

This document contains the proposed *ISAP 2 - Financial Analysis of Social Security Programs*. The Social Security Task Force and the ASC approved this draft on 4 June 2013, for limited re-exposure to the commenters on the Exposure Draft published on 12 October 2012. Formatting and hyperlinks to the proposed Glossary will be finalized by the Secretariat.

International Actuarial Association

**International Standard of Actuarial Practice 2
(ISAP 2)**

Financial Analysis of Social Security Programs

Approved by the IAA Council

[Date]

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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 1.5;*
- 3. Review for, and resolve, any conflicts with the local [law](#) and code of professional conduct; and*
- 4. 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 Paragraph 1.6 – Language of [ISAP 1](#), 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). It is intended to:

- promote the development of consistent actuarial practice for SSPs throughout the world; and
- 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 identified.

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 current International Actuarial 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](#). [Financial analyses](#) are commonly referred to as valuations. Due to the reliance placed on actuarial projections in public policy decision-making, it is important that the short and long term demographic and economic analyses of these [SSPs](#) provide objectively prepared projections of their future developments.

Few existing professional standards and guidelines specifically apply to [SSPs](#). Most countries have no standards in this area. The [IAA](#) has decided to issue this ISAP to fill this gap. Its action is supported within the International Social Security Association (ISSA) and the International Labour Organization (ILO).

Section 1. General

- 1.1. Purpose** – This ISAP provides guidance to [actuaries](#) performing [financial analyses](#) 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 [financial analyses](#) 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.
- Paragraphs 2.6, 2.8 and 2.9 of [ISAP 1](#), as modified by paragraph 2.6 of this ISAP, cover the situation where the [actuary](#) is directed to use certain assumptions or methodology. The [actuary](#) who complies with these paragraphs is not deviating from this ISAP, and does not fall within the scope of this paragraph 1.3.
- 1.4. Relationship to ISAP 1**¹ – Any [actuary](#) who asserts compliance with this ISAP (as a model standard) must also comply with [ISAP 1](#), except where [ISAP 1](#) is overridden by this ISAP. Whenever guidance in this ISAP overrides the guidance in [ISAP 1](#) the caption [**This paragraph replaces paragraph x.y [caption] in ISAP 1**] will be shown at the start of the paragraph. References in [ISAP 1](#) to “this ISAP” should be interpreted as applying equally to this ISAP, where appropriate.
- 1.5. Effective Date** – This ISAP is effective for { [actuarial services](#) performed/[actuarial services](#) commenced/[actuarial services](#) performed relevant to an event }² on or after [Date].

¹ An actuarial standard-setter adopting ISAP 2 may need to modify this wording to point to the local standard(s) that are substantially consistent with ISAP 1, rather than referring to ISAP 1 directly.

² Phrase to be selected and date to be inserted by standard setter adopting or endorsing this ISAP.

Section 2. Appropriate Practices

- 2.1. Consideration of all Relevant Features of the SSP and Law** – The [actuary](#) should consider all relevant [SSP](#) features, the policies and the stated intentions of the sponsoring [entity](#), and current [law](#), if that information exists and is reasonably available to the [actuary](#). The [actuary](#) should also take into account established practice (if relevant) when no [law](#) exists with regard to certain benefit provisions or financial measures (for example, the basis for future indexation of retirement benefits). For a newly established or substantially changed [SSP](#), the [actuary](#) should take into account relevant experience in other comparable [SSPs](#).
- 2.2. Data** – The [actuary](#) should consider what data are required in order to perform, review, advise on, or opine on the [financial analysis](#) of the [SSP](#). These data might include:
- a. National or regional statistics on variables such as fertility, mortality (life expectancy), morbidity, and migration (if such data are not available on a national or regional 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](#), as applicable;
 - c. Economic experience, labour market conditions and inflation;
 - d. Financial attributes of the [SSP](#), such as contributions, investment earnings and liquidity of assets;
 - e. Benefits of, or claims on, the [SSP](#);
 - f. Number and experience of classes of contributors and beneficiaries of the [SSP](#);
 - g. Covered salaries and past service credits;
 - h. Censuses and population surveys, covering, for example, family statistics.
- 2.3. Assumptions**– If the [actuary](#) sets the assumptions, the [actuary](#) should use neutral assumptions in a [financial analysis](#) of an [SSP](#). Neutral assumptions are such that the [actuary](#) expects that the resulting projection of the [SSP](#) experience is not a material underestimate or overestimate.
- 2.3.1. The [actuary](#) should consider performing an experience analysis to the extent that the available data permit, both to analyze the past assumptions and to set future assumptions.
 - 2.3.2. The [actuary](#) should select assumptions that reflect the time horizon 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 assumptions (select and ultimate)).
 - 2.3.3. The [actuary](#) should consider any automatic balancing mechanisms that exist in an [SSP](#) when selecting the model variables and assumptions for an [SSP financial analysis](#). The [actuary](#) should consider to what extent the [SSP](#) is “immunized” from the volatility of some variables (e.g., life expectancy) by the automatic balancing mechanisms.
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- 2.3.4. Credible experience data might not exist for a newly introduced [SSP](#), or for new benefits to be provided by an [SSP](#). To establish assumptions in such cases, the [actuary](#) may:
- a. investigate the risk characteristics of the potential covered group through surveys or enquiries until credible data are available;
 - b. consider the relevant experience of:
 - i. other [SSPs](#) (including the program being replaced, if any), or
 - ii. other countries;
 - c. use reasonable proxies or default values as may be necessary.

If credible experience data do not exist, the [actuary](#) should disclose in the [report](#) that the [financial analysis](#) has been based on limited data (and perhaps none relating to the [SSP](#) itself), and should consider recommending that [financial analyses](#) should be performed more frequently than would be suitable for a longer established program which provided more data.

- 2.3.5. If the [actuary](#) uses assumptions that include margins, then the [actuary](#) should disclose in the [report](#) the rationale for the margins and explain the relationship between the result using the assumptions that include margins and the result using neutral assumptions.
- 2.3.6. The [actuary](#) should consider including in the analysis projections based on other sets of assumptions such as those that would result in high projected costs and those that would result in low projected costs when such projections are helpful in analysing and communicating the financial status of an [SSP](#).

2.4. Consistency with the Financing Method — The [actuary](#) should use a methodology that is consistent with the financing method used for the [SSP](#).

- 2.4.1. For pay-as-you-go or partially funded [SSPs](#), the analysis should use an open group methodology, under which contributions and benefits of both current and future participants are considered. If, however, in the [professional judgment](#) of the [actuary](#), an alternative approach is deemed to be more appropriate, that approach should be used with justification communicated in the [report](#). In such circumstances, the [actuary](#) may also consider reporting the results of the [financial analysis](#) under the open group methodology.
- 2.4.2. For fully funded [SSPs](#) (that is, where accrued liabilities are intended to be funded over participants' working years), the analysis should use one of the following methodologies that the [actuary](#) considers appropriate for the [financial analysis](#):
- a. A closed group methodology, under which only current participants are considered, with or without their assumed future benefit accruals;
 - b. An open group methodology; or
 - c. A methodology incorporating both closed and open group aspects.

If the [law](#) specifies a methodology for measuring the actuarial assets and obligations that does not follow either section 2.4.1 or 2.4.2, as applicable, the [actuary](#) should communicate that fact. The [actuary](#) should also comply with the guidance of paragraph 1.3.2 of this ISAP.

2.5. **Independent Expert Review** – A [financial analysis](#) is often subject to review by an independent expert.

2.5.1. This review might address:

- i. whether the assumptions used in the [financial analysis](#) are within a reasonable range both separately and in the aggregate, or
- ii. whether the results of the [financial analysis](#) are within a reasonable range, or
- iii. other aspects of the [financial analysis](#).

2.5.2. Independent expert means a suitably experienced reviewer who:

- a. Has not been involved in preparing the [work](#) that is subject to review; and
- b. Is not employed by the [principal](#) or its sponsoring agencies.

In this context a reviewer contracted by the [principal](#) to perform the review is not considered to be employed by the [principal](#) or its sponsoring agencies.

2.5.3. The [actuary](#) who prepared the [financial analysis](#) should cooperate with the reviewer by providing the reviewer with any requested material in the [actuary's](#) possession if the terms of the [actuary's](#) engagement so permit, and by being available to discuss data, methodology, assumptions, and other factors as necessary, with the reviewer.

2.6. **Assumptions and Methodology Mandated by Law** – [This paragraph replaces **paragraph 2.9 Assumptions and Methodology Mandated by Law in ISAP 1**] When an assumption or methodology is mandated by [law](#), the [actuary](#) should apply the guidance of paragraph 2.8 of [ISAP 1](#) as if the assumption or methodology were prescribed by the [principal](#) or another party.

Section 3. Communication

3.1. Report on Financial Analysis –

- 3.1.1. The [actuary](#) should communicate the results of any [financial analysis](#) in a [report](#) which:
- a. includes enough information to enable sound decisions;
 - b. discloses clearly who the [principal](#) is, what the purpose of the [financial analysis](#) is, and the instructions given to the [actuary](#);
 - c. indicates the nature and timing of any future cash flows being quantified;
 - d. states the nature and significance of any material risk faced by the [SSP](#);
 - e. explains the approach taken to the risk in the analysis;
 - f. indicates the nature and extent of any material uncertainty in the information it contains; and
 - g. indicates the sensitivity of the results to key assumptions and methodology.
- 3.1.2. There are several mechanisms the [actuary](#) might use to present the results, including:
- a. projected cash flows and ending positions
 - b. discounted cash flows
 - c. required contribution rate for sustainability
- 3.1.3. This section applies specifically to [reports](#) concerning the projected financial status of an [SSP](#). The [actuary](#) should include at least the following information in an [SSP financial analysis report](#). The Appendix (which is educational and not part of the guidance of this ISAP) shows lists of possible content for most sections of a [report](#).
- a. Description of the relevant provisions of the [SSP](#);
 - b. Key dates:
 - i. [Valuation date](#);
 - ii. [Report date](#);
 - iii. Date up to which all relevant information had been taken into consideration, if it differs from the [report date](#).
 - c. Methodology, data and assumptions;
 - d. Results and findings;
 - e. Analysis of results; and
 - f. The actuarial [opinion](#).

3.2. Actuarial Opinion – The [actuary](#) should provide an [opinion](#) on the [actuary's](#) assignment:

- 3.2.1. In the case of a free-standing [financial analysis](#) the [opinion](#) should state 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 reasonable and appropriate both in the aggregate and individually; and

- c. The methodology employed is appropriate and consistent with [accepted actuarial practice](#).
- 3.2.2. In the case of a free-standing [financial analysis](#) the [opinion](#) should comment on the extent to which the [SSP](#) is financially sustainable over the period covered by the projections used for the [financial analysis](#). Financial sustainability of an [SSP](#) relates to its continuous capacity to support the benefits offered by the [SSP](#) when considering the applicable financing rules and the future demographic and economic environment in which it will operate.
- 3.2.3. The [actuary](#) may answer questions about an [SSP](#) based on an existing [financial analysis](#) (whether or not it was prepared by the [actuary](#)). (For example the [actuary](#) might be asked to estimate the impact of using a revised population projection while keeping all other assumptions the same.) In such case the [opinion's](#) scope (especially what is not included) should be clearly articulated and pertinent to the question.

The [actuary](#) should include a formal statement in the [report](#) 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.

Appendix

Possible Report Content

Note: This appendix is provided for informational purposes, but is not part of the ISAP. It contains lists the Task Force drafting the ISAP assembled to show possible contents of the various sections of the [actuary's report](#).

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. contingencies covered, formulae, amounts, restrictions and eligibility conditions.
2. 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 financial analysis](#) assumptions, and as a starting point for the projections; and
 - g. Sources, quality, and relevance of the data used.
3. Results and findings
 - a. 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;

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- iii. Employment earnings by age groups and gender, and averages;
 - iv. Contributory earnings and averages by age groups and gender;
 - v. Labour 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. Analysis of results:
- 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 cash flows shown.
- 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.