ISAP nn - Valuation of Social Security Programs

October 2012

This document contains the exposure draft of the proposed *ISAP nn - Valuation of Social Security Programs.* Please distribute this draft to members of your association and your local standard setter(s). Comments (from your organization or your members) should be addressed to SS.ISAP.comments@actuaries.org with "ISAP SS" in the e-mail header.

The preferred format for submitting comments is e-mail or an MS Word (or equivalent) attachment. Please do not send comments as a PDF file. If you submit a mark-up of the actual document please use track changes in MS Word and be sure to include comments explaining why you think each proposed change is necessary.

All comments will normally be posted to the International Actuarial Association website identifying the commenter(s). However, in exceptional cases, in response to a request which the IAA Secretariat is satisfied is for a valid reason, comments may be either posted to the website anonymously or withheld from the website.

The deadline for comments is 28 February 2013.

This document was approved for exposure by the Interim Actuarial Standards Subcommittee of the Executive Committee of the IAA in October 2012.

International Actuarial Association

International Standard of Actuarial Practice nn

Valuation of Social Security Programs

Developed by the
Social Security Task Force of the
Interim Actuarial Standards Subcommittee

Adopted by the IAA Council
[Month Year]

Table of Contents

Preface

[Drafting Notes - When an actuarial standard setting organization adopts this standard it should:

1. *Replace "ISAP" throughout the document with the local standard name;*
2. *Choose the appropriate phrase and date in paragraph 1.8;*
3. *Choose the appropriate phrase in sub-paragraph 3.1.2.a;*
4. *Review for, and resolve, any conflicts with the local law and code of professional conduct; and*
5. *Delete this preface (including these drafting notes).]*

This International Standard of Actuarial Practice (ISAP) is a model for actuarial standard-setting bodies to consider. The International Actuarial Association (IAA) encourages relevant actuarial standard setting bodies to consider taking one of the following courses of action, if it has been determined that this ISAP is relevant for actuaries in their jurisdiction:

- Adopting this ISAP as a standard with appropriate modification, where items covered in this ISAP are not currently contained in existing actuarial standards;
- Endorsing this ISAP as a standard as an alternative to existing standards;
- Modifying existing standards to obtain substantial consistency with this ISAP; or
- Confirming that existing standards are already substantially consistent with this ISAP.

Such an adopted standard (rather than this ISAP) applies to those actuaries who are subject to such body's standards, except as otherwise directed by such body (for example with respect to cross-border work).

When this ISAP is translated, the adopting body should select three verbs that embody the concepts of "must", "should", and "may", as described in Language, even if such verbs are not the literal translation of "must", "should", and "may".

This ISAP is not binding upon an actuary unless the actuary states that some or all of the work has been performed in compliance with this ISAP

This ISAP was adopted by the IAA Council in [month year].

Introduction

This International Standard of Actuarial Practice (ISAP) applies to actuarial services performed in the context of Social Security Programs (SSPs). The intent of this ISAP is to narrow the range of practice considered acceptable under *ISAP 1 - General Actuarial Practice*. Where this ISAP defines as acceptable a practice which would not be acceptable under ISAP 1, it is clearly mentioned.

In this area of practice, the International Actuarial Association (IAA) previously adopted *IASP 1 - Guidelines of Actuarial Practice for Social Security Programs*, which became effective on January 1, 2003. This was a level 4 standard (which has the effect of a practice note) and will be superseded by the adopted version of this ISAP.

Because of their significant expertise in preparing long-term financial projections, actuaries often play an important role in carrying out financial analyses of SSPs. Due to the reliance placed on actuarial projections in public policy decision-making, it is important that the demographic and economic analyses of these SSPs provide objectively prepared (albeit by their very nature, uncertain) projections of their long-term future developments.

This ISAP is also intended to promote the development of consistent actuarial practice for SSPs throughout the world.

Few existing professional standards and guidelines specifically apply to SSPs. Most countries have no standards in this area. In this regard, the IAA has decided to issue this ISAP with support within the International Social Security Association (ISSA) and the International Labour Organization (ILO).

This ISAP is intended to complement local requirements in the jurisdiction concerned, including provisions in applicable SSP legislation specifically referring to actuarial reports relating to the SSP; it should not be used to override such requirements. Practice consistent with this ISAP should enhance confidence in the professionalism, objectivity and scientific rigour of actuaries providing actuarial services to SSPs.

This ISAP applies to actuaries but may be helpful for other professionals who conduct analysis of SSPs. This ISAP is not written with benefits provided in connection with unemployment and work-related incidents (e.g., work-place injury) as the primary focus. However, where appropriate, this ISAP may be used by actuaries providing professional services for these types of programs.

This ISAP only applies to actuarial services performed for an SSP. When the SSP is administered or where guarantees are provided by a non-governmental entity, e.g., by an insurance company or a workers' compensation (work injury) board, this ISAP does not apply to actuarial services related to the financial reporting or calculation of liabilities of that entity, to the calculation of its premiums or rates, or to similar work.

Section 1. General

1.1. Purpose – This ISAP provides guidance to actuaries performing actuarial valuations of SSPs, or reviewing, advising on, or opining on such analyses, to give intended users confidence in particular that:

- Actuarial services are carried out professionally and with due care;
- The results are relevant to their needs, are presented clearly and understandably, are complete; and
- The assumptions and methodology (including, but not limited to, models and modelling techniques) used are disclosed appropriately.

1.2. Scope – This ISAP applies to actuaries who are performing, reviewing, advising on, or opining on actuarial valuations of SSPs.

1.3. Compliance – There are situations where an actuary may deviate from the guidance of this ISAP but still comply with the ISAP:

1.3.1. Law may impose obligations upon an actuary. Compliance with requirements of law that conflict with this ISAP is not a deviation from the ISAP.

1.3.2. The actuarial code of professional conduct applicable to the work may conflict with this ISAP. Compliance with requirements of the code that conflict with this ISAP is not a deviation from the ISAP.

1.3.3. The actuary may depart from the guidance in this ISAP while still complying with the ISAP if the actuary provides, in any report, an appropriate statement with respect to the nature, rationale, and effect of any such departure.

1.4. Applicability – This ISAP applies to actuaries when performing actuarial services. An actuary who is performing these actuarial services may be acting in one of several capacities such as an employee, management, director, external adviser, auditor, or supervisory authority, of the entity.

1.4.1. The application of this ISAP is clear when a single consulting actuary is performing actuarial services for a client who is not affiliated with the actuary.

1.4.2. There are at least two general cases which do not meet the criterion stated in 1.4.1:

a. A team of actuaries is performing actuarial services; or

b. An actuary is performing actuarial services for an affiliated party (such as the actuary's employer or affiliated entities within a group under common control.)

1.4.3. When a team is performing actuarial services, most paragraphs of this ISAP apply to every actuary on the team. However, requirements in some paragraphs need not be met by every actuary on the team personally (e.g., 3.4, 4.2). In the case of such paragraphs, each actuary on the team should identify, if relevant to that actuary's work, which member of the team is responsible for complying with such requirements and be satisfied that the other team member accepts that responsibility.

1.4.4. If an actuary is performing actuarial services for an affiliated party the actuary should interpret this ISAP in the context of normal corporate or partnership practices, but following the general principles of this ISAP.

a. The actuary should consider the expectations of the principal. These expectations might suggest that it may be appropriate to omit some of the otherwise required content in the actuary's report. However, limiting the content of a report may not be appropriate if that report or the findings in that report may receive broad distribution.

b. If the actuary believes circumstances are such that including certain content in the report is not necessary or appropriate, the actuary should be prepared (if challenged by a professional actuarial body with jurisdiction over the actuarial services) to describe these circumstances and provide the rationale for limiting the content of the report.

1.5. Reasonable Judgment – The actuary should exercise reasonable judgment in applying this ISAP.

1.5.1. A judgment is reasonable if it takes into account:

a. The spirit and intent of the ISAPs;

b. The type of assignment; and

c. Appropriate constraints on time and resources.

1.5.2. In particular the actuary should be cautious exercising reasonable judgment in statutory, supervisory, and financial reporting assignments which usually require considerable rigour.

Any judgment required by the ISAP (including implicit judgment) is intended to be the actuary's professional judgment unless otherwise stated.

1.6. Language

1.6.1. Some of the language used in all ISAPs is intended to be interpreted in a very specific way in the context of a decision of the actuary. In particular, the following verbs are to be understood to convey the actions or reactions indicated:

a. "Must" means that the indicated action is mandatory and failure to follow the indicated action will constitute a departure from this ISAP.

b. "Should" (or "shall") means that, under normal circumstances, the actuary is expected to follow the indicated action, unless to do so would produce a result that would be inappropriate or would potentially mislead the intended users of the actuarial services. If the indicated action is not followed, the actuary should disclose that fact and provide the reason for not following the indicated action.

c. "May" means that the indicated action is not required, nor even necessarily expected, but in certain circumstances is an appropriate activity, possibly among other alternatives. Note that "might" is not used as a synonym for may, but rather with its normal meaning.

1.6.2. This document uses various expressions whose precise meaning is defined in section 2. These expressions are highlighted in the text with a dashed underscore and in blue, which is also a hyperlink to the definition (e.g. actuary).

1.7. Cross References – When this ISAP refers to the content of another document, the reference relates to the referenced document as it is effective on the adoption date as shown on the cover page of this ISAP. The referenced document may be amended, restated, revoked, or replaced after the adoption date. In such a case, the actuary should consider the extent the modification is applicable and appropriate to the guidance in this ISAP.

1.8. **Effective Date** – This ISAP is effective for {actuarial services performed/actuarial services commenced/actuarial services performed relevant to an event}[1] on or after [Date].

[1] *Phrase to be selected and date to be inserted by standard setter adopting or endorsing this ISAP.*

Section 2. Definitions

The terms below are defined for use in this ISAP.

2.1. Actuarial Services – Services based upon actuarial considerations provided to intended users that may include the rendering of advice, recommendations, findings, or opinions.

2.2. Actuary – An individual member of one of the member associations of the IAA.

2.3. Adoption Date – The date on which this ISAP was adopted as a final document by the IAA Council.

2.4. Communication – Any statement (including oral statements) issued or made by an actuary with respect to actuarial services.

2.5. IAA – The International Actuarial Association**.**

2.6. Independent Expert Review – An opinion on (i) whether the assumptions used in the actuarial valuation are within a reasonable range both separately and in the aggregate, and (ii) whether or not the results of the valuation are within a reasonable range. In this context "independent" means an actuary experienced in valuation of SSPs who:

a. Has not been involved in preparing this report; and

b Is not employed by the SSP or its sponsoring agencies.

In this context an actuary or organization contracted by the SSP to perform the Independent Expert Review is not considered to be employed.

2.7. Intended User – Any legal or natural person whom the actuary intends at the time the actuary performs actuarial services to use the report.

2.8. Law – Applicable acts, statutes, regulations or any other binding authority (such as accounting standards, and any regulatory guidance that is effectively binding).

2.9. Opinion – An opinion expressed by an actuary and intended by that actuary to be relied upon by the intended users.

2.10. Report – The actuary's communication(s) presenting some or all results of actuarial services to an intended user in any recorded form, including but not limited to paper, word processing or spreadsheet files, e-mail, website, slide presentations, or audio or video recordings.

2.11. Report Date – The date on which the actuary substantially completes a report. It usually follows the valuation date.

2.12. Social Security Programs (SSPs) – programs with all the following attributes regardless of how they are financed and administered:

2.12.1. Coverage is of a broad segment, if not all, of the population, often on a compulsory or automatic basis;

2.12.2. The program, including benefits and financing method, is prescribed by statute;

2.12.3. The program is ultimately responsible to the government, or a unit of government; and

2.12.4. Program benefits are:

a. Generally payable or delivered upon one or more contingent events or circumstances, including old age, retirement, death, disability, and survivorship;

b. Poverty-related conditional cash transfers; or

c. Universal social benefits.

2.13. Subsequent Event – an event of which the actuary becomes aware after the valuation date but before the actuary's communication on the results of these actuarial services is delivered.

2.14. Valuation – Any formal analysis of an SSP including presentations of discounted point in time values, projections of cash flows and associated fund values, and contribution rates.

2.15. Valuation Date – The date at which an SSP is analyzed by the actuary. It usually precedes the report date.

Section 3. Appropriate Practices

3.1. Consideration of all Relevant Features of the SSP and Law – The actuary should consider all relevant SSP features, and current law. The actuary should also take into account established practice (where practical) when no law exists with regard to certain benefit provisions or financial measures (for example, the basis for future indexation of pensions in payment). For a newly established or substantially changed SSP, the actuary should take into account the stated intentions of the SSP sponsor, and relevant experience in other comparable SSPs.

3.2. Data – The actuary should consider using the following data:

a. National statistics on variables such as fertility, mortality (life expectancy), morbidity, and migration (if such data are not available on a national basis, the actuary may consider information from a wider geographical area that might apply or it may be necessary to rely on relevant and reliable statistics of international organizations);

b. Demographic status and experience of the SSP and the region, as applicable;

c. Economic experience, labour market developments and inflation;

d. Financial attributes of the SSP, such as contributions, investment earnings and assets;

e. Benefits of, or claims on, the SSP, as applicable;

f. Number and classes of contributors and beneficiaries of the SSP;

g. Covered salaries and past service credits;

h. Family statistics (including household surveys).

3.3. Assumptions – The actuary should use realistic best estimate assumptions in a financial valuation of an SSP. Best estimate assumptions are such that the actuary expects that the resulting projection of the SSP experience is not a material underestimate or overestimate of the obligation. If an actuary uses assumptions that include a margin for any particular reason, the actuary should disclose that clearly and properly in the report. The actuary may perform and include in the analysis projections based on other sets of assumptions such as those that would result in high projected costs or those that would result in low projected costs when such projections are helpful in analyzing and communicating the financial status of an SSP.

The actuary should perform an experience analysis to determine, to the extent that the available data permit, if experience trends are relevant to the setting of certain assumptions.

The actuary should select assumptions that reflect the time line of the analysis (which might be 75 years or more). The actuary may select different assumptions for different time intervals in the projection (e.g., a common technique for this is to use recent experience as the basis for the model assumptions for the first "n" years of projection and longer-term trends for the ultimate variable assumptions (select and ultimate)).

In selecting the model variables and assumptions for SSP financial projections, the actuary should take into consideration the existence of automatic balancing mechanisms in an SSP since the SSP may be "immunized" from the variance of some variables (e.g., life expectancy).

For newly introduced SSP benefit schemes where no experience data exist, the actuary may investigate the risk characteristics of the potential covered group through surveys or enquiries until credible data are available. The actuary may also reference the relevant experience of other SSPs or other countries to establish assumptions.

In this case the actuary should bring to the attention of the intended users that the valuation has been based on very limited data (and perhaps none relating to actual SSP membership). Accordingly valuations should be performed more frequently (possibly annually) than would be suitable for a longer established program which provided more data for analysis.

The actuary should comment on the assumptions as shown in paragraph 4.2.b.

3.4. Balance Sheet Methodology – When applicable the actuary should choose which methodology to use to produce an SSP's balance sheet based mainly on the financing approach used.

3.4.1. For fully funded SSPs (that is, where accrued liabilities are intended to be funded over participants' working years) balance sheets should be produced using a closed membership group approach, under which only current participants are considered with or without their assumed future benefit accruals.

3.4.2. For pay-as-you-go or partially funded SSPs, if balance sheets are produced, this should be done using an open group approach, under which contributions and benefits of both current and future participants are considered.

3.4.3. Where law require adoption of an approach for production of a balance sheet that is not in line with either section 3.4.1 or 3.4.2 as applicable, the actuary should communicate the effects of the approach required for the program in question to the intended users.

3.5. Reliance on the Work of Experts from Other Professions – The actuary should follow the guidance in *ISAP 1 - General Actuarial Practice* with respect to reliance on experts from other professions**.**

3.6. Independent Expert Review – When an Independent Expert Review is performed:

3.6.1. The actuary who prepared the valuation should cooperate with the reviewing actuary to provide the reviewing actuary with any requested material, and to be available to discuss data, methodology, assumptions, and other factors as necessary, with the reviewing actuary.

3.6.2. The reviewing actuary should comply with the guidance of this standard in performing the review.

3.7. Responsibility for Assumptions and Methodology – The actuary should follow the guidance in *ISAP 1 - General Actuarial Practice* with respect to disclosing the responsibility for assumptions and methodology, and the actuary's opinion thereon.

Section 4. Communication

4.1. Specific Information to be Included in SSP Valuation Reports – This section applies specifically to reports concerning the projected financial status of an SSP. *ISAP 1 - General Actuarial Practice* covers information useful to a wider variety of reports. This section is meant to be read and applied in addition to *ISAP 1 - General Actuarial Practice*. The actuary should include the following information in an SSP valuation report (and may include additional information).

4.1.1. Description of the provisions of the SSP related to:

a. Coverage;

b. Nature of the SSP, e.g., defined benefit or defined contribution;

c. Financing approach, e.g., pay-as-you-go, partially funded or fully funded;

d. Source of funding, e.g. worker or employer contributions, transfers from government revenues, including legislated or contractual contribution rates; and

e. Benefit provisions, e.g. formulae, amounts, restrictions and eligibility conditions.

4.1.2. Key dates:

a. Valuation date;

b. Report date;

c. Date up to which all relevant information had been taken into consideration, if it differs from the report date.

4.1.3. Section on methodology, data and assumptions;

a. Description of the methodology;

b. Key demographic assumptions such as mortality (longevity), morbidity, fertility, migration, and unemployment;

c. Key historical demographic data such as:

i. Eligible and beneficiary population by relevant demographic characteristic groupings;

ii. Dependency ratios;

iii. Employment earnings by age groups and gender, and averages;

iv. Contributory earnings by age groups and gender, and averages; and

v. Covered payroll and workforce;

d. Key economic data and assumptions such as inflation, economic growth, and return on investments (if any);

e. The extent, if any, of interdependency among assumptions;

f. Statistics and summaries of the data used as a basis for the SSP valuation assumptions; and

g. Sources, quality, and relevance of the data used.

4.1.4. Section on results and findings

a. Key projected demographic values at selected future points in time such as:

i. Eligible and beneficiary population by relevant demographic characteristic groupings, and how these populations compare to the total population;

ii. Dependency ratios;

iii. Employment earnings by age groups and gender, and averages;

iv. Contributory earnings and averages by age groups and gender;

v. Labor force participation rates by age groups and gender; and

vi. Covered payroll and workforce.

b. Financial projections showing detailed cash flows and balance sheet values for the recent past and for the future such as:

i. Contributions;

ii. Investment earnings;

iii. Other income;

iv. Total income;

v. Benefits or claims;

vi. Administrative expenses;

vii. Total expenditures;

viii. Annual balance (income minus expenditure);

ix. Actuarial deficit and funded ratio as of valuation date and other representative dates (for fully-funded pension schemes);

x. Nature of assets and / or individual accounts;

xi. Market value of tangible assets / funded assets;

xii. Reserve; and

xiii. Value of notional, non-financial or virtual assets.

The results may be expressed in relation to one or more relevant volume measures, such as the size of the economy or premiums/taxes.

c. Cost rates as appropriate:

i. Pay-as-you-go cost rate;

ii. General average premium or partially funded cost rate; or

iii. Fully funded cost rate; and

d. A presentation designed to provide an indication of the financial sustainability of the SSP, if appropriate.

4.1.5. Section on analysis of valuation results which may include the following components:

a. Reconciliation with the previous report, along with explanations of significant changes in results.

b. Discussion of the pattern of financial projections over the years (e.g., as a result of the ageing of the population, maturity of the SSP, and recent changes in SSP design or financing) and the implications thereof. The actuary may include a comparison of how benefits are projected to grow or decline with respect to inflation, economic growth or both and during which part of the projection period, as an indicator of potential stability or instability of the system in the longer term.

c. Effect, if material, of any subsequent event.

d. Sensitivity of results to variations in one or more assumptions.

e. Effect of automatic balancing mechanisms (if any) under each scenario used for the projections in the report, where "effect" covers both how the automatic balancing mechanism alters the key parameters of the SSP (such as the pension age, or determination of benefits) and how the alteration of the key parameters changes the amounts paid to beneficiaries.

f. Conclusions on the short-, medium-, and long-term financial sustainability of the SSP with due regard to the funding rules under the law if such funding rules exist.

g. Indications of possible sources of future financial instability (e.g., depreciation of future benefits either because of non-indexation or because of indexation lagging behind economic growth, or inadequacy of future contributions due to non indexation of contribution limits).

h. Potential recommendations on possible measures to ensure the long-term financial sustainability of the SSP.

i. Impact of any options or guarantees embedded in the benefits of the SSP on the cashflows shown in 4.1.4.b.

j. The suitability of any approach for calculation of capitalised value of liabilities used for an SSP in light of the particular funding method and the time horizon used.

4.2. Actuarial Opinion – The actuary should provide an opinion with respect to the extent to which the following hold, or do not hold:

a. The data upon which the report is based are sufficient and reliable;

b. The assumptions used for the report are, in the aggregate and/or individually; reasonable and appropriate;

c. The methodology employed is appropriate and consistent with sound actuarial principles; and

d. The SSP is financially sustainable over the period covered by the projections used for the valuation.

The actuary should conclude with a formal statement that the report has been prepared, and the actuary's opinion given, in accordance with the applicable local standards of practice or this model ISAP.