

# Institute of Actuaries of India

## Actuarial Practice Standard (APS) 20: Actuarial Practice for Social Security Programmes

### Classification

Practice Standard

### Legislation or Authority

1. Professional Conduct Standard (PCS, version 3.00)
2. IAA International Actuarial Standards of Practice: International Actuarial Association Guidelines of Actuarial Practice for Social Security Programmes adopted by the Council of IAA on 21 10 2002, effective 01 01 2003.

### Author:

Pensions and Social Security Board (PSB)

### Compliance:

Members are reminded that they must always comply with the Professional Conduct Standards (PCS) and that Actuarial Practice Standards impose additional requirements under specific circumstances.

### Status

This Actuarial Practice Standard shall constitute a practice standard on professional matters within the meaning of Rule 29 (l) of the Rules of the Society and has been authorized to be issued by the Executive Committee in its meeting held on 15 02 2005.

### Version:

1.00	Applicable for all actuarial reports carried out on and after 01 04 2005
1.01	Effective from 01 01 2012

**Application:** All members of Institute of Actuaries of India

## A. INTRODUCTION

This Actuarial Practice Standard is issued keeping in view the provisions under International Actuarial Association Guidelines of Actuarial Practice for Social Security Programmes adopted by the Council of IAA on 21 10 2002, effective 01 01 2003.

Many Social Security Programs (SSP) face major financial challenges in planning for

the future due, among other things, to the effects of changing demographic structures over time. Important political decisions are being planned, considered and/or made in order to meet these challenges. In many cases, the main concern is future long-term costs. Therefore the need arises to perform financial projections and analyses of SSPs. This was acknowledged also as early as 1952 in Article 71 (3) of the Social Security (Minimum Standards) Convention, No. 102 of the International Labour Organization (ILO).

Actuaries possess significant expertise in preparing long-term financial projections and therefore have an important role carrying out analyses of SSPs. Accordingly it is vital that all demographic and economic analyses carried out by actuaries provide reasonable projections of long-term future costs and financial impact on which those important decisions can be based.

Members should take into account sound actuarial principles and actuarial standards set by IAI, if any and such practices by actuaries elsewhere generally.

## **B. SCOPE**

### **1. Type of program**

These Guidelines cover SSPs having the following attributes:

- (a) Prescribed by legislation such as Employees State Insurance Corporation, Social Security schemes for specific class of the population set by Central or State Governments.
- (b) Covering a defined wide population, generally on a compulsory or automatic coverage basis.
- (c) The benefits provided by the SSP are generally payable in respect of one or more of the following:  
old age, retirement, death, disability, invalidity, survivorship, health, sickness, maternity, unemployment, work-related injuries.

These Guidelines apply to the above-mentioned programs irrespective of the manner in which they are financed i.e. funded or pay-as-you go or a mix of the two.

Moreover, these Guidelines may also be appropriate for use, if not otherwise directed, by actuaries responsible for evaluations of public pension programs specifically sponsored by a government or a quasi-governmental organization as an employer for its employees, as well as for social security programs which are in accordance with the spirit of the scope of these Guidelines but are not covered by the precise wording.

### **2. Type of actuarial work**

These Guidelines cover actuarial work including:

- Actuarial reports on the projected financial status of an SSP or equivalent reports
- Statements of opinion, papers or presentations on SSP policy matters, such as the adequacy of contributions and/or benefits relating to the existing provisions, or proposals for changes therein, or establishment of a new scheme.

- When the SSP is operated by a separate entity, e.g. by an insurance company or workers compensation board, these Guidelines do not apply to actuarial work related to the financial reporting of that entity, the calculation of its liabilities for yearend or to the calculation of its premiums or rates for the immediately following fiscal periods or other similar work.

## **C. PRINCIPLES OF ACTUARIAL PRACTICE**

In producing actuarial work with respect to SSPs the actuary should comply with the following principles:

### **1. Scientific rigour**

The actuary should ensure that the methodology used for the long-term financial projections is based on actuarial principles. The actuary should comply with any general or specific professional guidance that may apply in the relevant circumstances. The actuary should also ensure that the calculations accurately reflect the methods and assumptions adopted. In this context, the actuary should indicate in the report that assumptions, though reasonably determined, are not predictions and that eventual differences between future experience and the report's assumptions will be analyzed and taken into account in subsequent reports.

### **2. Objectivity**

If the determination of assumptions used for demographic and financial projections is part of the actuary's mandate, he/she should ensure that they are determined without inappropriate political or external influences. If the actuary is not mandated to determine the assumptions but they are set by another entity, and whenever external work is relied upon in the determination of assumptions, the actuary should state the origins of the assumptions and, when needed to give a fair view of the SSP, show a sensitivity analysis of the impact of alternative assumptions.

### **3. Transparency, explicitness, simplicity and consistency of the information supplied in the report.**

When preparing a report, a paper or a presentation the actuary should aim to communicate as clearly as possible, having regard to the various audiences to whom it is addressed and the different stakeholders who will place reliance on the results. The actuary is accordingly recommended to include in the report an executive summary written in plain language, describing the purpose and the main findings of the report.

### **4. Avoidance of relative judgment**

While carrying out a project and preparing the actuarial report, it should be ensured that no element of condescension is reflected in the report and that the state of affairs of the client is not commented upon with reference to any other client's or entities state of affairs, unless such comparison is part of the frame of reference of

the assignment. In the latter case such comparison should be objective and devoid of relative judgment.

## **D. INFORMATION TO BE INCLUDED IN ACTUARIAL REPORTS**

Actuarial reports on SSPs should include or make reference to all relevant and material information taking into account the purpose of the report and to whom it is addressed. The content of an actuarial report varies depending upon the nature of the actuarial work involved. Therefore the detailed lists of information in this section are only illustrative. The following general list applies more specifically to reports on the projected financial status of an SSP or equivalent reports.

### **1. Executive Summary**

- (a) Purpose of the report
- (b) Identification of the programme
- (c) Identification of key assumptions
- (d) Main results of financial projections
- (e) Main conclusions

### **2. Introduction**

- (a) To whom the report is addressed
- (b) Identification of the SSP under review
- (c) The purpose of the report, including a reminder that projections are dependent upon the underlying data, methodology and assumptions.
- (d) The starting and ending dates of the projection period.
- (e) Reference to the relevant preceding reports.
- (f) Contemplated date of next report.

### **3. Description of the provisions of the SSP concerned**

Financial projections of an SSP depend, *inter alia*, on the provisions of the program. Written reports should accordingly include a description of the provisions of the programme that are materially relevant to the projections, e.g. coverage, financing, benefits.

### **4. Data**

The actuary should endeavour to obtain reliable and sufficiently complete data materially relevant to the actuarial work, such as the:

- Demographic experience of the programme and the country.
- Economic experience of the programme and the country, such as contributions, benefits, investment earnings and assets if any.
- Number of contributors and beneficiaries of the programme.
- Payroll or exposure and loss information by workers' compensation classification or employment class.

The actuary is reliant on the accuracy of data and should therefore take steps to assess how the information provided for the evaluation is consistent with relevant information from other sources.

The actuary should describe the relevant data used for the demographic and financial projections and comment on the sufficiency and reliability of the data. If some data are considered insufficient for the purposes of the financial projections, the report should mention the consequential limitations on the results.

The report should indicate the three main areas in which data was used for the purposes of the financial projections:

- (a) Starting point of the projection period;
- (b) Analysis of past experience as a basis for determining the assumptions used for the financial projections;
- (c) Validation of the projection methodology.

## **5. Assumptions**

The assumptions should be set according to the purpose of the investigation. Normally for an SSP, assumptions are expected to be determined on:

- A best estimate basis. In case there is need to build in prudence over the best estimate, then the degree of such prudence should be specified.
- Each assumption should be individually set.
- An explicit, as opposed to implicit, basis to the extent possible.
- A basis taking into account:
  - Internal consistency, e.g. all assumptions should be mutually consistent by virtue of their correlation or interrelationship.
  - Overall consistency, e.g. the economic and demographic assumptions used should be consistent with the long-term experience and the outlook for the economy.

The actuary should describe in the report the rationale used for the determination of all assumptions used for the projections.

Actuarial reports prepared for SSPs are often concerned with the long-term future and in such cases the assumptions should reflect expected long-term trends rather than giving undue weight to recent experience. However, where appropriate, estimates for the earlier years should take account of short-term trends, phasing in to the longer-term assumptions as necessary.

Given the uncertainty surrounding the assumptions, it may be appropriate for the actuary to consult other professionals with relevant expertise on deciding what assumptions to make about the future.

Where a report is part of a series, and there have been changes in assumptions from the previous report, the actuary should take steps to explain any material impact that changes in assumptions have on the financial projections.

## 6. Methodology

The methodology employed for the financial projections should be described in a manner that provides sufficient information for another actuary or other person with relevant expertise to assess the results of the report.

## 7. Results

The actuarial report should include all results of the demographic and financial projections that are relevant to the purpose of the report and to whom it is addressed. The actuary should present the results in a form that is consistent with the specific terms of reference of the evaluation or review and having regard to the nature of the SSP and the financing methods under which it is operating, particularly when these are laid down in the social security legislation.

The following model framework for the projection results to be included in the report is presented, it being understood that adjustments may need to be made to the framework to take into account the nature of the particular report. Most of the results would normally be found in either of the following two areas of the report:

### **Sections on data, methodology and assumptions**

- (a) Population by age groups and sex and in total
- (b) Dependency ratios
- (c) Employment earnings by age groups and sex, and averages
- (d) Contributory earnings by age groups and sex, and averages
- (e) Pensionable earnings by age groups and sex, and averages
- (f) Covered payroll and workforce by sector of economic activity

### **Section on cash flow financial projections**

- (a) Contribution rate
- (b) Pay-as-you-go-rate, if applicable
- (c) Contributions
- (d) Investment earnings, if funded
- (e) Other income
- (f) Total income
- (g) Benefits
- (h) Administrative expenses
- (i) Total expenditures
- (j) Assets

The results should also make clear whether and to what extent expenditure other than benefits has been included and this expenditure should also be taken into account in the statements about adequacy of contributions.

Irrespective of the financing method, the results shown should include a summary of the income, expenditure and assets of the program by calendar and/or fiscal year, or by other suitable intervals, in respect of both the past experience of the program and the projection period. The results should be shown as real values and, when needed, also as nominal values, or the effect of inflation should be shown in some

other appropriate way. Alternatively or in addition it may be appropriate to show the results in relation to some volume measure or the change in it.

## **8 Analysis of projection results**

Besides the presentation of the financial projections discussed in the previous subsection, the report should also present an analysis of those results along the following lines:

- (a) Sensitivity analyses, showing the effects on the main projection results of variations in key assumptions, should be presented, in order to provide an indication of the degree to which the financial projections are affected by each assumption. The corresponding auxiliary results can also serve as a basis for deriving a reasonable approximation of the projected effect of changing in the values of one or more of the key assumptions.
- (b) Reconciliation with the previous report should be made and explanations of significant changes in results should be included in the report.
- (c) Explanations of the pattern of financial projections over the years (ageing of the population, maturing of the program, recent changes in the program financing or benefit provisions, etc.) and the implications thereof.
- (d) Effect, if material, on the financial projections of events subsequent to the beginning of the projection period.

## **9. Conclusions**

The actuary may include remarks beyond those listed above but should bear in mind that the main objective of an actuarial report is normally limited to the presentation of the actuary's estimate of the costs and projected financial status of the existing programme and/or proposed changes therein. It is important to ensure that the readers of the report will have a sound understanding of the future financial prospects for the SSP concerned, taking into account the inevitable uncertainties in making projections. In this connection, the report should provide an indication of the eroding effect of inflation on the real value of benefits for plans that do not provide full benefit protection against inflation.

## **10. Attestations**

In the report, the actuary should provide an opinion regarding the:

- Sufficiency and reliability of data.
- Reasonableness of assumptions, if such assumptions are required to be set by the client
- Appropriateness of the methodology and its consistency with sound actuarial principles
- Report's compliance with, and departures from, any local standards and guidelines and the IAA Guidelines of Actuarial Practice.

Where specified in the terms of reference of the evaluation or review, or in the legislative requirement for an actuarial report, the actuary should provide any opinion required on the financial soundness or balance of the SSP, on the adequacy

or otherwise of contributions or on the necessary future level of contributions.

The report should also include a reminder that the results of the evaluation are based on assumptions concerning uncertain future events and outcomes and that the eventual experience will most likely differ, possibly materially, from that indicated in the projections.

**11. Actuary's Name, Signature, Position Held and Date**