of calculations/combined benefit scenarios, see pp. 25–31 of M. Cichon, F. Bonnet, V. Schmitt, C. Galian, and G. Mazeikaite: *Analysis of the Viet Nam National Social Protection Strategy (2011–2020) in the context of social protection floors objectives: A rapid assessment*, Extension of Social Security (ESS) Paper No. 32 (Geneva, ILO, 2012).

Preliminary analysis of the affordability of the proposed recommendations

The ABND exercises additionally include some preliminary analysis of the affordability of the proposed recommendations. Social protection schemes proposed as a result of the ABND exercises are feasible when the country concerned can afford to fund new social protection benefits.

Affordability is assessed by calculating the cost of the new social protection schemes and comparing this cost with GDP. If the estimated cost of implementing a proposed social protection scenario is 1 per cent of GDP, for instance, it may be argued that the country in question can afford to extend the additional social protection benefits.

Depending on policy choices and the social model of the country, these additional expenditures may be:

- fully financed through social contributions (made by workers and employers);
- fully or partially financed from government budget. In such cases it is important to assess whether the government can afford these additional expenditures, i.e. whether there is sufficient fiscal space.

For the purposes of this exercise, fiscal space is defined as the budgetary capacity of a government to provide resources for a desired purpose without jeopardising the sustainability of its financial position or the stability of the economy.

Preliminary fiscal space analysis is conducted:

- by adding the cost of the combined scenarios to total government expenditures; or
- by adding the cost of the combined scenarios to recurring government expenditures instead of total government expenditures.

While total expenditures include capital expenses that are likely to be donor-funded in low-income countries, recurrent expenditures are usually financed from domestic revenue sources. By adding the cost of the combined scenarios to recurring government expenditures, one gets a sense of whether or not the SPF recommendations can be financed from national resources.

Options to create fiscal space and finance the proposed policy options are then discussed. In cases where budgetary capacity is not sufficient (unbalanced budget), the government may create additional fiscal space by raising corporate income taxes, value added taxes or personal income taxes, borrowing from international institutions or markets, or cutting down on low-priority expenses. However, borrowing beyond a certain extent has to be carefully considered as it may compromise macroeconomic sustainability in the long-term.

What are the possible sources of data?

Obtaining data, including population data and projections, labour force participation rates per age group, GDP growth estimates and other economic indicators, per capita costs of existing social protection schemes, administration costs, and so on, may be a long and arduous process. The data may not be available from a single source and persons conducting the ABND process may have to spend considerable effort in procuring the figures.

Some common sources for data and statistics include:

- national statistics offices;
- census and national surveys;
- line ministries and national social protection institutions;
- central banks;
- research institutes;
- universities.

Each line ministry may be approached for a specific set of data. For instance, the ministry of planning may record GDP and population projections; the ministry of finance may provide data on government budget and planned expenditures; the ministry of interior may provide registration details for social benefits; the ministry of commerce may have data on the consumer price index; and the ministry of finance and banks may provide projections on economic and financial indicators.

The data provided may have low, middle, and high projections depending on pessimistic, medium, or optimistic economic growth conditions. The obtained data could be incomplete or imperfect and assumptions may have to be made to use the data. Alternative sources of data, such as UN or ILO population models and the International Monetary Fund's (IMF) World Economic Outlook (WEO), may be used in the absence of data from national sources.

Example of costing social protection policy options

One proposed scenario is to extend a non-contributory pension allowance to people with severe disabilities. The initial cost of the allowance is calculated for 2012 and then projected over several years.

$$\text{Cost} = \frac{\text{Number of people in the target group}}{\text{the target group}} \times \left(\frac{\text{Cost of benefits}}{\text{per head}} + \frac{\text{Administrative}}{\text{cost per head}} \right)$$

$$\text{Number of people in the target group} = \text{Target population} \times \text{Coverage}$$

Table 5. Examples of cost calculations based on a concrete example

	2012	Assumptions for 2013	2013
Target population	200 000	Population growth of 1.2%	202 400
Coverage	20%	Increase in coverage of 10%	20% + 10% = 30%
Number of people covered	20% * 200 000 = 40 000		30% * 202 400 = 60 720
Monthly benefit/head	US\$30 / month	Inflation of 5%	US\$31.5 / month
Annual benefit/head	US\$360 / year		US\$378 / year
Administrative cost per head (15%)	15% * 360 i.e. US\$54 / year	Administrative costs of 15%	15% * 378 i.e. US\$56.7 / year
Total cost	40 000 * (360 + 54) = US\$16 560 000		60 720 * (378 + 56.7) = US\$26 394 984

Thus, we can see that implementing the scenario to provide a non-contributory pension to the disabled will cost US\$16,560,000 in 2012 and US\$26,394,984 in 2013. In a similar way, the cost can be projected until 2020.

In the RAP model for Coresia, the per capita cost of cash benefits are indexed on headline inflation while per capita cost of labour-intensive social protection benefits (such as access to health care or vocational training) are indexed on the average wage increase. Other determinants of per capita cost increase can be taken into account. For instance, per capita health care costs usually increase at a higher pace than average wages due to greater utilization of services by insured persons and improvements in quality of health care services.

What are the advantages and limitations of the RAP model?

The RAP is a simplistic cost estimation model that helps to illustrate the different policy options. It provides practical discussion points on which the national dialogue process can be initiated. The RAP also allows participants to check the long-term sustainability of social protection programmes by comparing the cost of implementation with economic indicators such as GDP and government expenditures. However, the results are simplistic and cannot be used directly in designing a scheme. Further detailed actuarial studies have to be conducted before designing or implementing a scheme.

Practice sessions where participants are asked to use the RAP model and to present the assumptions and results of their calculations to other groups

To give participants experience in using the RAP model, the module is then organized into two practice sessions. The six groups calculate the implementation cost of the scenarios they designed. A blank RAP model is circulated to all the groups for this session. The groups have to fill in the Benefits, Summary, and GGO (Benefits) worksheets for their respective guarantees. The input worksheets – POP, AR, EAP, ECO, and GGO (SQ) – are filled in prior to circulation and cannot be changed. An instruction sheet contains the list of parameters in the RAP, their definitions, and formulas. It also gives the parameters which are to be filled by instructors before the exercise and the ones which are to be calculated by participants.

The blank RAP model and a sample solution are attached to the guide. The sample solution follows the solution to the cases given in module 8 and scenarios designed on the basis of the case solutions. Users of the guide must note that this is not a unique solution. If users design different scenarios, the cost of implementation will be different. This sample solution may be used by participants as a guiding point to conduct this session.

Once the participants have completed the calculations, each group presents the results of their RAP exercise to the classroom. They have to explain the scenarios designed by the group, the assumptions for the calculations, and the method of arriving at the total cost. An instruction sheet for conducting this session has been provided. This session is expected to help participants of a training course gain an understanding of RAP calculations for the different SPF guarantees.



Takeaway message:

Estimating the cost of social protection provisions is an important component of the decision-making process. This module helps participants gain an understanding of how to generate basic cost estimates. Participants have the chance to use the RAP model for the fictitious country of Coresia and thereby gain a practical understanding of the RAP model. Obtaining current and projected data and agreeing on assumptions with stakeholders is crucial. While the RAP model cannot be used for designing or piloting a scheme as its results are too simplistic, the results can help initiate a national dialogue process by providing a tangible basis for policy discussions.



textbook



e-box

Resources:

	Master module 11 – Calculating the cost of benefits using the Rapid Assessment Protocol		
	Presentation – Costing policy options using the Rapid Assessment Protocol		
	Self-learning tutorial – Estimating the cost of scenarios		
	Video of the presentation		
	Part 1 – Rapid Assessment Protocol and costing policy options in Cambodia		
	Part 2 – Using the Rapid Assessment Protocol		
	Part 3 – Questions and opinions		
	Instruction sheet for the group activity – Using the RAP model to calculate the cost of benefits on the basis of the case study		
	Instruction sheet for the group activity – Presenting the results of the RAP calculations to other groups		
	Blank RAP model		
	RAP model with sample solution		
	Video of the group activity – Using the RAP costing tool to calculate the cost of benefits on the basis of the case study		
	Video of the group activity – Presenting the results of the RAP calculations to other groups		

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