Actuarial Workshop

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April 27th 2021

9:00 – 9:15	**Introduction** Introduction to the day and setting the context
9:15 – 09:40	**Importance of the actuarial valuation for a new UI Scheme in Indonesia** Why actuarial valuations are a key element in ensuring evidence led policy making and appropriate decisions on financing and reforms
09:40 -10:20	**Key steps in the actuarial valuation: 1 – Data and Assumptions setting**
10:20 – 10:45	Coffee break
10:45 – 11:20	**Key steps in the actuarial valuation: 2 – The model and methodology**
11:20 – 12:00	**Key steps to the actuarial valuation: 3 – The 4 Rs: Review, reconciliation, reporting and recommendations**
12.00 – 12.30	**Questions and discussion**
12:30	Session end

The actuarial valuation

An actuarial valuation is a projection of future cashflows of a social security scheme using appropriate data and assumptions

They are needed to assess the current and future financial situation of existing schemes, to cost new schemes and to assess reforms

The valuation must be carried out regularly by an actuary and conform to professional standards

The ILO ISSA Actuarial Guidelines recommend regular actuarial valuations

But why do we need an actuarial valuation?

What is an Actuarial Valuation?

Regular actuarial valuations are conducted to assess and monitor the financial situation of social security schemes

- Projections of cash flows
- Projections of demographic trends

To assess:

- Financial sustainability of a system
- Coverage
- Benefit adequacy
- Financing and funding situation
- Equity, distribution of outcomes

Why conduct an Actuarial Valuation?

To assist in decisions regarding :

- System design and reforms (benefit formula, contribution rate, retirement age, ceiling, health provision)
- Benefit design and calculations (level of benefits)
- Financing and Investment decisions (financing, liquidity, investment return target, risk tolerance)
- Communication and disclosure

Actuarial work is an essential element of evidence led policy making

An actuarial valuation is a powerful tool

To understand

- Present and future financial development of a scheme
- Causes of present or possible future deficits
- Adequacy of benefit levels and system fairness
- Factors influencing the cost of a scheme

Link to policy and financial decision making

- What level should I set the benefits?
- How much will the new scheme cost?
- What happens to the cost of a retirement scheme if life expectancy increases ?

Need for an actuarial valuation: When ?

- At inception of a new programme – UI scheme in Indonesia
- Whenever an existing programme is materially changed
- Periodically in order to monitor the financial situation

"The social security institution ensures that regular actuarial valuations are conducted to assess and monitor the financial situation of social security schemes"

ISSA Survey on actuarial and financial reporting for social security schemes

- *75% of respondents indicated that there is a legislative requirement to produce an actuarial valuation*

When to conduct an Actuarial Valuation?

Actuarial Guideline No. 1:

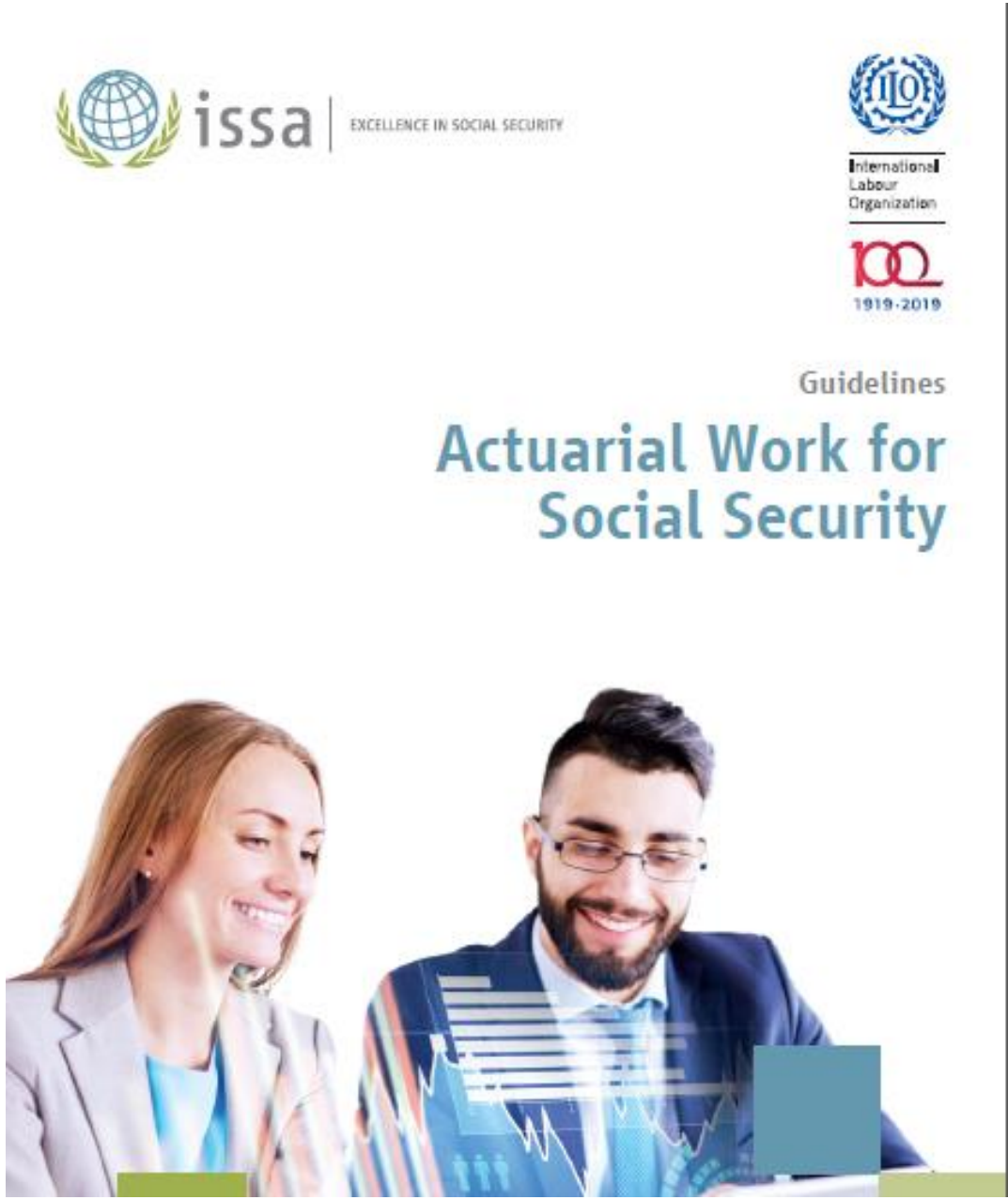
Regular actuarial valuations are conducted to assess and monitor the financial situation of social security programmes.

The SSI ensures that an actuarial valuation is conducted at the inception of a **new programme**, or whenever an existing programme is **materially changed**.

To keep up to date:

Conduct full valuation every 3 – 5 years

But more regularly when new data is available or there are material changes in assumptions



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The actuarial opinion

For the actuarial valuation to comply with professional standards of actuarial practice, it must contain an actuarial opinion signed by a qualified actuary.

The qualified actuary signs the actuarial opinion and certifies that, in their opinion:

- ✓ *The data on which the report is based is sufficient and reliable;*
- ✓ *The assumptions used are, individually and on an aggregate basis, reasonable and appropriate; and*
- ✓ *The methodology employed is appropriate and consistent with accepted actuarial practice.*

The Actuarial Opinion is essential - it guarantees the quality of the actuarial valuation and the validity of using the results for policy, reform and financing decision making.

This isn't the same as for results produced from other processes.

Actuarial study on proposed new UI scheme in Indonesia

The ILO undertook an **actuarial valuation** based on a proposed UI scheme design

Cost estimates were undertaken on three scenarios: *base, optimistic and pessimistic.*

The actual cost will depend on:

- Experience : notably number of those becoming unemployed, their salary level, the duration of unemployment
- Final scheme design and financing: notably eligibility requirements, maximum duration of benefit payment, level of payments, contribution rates
- Management and administration: these include expenses related to enrolment, claims and payments and other general administrative costs. A key factor is what costs will be assumed by the UI Scheme itself

Regular actuarial valuations will be required to assess the actual cost of the scheme once it starts operating.

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FAST RETAILING

Importance of the actuarial valuation

To fully understand existing schemes and to cost new schemes

Support evidenced based policy and reforms

Better understanding of social security schemes

Support investment management

How to conduct an Actuarial Valuation?

1. Terms of reference and objectives
2. Data collection
3. Past experience and data analysis
4. Assumptions
5. Valuation model and methodology
6. Actuarial (cashflow and demographic) projections
7. Reconciliation
8. Sensitivity tests
9. Reform options
10. Actuarial report

GARBAGE IN,
GARBAGE OUT.

Data Collection

Good data + simple model > bad data + complex model

A good actuarial valuation relies heavily on good, reliable data

Data collection is the longest process in an actuarial valuation

Reliable data should be

1. Accurate
2. Relevant
3. Complete
4. Up to date
5. Internally consistent
6. Sufficiently long series of the past
7. Externally consistent (with data from other sources)

Data Challenges

1. Source of data
2. Individual versus aggregate data
3. Confidentiality
4. Knowing what to ask for
5. Timing of valuation and data
6. Data collection and management expertise
7. Previous actuarial work and reconciliation

Specific data challenges

1. For any new scheme, there is no historic data: What do you do ?

2. For UI schemes, a key assumption is claims (frequency, type, duration). How do we estimate future claims ?

3. Extension of coverage: what are the characteristics of new members ?

4. Covid times: can we use historic data at all ?

5. Some data is missing for certain parameters (eg not everyone's date of birth is included). What do you do ?

The Six Key Assumptions of a UI valuation

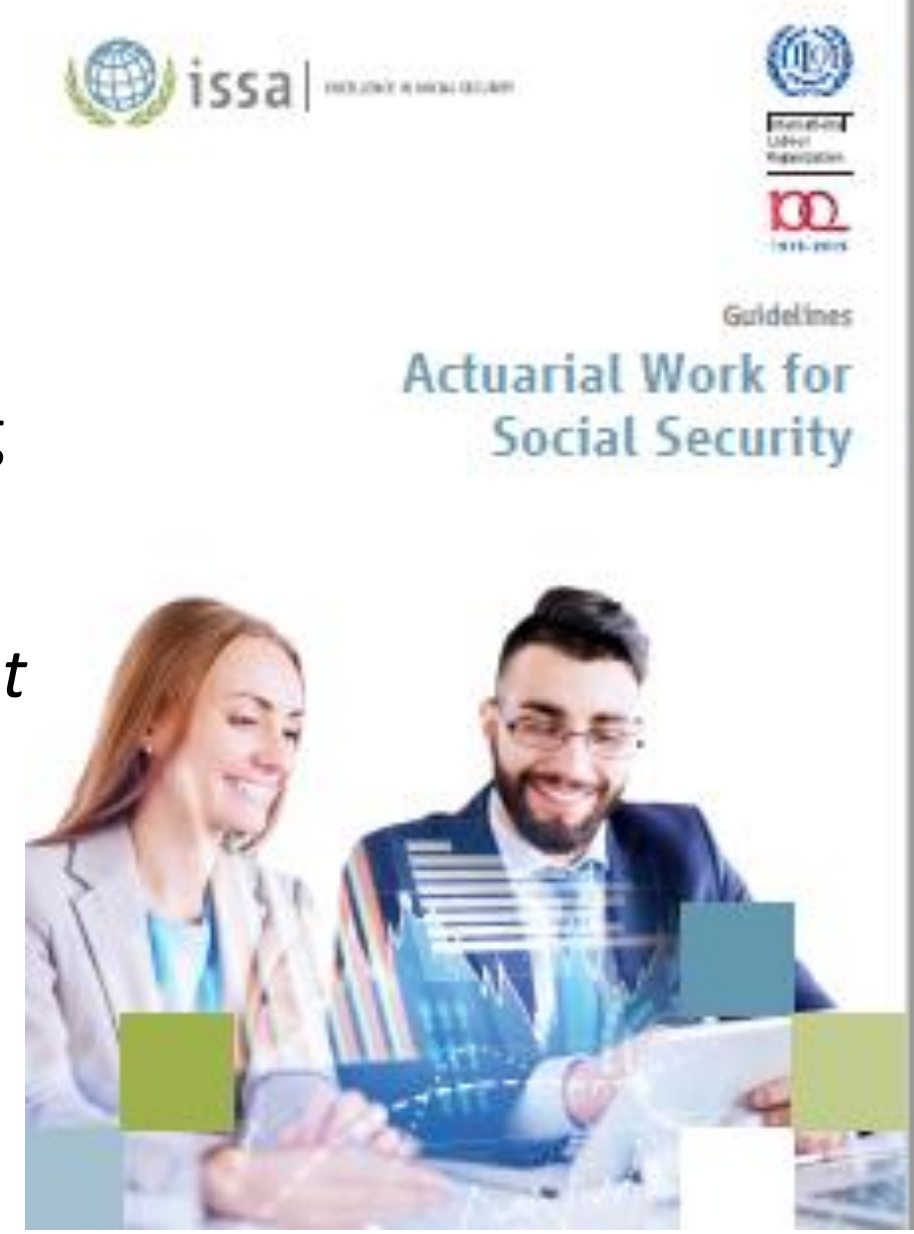
1. Rate of (involuntary) termination assumption and/or proportion of all terminations that are deemed involuntary -> projected estimate of those theoretically eligible for benefits
2. Number and distribution of insured members meeting service requirements on termination -> expected proportion of eligible for benefit payments.
3. Salary distribution of members being involuntarily terminated -> the level of each benefit payment for all eligible claimants
4. Assumed duration of unemployment -> projected total cost of each claimant
5. Expenses -> additional cost of managing the scheme and total contribution rate.
6. Projected unemployment rate in 2020, 2021 and ahead-> . trend in claimants.

How to use data from recent years to make projections for the future

- Is the past a good guide to the future ?
- What adjustments should be made to past trends for future assumptions?
- The skill of the actuary is to use her/his judgement
- No right or wrong answer but assumptions need to follow guidelines

Assumptions

- “The development of assumptions combines the analysis of historical trends with a forward-looking approach”
- An actuary should assess the materiality of the various assumptions – *e.g. mortality less important in UI than in pension scheme valautions*
- Internally consistent
- Consistent with external sources
- Take into account the past but with a view of the future



- What has influenced changes in the past ?
- Are these still relevant going forward ?
- What new trends will emerge ?
- What factors will influence trends ?
- How will these factors differ by age/sex/ rural:urban etc?

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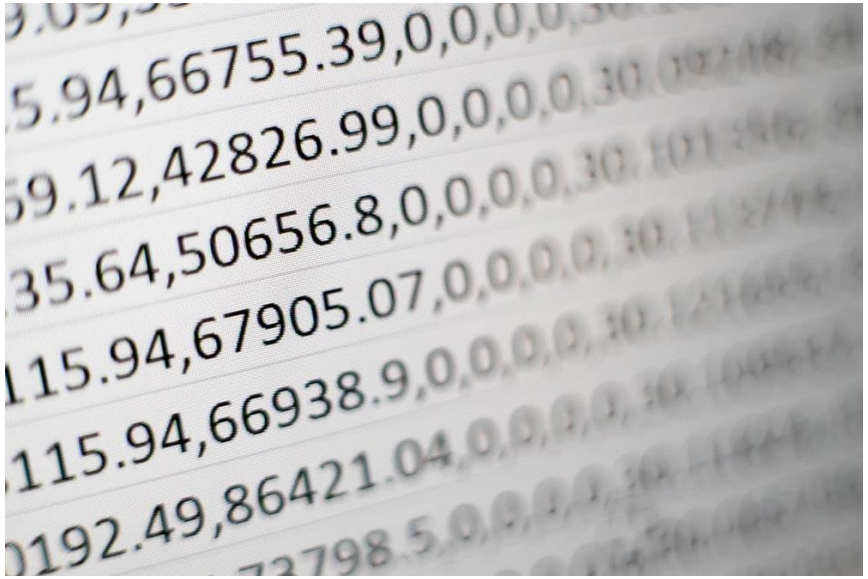
Data and assumptions

Good data -> good valuation

Uncertainty expressed in sensitivity analysis

Assumptions require blend of past experience and future likely trends

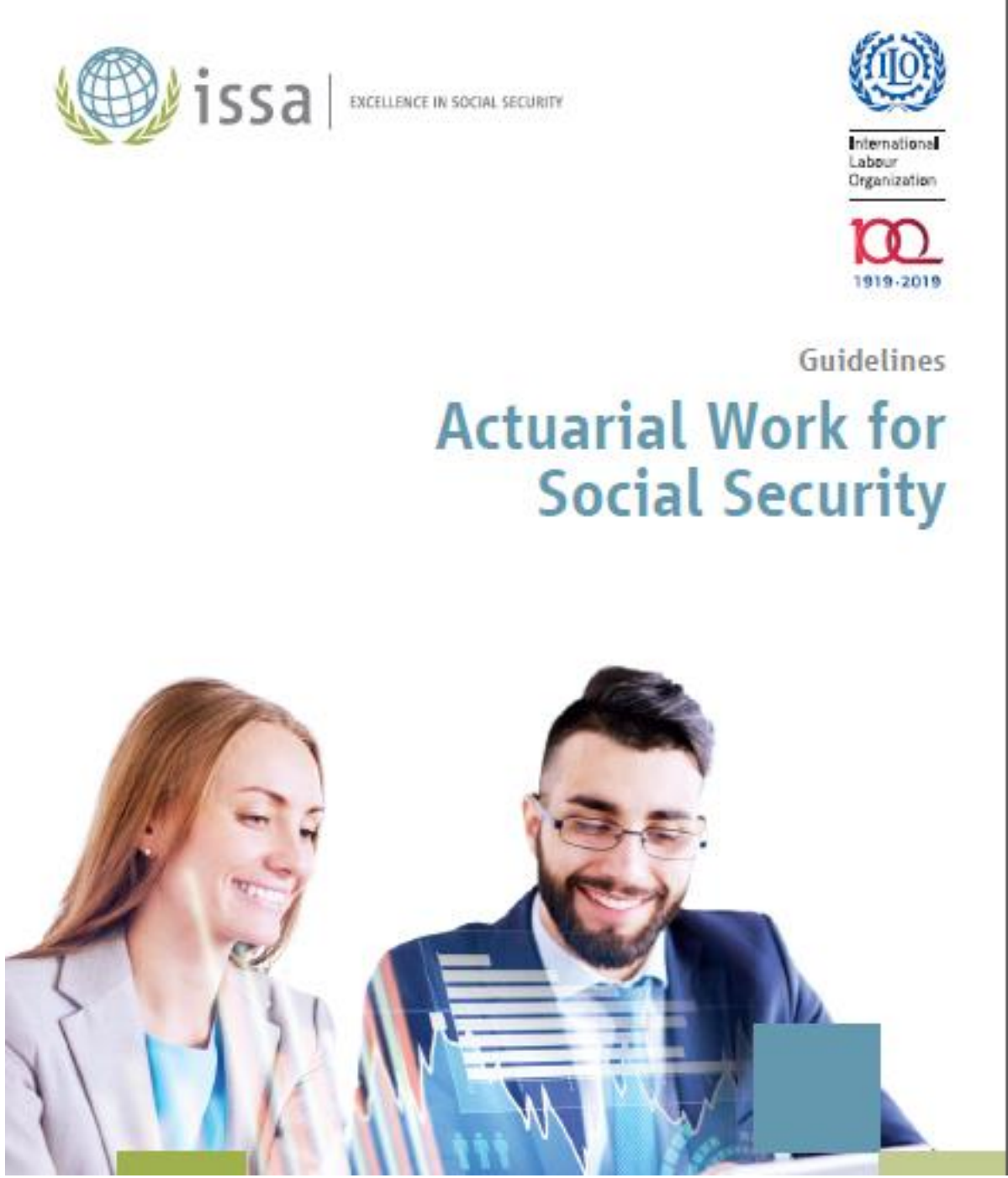
The Actuarial Valuation Model



Model compliance and model choice

The ILO ISSA Actuarial Guidelines set out criteria for assessing whether a model meets minimum conditions

If a model meets these conditions, the SSI should then assess which model is best for them



Valuation Methodology

A4: The valuation methodology is consistent with the social security scheme financing approach and enables assessment adequacy, sustainability and other measures. The actuary provides an opinion on the appropriateness of the methodology.

General Principles:

- Flexible
- Documented
- Appropriate length of cashflow projections
- Cohort wide
- Comply with international / national standards & professional guidance

Projection Model

A5: The projection model is built on actuarially sound principles. It is capable of assessing the provisions of the social security scheme, projecting cash flows over the relevant projection period, and evaluating sustainability and adequacy.

General principles:

- Understandable (is it a *Black Box*)
- Verifiable
- Documented
- Internal or external ?

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Actuarial Model

Population Demographic Model → Labour Force Model → Economic Model → Benefits Model

- To understand the population from which those covered come from

- Determination of those who are covered
- And those who pay contributions (if applicable)

- For determination of costs and financing base

- To determine future costs by projecting probability of an event and related costs

Cohort Projection Model

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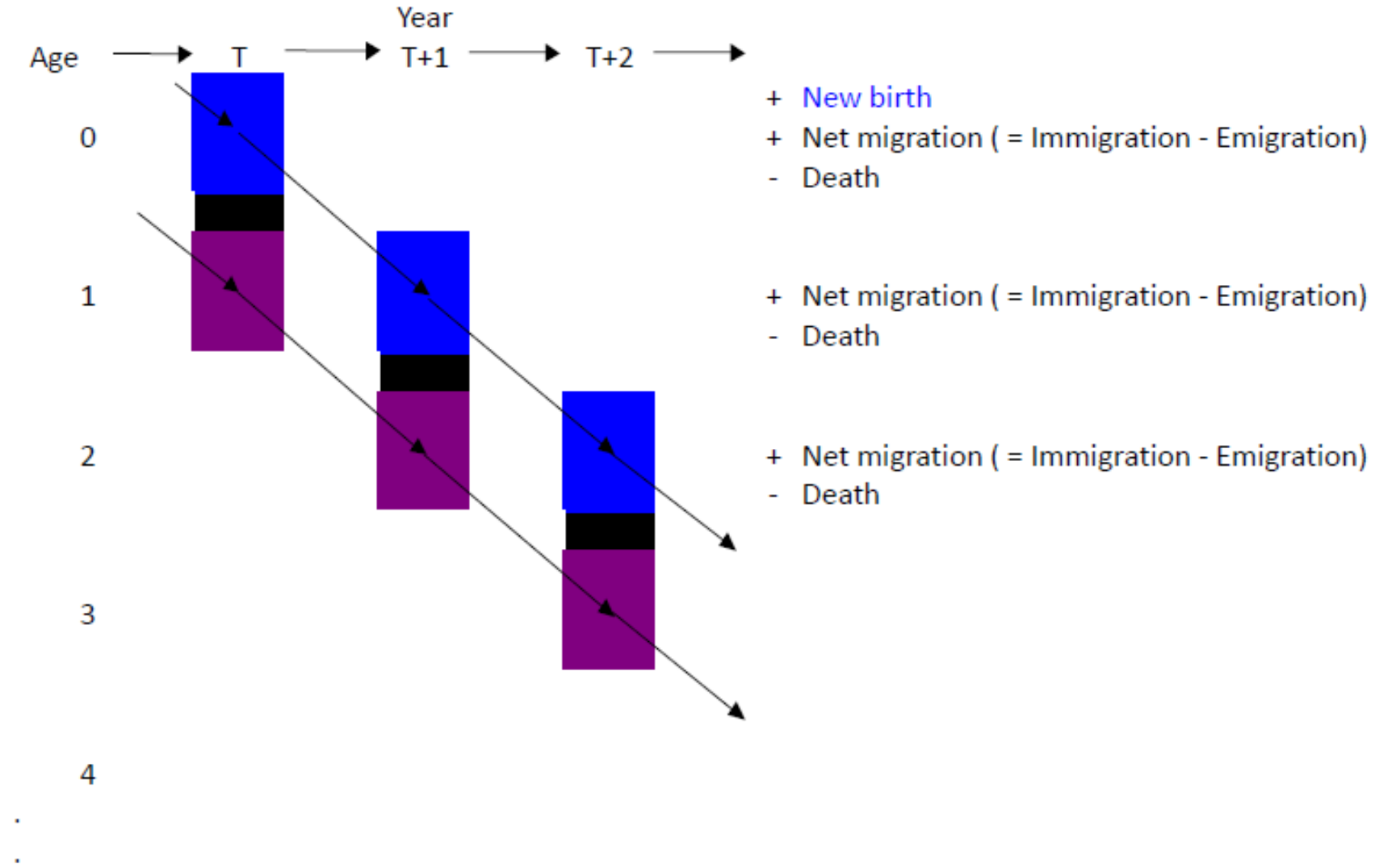
Cohort method (track different generations over time)

Population in a year is sum of the evolution of different cohorts

Blue is one cohort, purple another and so on



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Internal Actuarial Resources and the choice of a model

A social security institution requires the input of actuaries to ensure appropriate analysis can be undertaken & policy making is evidence based.

The *ILO ISSA Actuarial Guidelines* state that

“the social security institution should aim at creating an internal actuarial department responsible for part or all of the actuarial work to be undertaken”.

“the social security institution should ensure that actuaries are provided with sufficient training”

The SSI should ensure that there are enough resources made available to carry out and review an actuarial valuation

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Which valuation model ?

No right or wrong model but some are better than others

Use the Guidelines checklist to assess the suitability of models

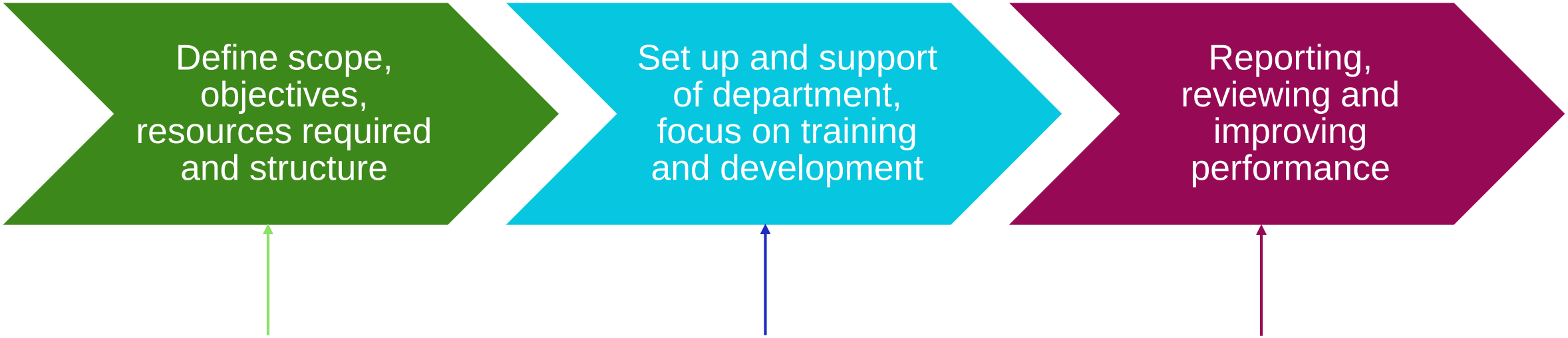
Match against SSI Criteria and Current and Future Resources:

- Open source or black box ?
- Involvement of actuaries ?
- Flexibility of model ?
- Quality and quantity of data required ?
- Checkability of model
- Internal resources ?
- Suitability of model to carry out an actuarial valuation ?

Plus:

- Documentation of model
- Possibility to hack model
- Will model need to be updated (and if so, is that easy)?
- Inbuilt stupidity check

Building up internal actuarial resources: roadmap



Develop Terms of Reference taking into account international practice and likely activities

Aim is to build up increasing actuarial expertise and ensure long term sustainability of department

*Excellence in operation to comply with **ILO ISSA Actuarial Guidelines,** IAA statements and best practice*

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Model and methodology

Model and methodology should be chosen in reference to *ILO ISSA Actuarial Guidelines*

Choice of model influenced by objectives and internal resources

Bottom line is actuaries need to be comfortable with the model chosen

Key steps to the actuarial valuation:
3 – The 4 Rs: Review, reconciliation, reporting and recommendations

Review of results

Most important phase – a review of results ensures proper analysis

Reasonability checks – do results look about ‘right’ ?

SSIs should have the framework to be able to do this properly

A number of techniques to ensure done properly – both internally and externally

Peer Review

The valuation results and report needs to be peer reviewed by a qualified actuary

The actuary will assess the data used, model, assumptions and the results

These will be assessed and compared against the last valuation

The actuarial opinion is signed by a qualified actuary

Reconciliation

- **The valuation of a social security scheme includes the reconciliation of the value of the sustainability measures, financial indicators and other relevant results between the previous and current valuations.**

Reconciliation of the results of the two most recent valuations is a powerful tool that can help to identify emerging risks with respect to the social security scheme.

  - It also serves as an internal control that helps to ensure the accuracy of the results.

- **A section of the actuarial report should be dedicated to the reconciliation of results.**
  - Reconciliation of results between the two valuations (short term)
  - Reconciliation of the sustainability indicators (long term)

What about for new schemes ?

Actuarial Report

A9: In preparing a report on the actuarial valuation, an actuary considers legislative requirements and relevant professional and guidance, as well as the intended audience.

- **Report provides stakeholders with information necessary to make appropriate decisions**
- **Includes**
  - Executive Summary
  - Data
  - Assumptions
  - Methodology
  - Results
  - Sensitivity Analysis
  - Reconciliation
  - Peer Review
  - Recommendations

- **Will include an actuarial opinion and often a costing / review of reform options**
- **External independent peer review is essential**

Uncertainty of results

The valuation of a social security scheme includes analysis of future uncertainties and their impacts on the scheme. An actuary identifies and, if possible, quantifies risks stemming from future uncertainties.

This means that the report assesses results if experience doesn't turn out as expected

Should consider additional sensitivity tests if data for assumptions development are missing or of bad quality

Case Study: social security pension scheme in ASEAN

A social security scheme had a difference of 3% in PAYG rate from one valuation to another

Explained by:

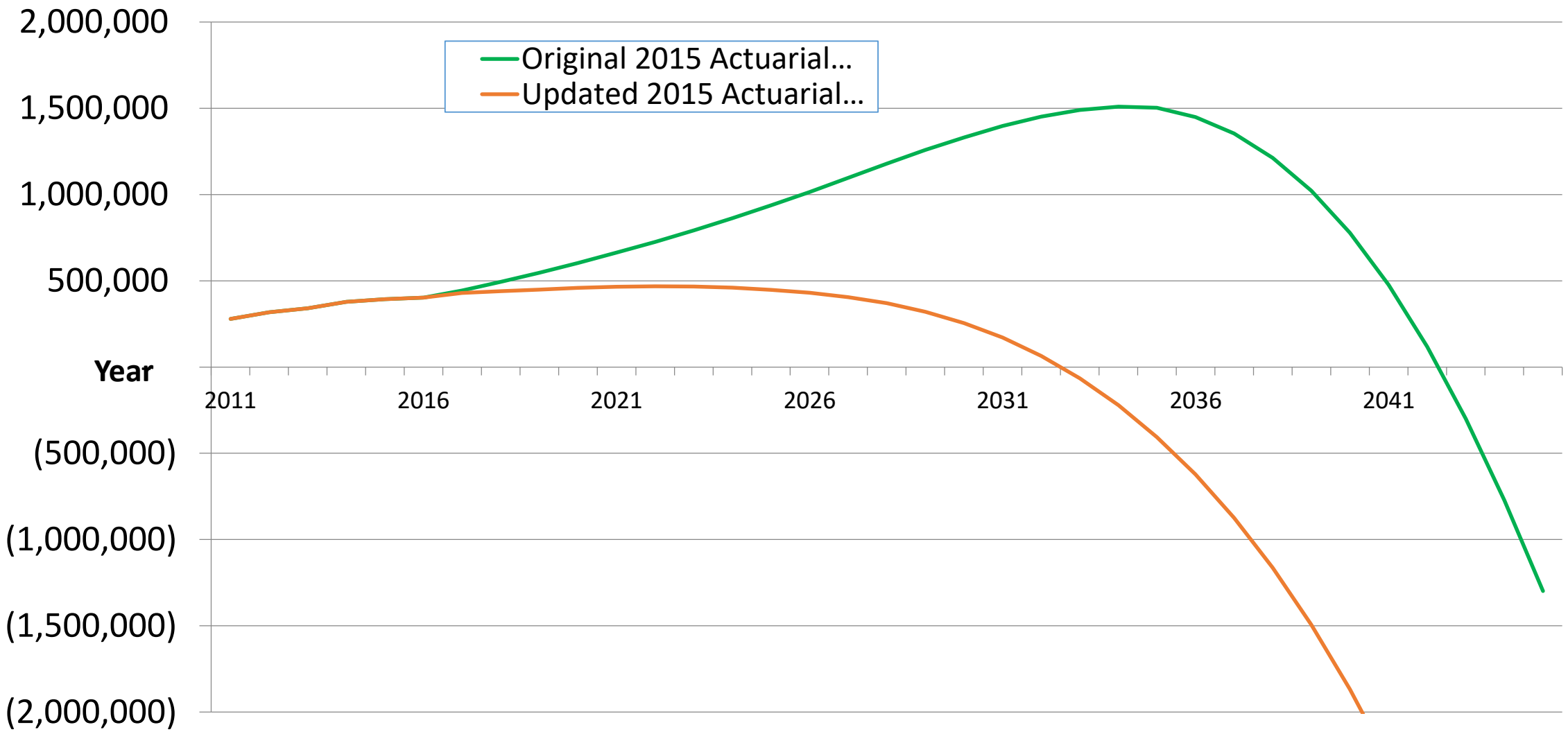
The growth of the covered population

Lower long-term real salary increase & inflation assumption

Lower mortality assumption

Different administrative expenditure assumptions

Impact on cashflows of an increase in pension amount



Possible Reform Options suggested

- Establish a plan to gradually increase the contribution rate
- Establish a plan to gradually increase the pensions and other benefits
- Explore other means to improve the adequacy of benefits
- Establish a plan to increase the minimum and/or maximum contributory salary
- Conduct a study that will revisit the pension formula
- Continue efforts to improve contribution collection and employer compliance
- Establish a plan to increase qualifications for eligibility for monthly pensions
- Establish a plan to raise the retirement age
- Prudently maximize the investment income.

Implications for policy, financing and management of a new UI scheme

The introduction of a new UI scheme requires policy makers and the social security institution to address a number of key design, administrative and financing implications

These will impact the cost of the scheme but also whether the scheme meets its objectives.

Design :

- Eligibility requirements –consecutive or total service requirement. Typically schemes require 12 months in a 24 month period may to cover those in precarious jobs and for equity reasons.
- Minimum benefit amount / minimum earnings – there is a strong argument to fix a minimum benefit amount to ensure that the cash amount paid out ensures a subsistence level of income
- Complementing / reforming severance pay – in countries where a UI scheme and mandated severance pay co-exist, it is important that the provision is complementary to ensure equity and consistency of treatment of employees and employers

Implications for policy, financing and management of a UI scheme (2)

Design and financing:

- Part time workers – if an unemployed beneficiary finds a part time job, a good UI scheme will incorporate this in the design and eligibility of benefits. There will need to be a compromise between incentives, fairness and administrative practicalities
- Number of claims – a UI scheme typically has criteria to address the issue of multiple claims. The UI scheme does not aim to provide a wage bridge to workers leaving and re-joining an employer. Therefore restrictions should be placed in how many claims and related eligibility criteria (eg does the 12 month criteria re-set to zero as soon as a claim is made?)
- Financing – a robust, sustainable UI scheme providing adequate benefits requires diversified and equitable financing. It also ensures that stakeholders and an interest and a say in benefit design given they will be financing provision. Employee and employers should pay contributions (no more than 50% of the amount by the employee)

Implications for policy, financing and management of a UI scheme (3)

Transitional arrangements and increasing future coverage

- Covering other groups – the cost of extending coverage to other workers depends on the characteristics of the workers to be covered. If these are significantly different (eg age, salary, employment history) the cost may increase / decrease
- First year eligibility and transition – in new schemes there is an argument that eligibility should be immediate using other requirements as a criteria. This will have financial implications

Implications for policy, financing and management of the scheme (4)

Labour market issues

- UI schemes have two key objectives – to financially support those who have lost their job and to facilitate the return to the labour market
- Therefore the labour market policies and implementation will support these objectives but also reduce the cost of the scheme
- The ILO will finalise a separate report on these issues including ALMPs, registrations, claiming process, mandatory monthly meetings etc.
- The ILO will organise a meeting to discuss this report in February 2021.

Administrative issues

- The valuation assumes in the base scenario that administrative expenses amount to 0.25% of the total insurable earnings
- This is based on similar UI scheme experience internationally but depends on which tasks will be assumed by the UI Scheme
- The issues will be covered in the ILO report referred to above


THANK YOU.