

Please use this template to comment on the Exposure Draft of the IAA Paper – Actuarial Considerations Around Climate-Related Risks on Social Security. This time no changes are proposed to the [Glossary of Defined Terms Used in IAA Climate-Related Risk Publications](#)

The IAA invites comments on this paper, and on the questions set out below.

Comments are most helpful if they:

- (a) Are comments on the questions as stated;
- (b) Indicate the specific line number(s) to which they relate;
- (c) Contain a clear rationale; and
- (d) Include any alternative that the IAA should consider, if applicable within the scope of the [Statement of Intent for IAA Activities on Climate-related Risks](#).

Identification and instructions		
Name of Individual:	Please indicate if your comments are personal, or represent your organization:	Organization
Name of organization		Canadian Institute of Actuaries
Disclosure of comments:	Please indicate if your comments should be treated as confidential, and if so why. If you do not request confidentiality then your comments will be made available to all commenters of the paper; otherwise your comments will be viewed only by the Climate Risk Task Force, its relevant Drafting Team and the Secretariat.	Not confidential
Instructions for filling in and sending the template	<p>Please follow the following instructions for filling in the template:</p> <ul style="list-style-type: none"> ⇒ Do not write in the yellow shaded cells ⇒ Write in the white cells ⇒ When commenting on a specific paragraph: <ul style="list-style-type: none"> ○ Please use a separate row for each paragraph, sub paragraph, or bullet. ○ Please include the full reference to the line number(s) you are commenting on under the fist column “Full line number reference”; e.g., Lines 223-225 ○ Please insert/append extra lines to this format as needed. <p>Please send the completed template by e-mail, attached in <u>MSWord format</u>, to climaterisk.comments@actuaries.org</p>	

	Specific Questions asked by the IAA Climate Risk Task Force	Response
	In your assessment, also considering the previous six IAA papers in this series ,	
Q1	Does the paper's flow of information make sense? E.g., Is the paper easy to read?; Is terminology used in a way that is consistent with your understanding? Is the sequencing of the topics rational?	Yes, however, see our general comments for suggested enhancements.
Q2.	Does the paper adequately cover the actuarial perspectives of Climate-Related Risks on Social Security? Are there parts that are superfluous; if so which parts? Should the paper cover other important material in relation to Climate-Related Risks on Social Security; if so what should be added (beware that the paper should have reasonable length)?	See our general comments.

	General Comments on the Paper
	<ul style="list-style-type: none"> The paper achieves its goal of raising the importance of considerations of climate-related risks on social security and on actuarial assumptions and is a great addition to the IAA's series of papers on climate risk. The references to reliable research should be useful. The paper says that it intends to cover a broad range of social security, but it really focuses on retirement income social security benefits. We think this focus on retirement income security should be made clear (e.g., in Section 1.1) and believe covering the broader range of social security is better done in a separate paper (e.g., primary health care, long-term care). We believe the paper could be made more concise and focused on actuarial assumptions setting by referring the readers back to prior IAA papers and other papers regarding general aspects of social security. For example, sections on explanation of transition and physical risks, development of climate change scenarios and modelling approaches could be made shorter. The investment and economic implications of climate change are covered in other IAA and industry papers, however, the impact on demographics and health implications are not as well covered and are particularly unique to social security compared to other primary areas of actuarial practice (i.e., pensions and insurance). We believe more of a focus on the

	<p>potential impacts of forced climate migration would be good, in particular on future costs. Also, potential health implications of climate change (e.g., poorer health of older population due to more frequent heatwaves) put pressure on how governments manage tax revenue.</p> <ul style="list-style-type: none"> • Although the paper suggests that the impact of climate change on social security is significant, it does not include a measure of what is significant, in particular on future costs. A definition of what is significant would be useful, or alternative wording such as “worthy of attention” could be considered. • We support the suggestion that the actuary specifically disclose that climate change has not been reflected in the best estimate assumption. This would be one way of reconciling that the impact is significant but cannot yet be reflected in the assumptions because of the uncertainty of the changes in assumptions. Future IAA guidance on how to reflect possible changes in assumptions through sensitivity analysis and/or scenario illustrations would be useful. • We believe that the aspects of IFRS S1 and S2, as they relate to social security programs, should also be covered in the paper. • Comments on the role of actuaries vs. economists vs. demographers vs. climate change specialists would be useful. The actuarial profession is well positioned to enhance modelling work in this area by applying probabilities and likelihoods to scenarios, as well as introducing stochastic modelling techniques. • Comments should be included on the limitations of the paper, future research needed for assumptions changes and future guidance on disclosure and assumption setting.
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Comments on specific content/wording in the Paper (rows have been numbered for easy reference)		
Full line number reference	Change proposed to the line(s) (markup preferred)	Reason the change is needed (can be kept very brief or left blank if obvious from the change)
20	There is reference to “chapter,” but the rest of the paper refers to “sections.”	
21	We believe the reference to “easily” isn’t appropriate given not enough information is provided to adapt the scenarios “easily.”	
185	“it” is missing.	
246	“air quality” should be “air pollution.”	
308	“who are no longer able to work” misses that many people retire out of a choice, as opposed to necessity – we suggest this wording be modified.	

367	There should an “is” before “forecasted.”	
382 and 681	We found Tables 1 and 2 to be inconsistent in the amount of depth in the different rows/cells and confusing in spots. We encourage these to be re-evaluated and summarized.	
836	It is unclear what “non-potential financial loss” means – we suggest rewording this sentence.	
987	We feel there is a very heavy focus on GDP and would encourage this to be expanded to be broader (e.g., inflation, investment returns, etc.). The GDP impacts should be in the context of how much GDP has grown over long projection periods and there should be some comments about how alternative scenarios could be much more significant (e.g., a 30% cumulative decrease isn’t that large when annualized over 80 years).	
1123	We suggest that NGFS phase 4 be referenced given it was released recently.	
1176	<p>We thought the CPP case study was a great piece to include to give examples of what could be done. This should be expanded to comment on the growing criticism of current common industry climate scenario models in relation to their potential underestimation of the impact of physical risks and the implications of climate tipping points (e.g., underestimation of GDP declines). References to those studies could be included. Otherwise, the reader may under-evaluate the negative impact of climate change on future costs.</p> <p>The case study impact on the MCR could be made more powerful if put in context and if compared to the current uncertainty of future costs without climate change effects (e.g., in line with a x percentile results based on stochastic model or versus different assumption stress tests). The paper could also elaborate on whether the risks of climate change should be analyzed through scenarios rather than through the normal sensitivity of variations in assumptions.</p>	

	The key assumption changes related to the CPP case study should be disclosed – i.e., change in GDP, inflation, investment returns, yields.	
1349	There are issues with hyperlinks.	