Template for TCFD response

Q1a Please provide your information in the boxes below

Title	Mr
Name	Kenneth Donaldson
Company name	On behalf of the International Actuarial Association
Position/Role	Chair of the Resource and Environment Working Group
Country	We are an international organisation

Q1b Which of the following best describes your area of responsibility in your organization?

Please select ONE only

Academic/industry expert	1
Administration	2
Board member	3
Compliance	4
Corporate reporting	5
Corporate strategy	6
Finance	7
General management	8
Government/regulatory affairs	9
Investment/asset management	10
Legal	11
Risk	12
Sustainability	13
Technology	14
Other (please specify)	94

Q1c Which of the following best describes your organization type?

Please select ONE only

Financial services sector, including asset owners	1	Go to Q1d
Non-financial sector	2	Go to Q1e
Non-Governmental Organization (NGO)	3	Go to Q2
Academia	4	Go to Q2
Industry/Trade association (Financial)	5	Go to Q1d
Industry/Trade association (Non-financial)	6	Go to Q1e
Other (please specify)	94	Go to Q2

Q1d Please select your primary industry from the list below:

Please select ONE only

Asset management	1
Banking	2
Credit rating agency	3
Insurance (underwriting)	4

Pension plans, endowments, foundations, and other asset owners	5
Stock exchange	6
Other (please specify)	94

The IAA is the worldwide association of professional actuarial associations. It exists to encourage the development of a global profession, acknowledged as technically competent and professionally reliable, which will ensure that the public interest is served. This is indicated by its vision that "The actuarial profession is recognized worldwide as a major player in the decision-making process within the financial services industry, in the area of social protection and in the management of risk, contributing to the well-being of society as a whole".

As a professional body, we do not directly make investment, lending or underwriting decisions. Nevertheless, we believe that analysis of the disclosed risk information and consequent discussions with management can only work to improve information flow and risk control in financial markets, where the clients of many of our members operate.

Q1e [ONLY ASK IF CODE 2 OR 6 AT Q1c] N/A

Q2 Which of the following best describes your perspective on the TCFD recommendations?

Please select ONE only

User of climate-related financial disclosures	1
Preparer of climate-related financial disclosures	2
Both a user and preparer	3
Other (please specify)	94

<u>All Sector Recommendations and Guidance</u>

The Task Force structured its recommendations around four thematic areas that represent core elements of how organizations operate: governance, strategy, risk management, and metrics and targets (see page 16 of the TCFD report). The Task Force believes it is important to understand the financial and strategic implications associated with climate-related risks and opportunities on organizations as well as the governance and risk management context in which organizations operate.

Q3a How useful are the Task Force´s recommendations and guidance for all sectors in preparing disclosures about the potential financial impacts of climate-related risks and opportunities?

Please select ONE only.

Very useful
Quite useful
Neither/nor
Not very useful
Not useful at all
Don´t know

Q3b Please provide more detail on your response in the box below.

The IAA strongly endorses the approach taken by the TCFD. We recognise that forward looking information given in the context of financial reporting requirements will greatly facilitate informed investment / capital allocation / underwriting decision making. The process of producing that

information should itself be of significant benefit to an entity in addressing climate and environmental risks. This benefit will go a long way to address any concern over the cost of developing these disclosures.

The mix of qualitative and quantitative disclosures should be monitored over time to ensure that the expected move to greater quantitative disclosures actually occurs. Governments, regulators, industry associations and asset owners should be important participants in this process, together with a continuing monitoring role for the FSB.

As we move into the future, the amount of volatility and uncertainty is likely to increase significantly as a result of climate change, regardless of the scenario(s) used. Volatility has a positive cost in insurance thinking; that is, stable and predictable risks can more readily be insured than unstable ones, even if the expected or mean level of damage from each risk is identical. The volatility around the mean itself has a cost. This implies that the mere existence of uncertainty and/or volatility, regardless of the scenario(s) that occurs, will increase the cost of doing business, if from nothing else than higher insurance premiums, especially for catastrophe risk coverage. Fundamentally, this is a strong argument for investment in climate change mitigation and adaptation, regardless of where one stands on the details of scenarios used. The use of scenarios is in some ways only a first step towards real insights into the business costs that are likely to increase due to a future with greater levels of volatility and uncertainty than in the past. Nevertheless, it is a very valuable first step.

Finally, we note that in the absence of compulsion to do otherwise, businesses often treat climate and environmental issues as largely free externalities. That they can make profits in the short term is partly because these very issues are not internalised. Moving towards these proposed disclosures may make it possible to start to internalise such environmental costs, and by doing so one positive outcome may be that for sustainable, resilient businesses, the cost of capital may be lowered. In other words, such disclosures may make it possible for sustainable companies to show they are managing their business with a lower long term risk, and thus also motivate investors to seek a lower cost for the capital deployed.

Supplemental Guidance

Q3c How useful is the Task Force´s supplemental guidance for certain sectors in preparing disclosures about the potential financial impacts of climate-related risks and opportunities? Please see the TCFD Annex for supplemental guidance.

Please select ONE only.

Very useful
Quite useful
Neither/nor
Not very useful
Not useful at all
Don´t know

Q3d Please provide more detail on your response in the box below.

The supplemental guidance provides valuable elaboration. However, it appears that the all-sector guidance in the main report (repeated in the supplemental guidance) is not necessarily pertinent to asset owners. For example, it is indicated that the asset owner would be encouraged to disclose impacts on its operating costs, capital expenditure, acquisitions, access to capital, etc. Although this is readily understood for a corporate (financial or non-financial) entity, it is less applicable at the asset owner level. We suggest that, although the overall structure (covering governance, strategy, risk management, metrics and targets) be retained for asset owners, its base should be suitably adapted using the concepts set out in the supplemental guidance.

Organizational Decision-Making

Q4a If organizations disclose the information consistent with the Task Force´s recommendations, how useful will that information be to your organization in making decisions (e.g., investment, lending, and insurance underwriting decisions)?

Please select ONE only.

Very useful
Quite useful
Neither/nor
Not very useful
Not useful at all
Don´t know

Q4b Please provide more detail on your response in the box below.

The IAA is an international professional body, and as such, would not be a direct user of such information. Nevertheless, actuaries may be involved in advising on investment or insurance decisions which must rely on this information as input. We therefore fully support the enhanced information and transparency inherent in these recommendations, which will be valuable to practicing actuaries, their clients, and the wider societies in which they operate around the world.

Additional Disclosures

Q5 What other climate-related financial disclosures would you find useful that are not currently included in the Task Force´s recommendations?

Please provide your response in the box provided.

None. As above, we encourage detailed review by the FSB within three years to ensure the direction of travel from qualitative to quantitative disclosure is happening. This will require close cooperation between governments and regulators, and open dialogue with asset owners, corporate entities and other key stakeholders.

Indeed, regular and comprehensive future reviews of the reporting framework seem to us essential as the environment will change in future years, as will the science, as will the mitigating strategies and policies adopted by nations.

Scenario Analysis

Q6 The Task Force recommends organizations describe how their strategies are likely to perform under various climate-related scenarios, including a 2°C scenario (see page 16 of the TCFD report). How useful is a description of potential performance across a range of scenarios to understanding climate-related impacts on an organization´s businesses, strategy, and financial planning?

Please select ONE only.

Very useful
Quite useful
Neither/nor
Not very useful
Not useful at all
Don´t know

Q7 Please provide more detail on your response in the box below.

A significant amount of uncertainty exists surrounding the extent of the impact of future climate-related changes. As a result, a range of scenarios can provide the user with far greater insight into the potential range of impacts and responses than a single scenario. A scenario does not represent a projection or a prediction, as the TCFD points out; it is a self-consistent story-line that illustrates a situation and potential consequential actions and reactions. Providing only one such scenario provides the user a limited (and possibly misleading) understanding of the possible range of scenarios and the need / opportunities for flexibility in management approach by the organization.

As we point out below, we believe that over time, the range of scenarios should be standardised to aid comparability, recognising that even with a single scenario, such as 2^{o}C, there are many possible ways in which different entities could envisage that scenario coming to pass (i.e., different pathways of demand impacts, carbon tax regimes, timescale, technology advances, etc.).

We also recognise that entities may be cautious about disclosing what may feel to them to be commercially sensitive strategic and operational information, or litigation risks. Working at industry / sector level to develop a consistent scenario pathway (i.e., a shared view on the mapping of the climate scenario to the corresponding risks of transition and litigation) may assist with this. If that common ground was established, it may make the final step of disclosing what such a scenario represents, at the level of the entity itself, less commercially sensitive, as it would be clear that others in the sector were providing comparable disclosures. Ultimately, asset owners and managers require such information in order to make sound assessments of capital allocation and / or underwriting decisions. Mandatory use of such scenarios may be necessary to ensure a level playing field if a voluntary approach is not deemed sufficiently effective.

Q8 The Task Force recognizes that there are challenges around disclosing sufficient information to allow a better understanding of the robustness of an organization´s strategy and financial plans under different plausible climate-related scenarios. Some challenges may arise from unfamiliarity with scenario methodologies and metrics, insufficient practice standards, or cost. What do you view as effective measures to address potential challenges around conducting scenario analysis and disclosing the recommended information? Please rank up to three most effective factors that apply.

Further work by industry trade groups and disclosure users on critical elements to be disclosed is needed to help overcome concerns that some information may be commercially sensitive	2
Reduce the cost of conducting and disclosing scenario analysis	
Additional methodologies and tools should be developed for use by organizations to enable more effective scenario analysis	1
Allow a year or two to phase-in scenario analysis and related disclosures	
Establish better practice standards around conducting and disclosing scenario analyses so that there are clearer rules of the road	3
Other (please specify below)	

Q9 Please provide more detail on your first choice in the box below.

We view that the ultimate goal should be the use of disclosed scenarios grounded in the work of recognised mainstream scientific agency(-ies) with formally validated models. The aim would be to provide a consistent high-level baseline for the reporting entities to aid comparability. Beyond the core 2^{o}C scenario, we believe that in time it may be necessary to specify other optimistic / pessimistic scenarios, again to help enhance comparability and credibility with financial statement users. These may emerge by consensus; but if not, a subsequent review (before the end of the suggested five year implementation timeline) should be undertaken to work toward an agreed set of scenarios.

There is perhaps a parallel here with the standards for the accounting of pension liabilities, which are specified based on a harmonised methodology, regardless of the actual funding mechanism adopted.

Again, to support consistent disclosures, in time, corresponding assumption sets regarding elements including policy actions on emission reductions and mitigation may also need to be specified. Where such policies might produce economic benefits, for example those involved in alternative energy sources or mitigation services, indicative supplementary information might also be supplied (e.g., in the form of projected renewable energy demand). In the absence of specified assumption sets, we agree that entities should be encouraged to use and disclose their own sets of assumptions regarding this type of variable. The aim is to particularise the effects of the scenario to the reporting entity.

Consistent policy assumptions may emerge by consensus, but in any case should be monitored on a regular basis.

We agree that there will need to be a continuous process to provide updated versions of key scenarios as climate, governmental actions and their public commitments, and modelling techniques evolve. Particular attention will need to be paid to measurable quantitative assumptions (or other variables) that are thought likely to lead to (or merely signal) 'tipping-point' effects. The results of monitoring them should be fed back into the projection process.

Again, as we move toward greater quantitative disclosure, to understand the impact of more extreme weather and inundation events, it may be necessary for recognised meteorological and related agencies (such as the IPCC) to develop models of event frequencies/intensities at local, regional or national levels in a manner compatible with the overall global scenarios. It should be equally in the interests of relevant government agencies to cooperate in this effort (which should be encouraged), to underpin the reporting framework, and possibly as a collaborative measure between FSB and affected governments, accounting standards boards and supranational agencies such as the World Bank.

In such a context, insurers, reinsurers and their actuaries would expect to work with customers and governments to model the financial consequences of the projected frequencies/intensities of adverse claim events – either through property and liability insurance or life/health insurance, as well as using their own models reflecting their own experience. Indeed, the cause/effect of climate change can be viewed as a matter of risk transfer; between businesses, or between countries, or between generations. Actuarial input on cohorts, dependencies, correlations and contingencies could assist in understanding how these risk transfers may play out. This line of thought also leads directly to questions on discounting, as the use of any positive discount rate within a future projection or scenario brings into focus sharp questions on intergenerational parity. We would also at this point mention that there may be a useful comparison made with the "Own Risk and Solvency Assessment" (ORSA) requirement which sits at the heart of the prudential Solvency II directive and is a systematic tool for decision-making and strategic analysis in insurance companies. Its primary purpose is to bring insight to the Board (as opposed to merely complying with a regulation) and as such it is a framework to understand the interplay between short and long term risks and opportunities.

It may also be necessary to model the projected growth in the value of property exposed directly to climatic events or via sea-level changes, as well as changes in the profiles of consequential diseases in applicable regions. These could be developed in terms of projections of changes in many aspects of insurance, healthcare, and pension costs.

The same parties could be expected to have appropriate competence to assist in the development of effective mitigation and adaption strategies and relevant and meaningful measures (such as flood mitigation or land use and habitation planning in areas affected by floods, cyclones, or sea-level changes). There may also be developments in terms of industry-wide risk pools and government compulsion to serve societal needs, which insurers may need to anticipate.

In all cases, actuaries should be involved with financial sector companies in supplying specific long-term financial projections consistent with the scientific scenarios, whether of their investments (asset valuation) or of liabilities (claim frequency/severity). By using sensitivity analysis, these projections could provide important planning information concerning the financial consequences of these uncertain future events. Actuaries could also be involved in assisting other companies in carrying out the long-term modelling and scenario analysis required.

Any of the financial measures set out above might also form a key input in influencing government policies in many areas.

Metrics and Targets

Q10a The Task Force is recommending that organizations disclose the metrics they use to assess climate-related risks and opportunities in line with their strategy and risk management

process. For certain sectors, the report provides some illustrative examples of metrics to help organizations consider the types of metrics they might want to consider. How useful are the illustrative examples of metrics and targets?

For illustrative examples see the following pages in the TCFD Annex
- Energy Group: pages 54-58
- Transportation Group: pages 66-70
- Materials and Buildings Group: pages 78-82
- Agriculture, Food, and Forest Products Group: pages 91-94

Please select ONE only.

Very useful
Quite useful
Neither/nor
Not very useful
Not useful at all
Don´t know

Q10b Please provide more detail on your response in the box below.

We believe that these suggestions are both comprehensive and balanced. We also agree that many entities will start this process taking a more qualitative approach, moving towards disclosing quantitative balance sheet / profit impacts over time. Governments, regulators and in particular asset owners will be important stakeholders in ensuring that this happens.

In the supplemental guidance for insurance companies under metrics and targets, a weather-related catastrophe could have broader impacts than just property damage. For example, a drought might result in product liability claims (e.g., seed varieties purporting to be drought-resistant). There are also more general liability issues associated with climate-related conditions, as highlighted in the TCFD risk summary (transition risk – policy and legal).

Carbon-related Assets in the Financial Sector

Q11 Part of the Task Force's remit is to develop climate-related disclosures that would enable stakeholders to understand better the concentrations of carbon-related assets in the financial sector.

Beyond the metrics included in the Task Force's guidance, and supplemental guidance, what other metrics could be used to measure carbon-related assets in the financial sector?

We commented above (Q3d) on the main and supplemental guidance for asset owners. (To summarise, the supplemental guidance appears far more pertinent than the main guidance.)

The primary metric suggested in the supplemental recommendations is GHG related, together with any other metrics utilised in the investment decision making process. As regards the latter, it may be that this itself, if monitored over time, will provide a good set of industry guidelines, which will emerge by consensus. This should therefore also be monitored and promoted by the TCFD.

Other examples that might arise may include, for instance, the percentage of a property portfolio located in a flood plain or percentage of overall agri-sector shareholdings in areas of water-stress. The Actuaries' Climate Index (which currently covers North America) may potentially be a means by which to identify such areas http://actuariesclimateindex.org/home/.

A final additional example might be the percentage of the portfolio with exposure to companies in the key sectors identified by TCFD.

Q12 The Task Force is recommending that organizations provide key metrics used to measure and manage climate-related risks and opportunities. For example, the Task Force recommends that asset owners (including insurance companies) and asset managers report normalized greenhouse gas emissions (GHG) associated with investments they hold (for each fund, product, and strategy) using available data(see Annex pages 35 and 41).

Please describe your views on the feasibility of implementing the above recommendation

In terms of feasibility, asset owners are at some distance from being able to implement this in full, which would itself require step change (i.e., good levels of compliance with the TCFD recommendations) from the entities in which they are investing, noting that these may not all be listed or public. We agree with the thrust of the footnote on P30 of the supplemental recommendations that this will therefore be a journey, not a sharp implementation.

Greenhouse Gas Emissions (GHG) Associated with Investments

Q13 a How useful would the disclosure of GHG emissions associated with investments be for economic decision-making purposes (e.g., investing decisions)?

Please select ONE only

Very useful	5
Quite useful	4
Neither/nor	3
Not very useful	2
Not useful at all	1
Don't know	97

Q13b Please provide more detail on your response in the box below

In general, relevant information is critical to the decision to be deliberately over- or under-weight in a key sector or asset class. This is true in general, and true specifically of GHG weightings. If an investor is overweight in GHG emissions, but does not know it, it is effectively running unremunerated GHG risk. It is therefore not just useful, it is critical, to the extent that an informed investor wishes to weight their portfolio in this manner.

Remuneration

Q14 Which types of organizations should describe how performance and remuneration take climate-related issues into consideration?

Please select ALL that apply.

The Energy Group as recommended by the Task Force
Other non-financial sector organizations (please specify)

We do not understand why the other three identified groups are not included in this requirement.

Financial sector organizations (please specify)

Again, we would include the various groups already identified and discussed in the recommendations, including asset owners and managers. Both life and general insurers should be explicitly referenced.

Adoption and Implementation

Q15 What do you view as the potential difficulties to implementing the disclosures?

Please select ALL that apply.

The information requested could be commercially sensitive
The time and cost of collecting the information
Climate-related disclosure is not part of our current regulatory requirements
Lack of experience with concepts and methodology
Multiple climate-related reporting frameworks currently exist
Other (please specify)

Asset owners may not fully recognize their responsibilities / fiduciary duties in respect of responsibility for climate risk versus return maximisation, or they may believe that these duties are discharged by a mandate given to their managers. This issue is in our view critical to dealing with the whole problem, as we see asset owners as one of the key drivers of change. We believe that asset owners have a large burden of responsibility with respect to this issue, as it comes down to a question of their need for short-term gains versus longer-term risks.

Political will, and in turn the priorities directed to this issue by regulators will be vital.

We do not anticipate any difficulties related to implementing the disclosures.

Q16 What drivers, if any, do you think would encourage you to adopt the recommendations?

Please select ALL that apply.

Requests from investors to disclose
Requests from clients or beneficiaries
Reputational benefits and goodwill from adoption
Inquiries or requests from debt or equity analysts
Adoption by industry peers
Other (please specify)
None of the above

Q17 What support or actions would be helpful to you in implementing the disclosures within the next two years?

Not applicable to the IAA as a professional body

Q18 The Task Force´s recommendations are focused on disclosure in financial filings; within what timeframe would your organization be willing to implement the recommendations in financial filings?

Please select ONE only.

We already report these disclosures in financial filings

In the next one to two years
In three to five years
We do not intend to implement the recommendations
Don't know (please explain)

As a professional body, it is not that we do not intend to implement, so much as the recommendations are not applicable to us.

Additional Feedback

Q19 What additional feedback you would like to provide the Task Force on the recommendations?

Please provide your response in the box provided.

The experience of actuaries with modelling and making projections in a context of uncertainty enables them to help better illustrate the possible outcomes the future may hold. We can also point to fundamental disconnects between targets and the means which are proposed to achieve them. We know also that small differences compounding over a long period may result in widely different outcomes.

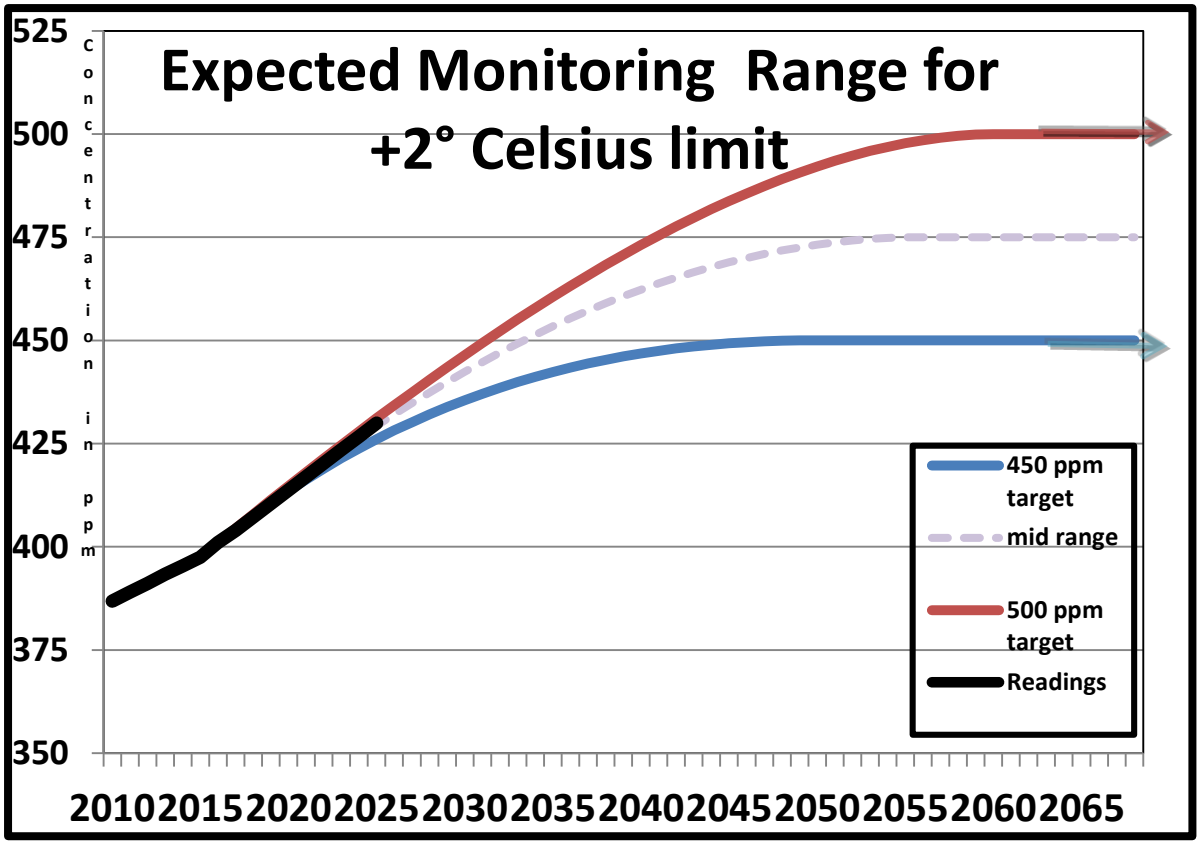
Climate scientists have suggested relationships between the amount of accumulated CO_2 emissions and global warming. For example, limiting CO_2 concentration to 450 ppm or 500 ppm would have different associated probabilities of stabilizing global warming at two degrees Celsius (based on the 5th IPCC assessment report). This is important when examining the impacts of investing in mitigation or adaptation measures. The quality of entities' disclosed assessments will depend on them having and using adequate information. This explains our recommendation that the TCFD provides leadership through, in time, being increasingly explicit in terms of the details of the required scenarios.

Keeling curves reports indicate a current CO_2 concentration of over 400 ppm. This means that in the 2^oC scenario described above the gap is less than 50 ppm (or 100 ppm but with a lower probability of remaining below the 2^oC target). If concentration increases at a rate of 2 ppm or 3 ppm per year on average, it will hit the limit within 25 or 50 years in the first case and 17 or 33 years in the second case. If concentration is to stabilize at the indicated levels, net emissions must converge toward zero by the year targeted. It is possible to have higher emissions in the short term, but at some point they must go below average. Each given set of ppm within that global corridor may nevertheless have a different impact on warming in different locations.

Curves mapping warming in degrees Celsius will need to be customized by climate scientists on the basis of appropriate climate data, since a global average of (for example) 3.2^oC can mean less than 2^oC for some and over 4^oC for other regions.

Climate scientists should be encouraged to use their models to project the specifics of each projected Keeling curve in terms of ppm concentrations, temperatures, sea-levels and associated probabilities for a given scenario. The TCFD is uniquely placed to play a proactive, constructive role in mobilizing the scientific community to fully specify standard scenarios and attach probabilities depending on target years, ppm concentration and degrees of warming.

We have constructed (from a purely mathematical point of view) pro-forma graphs illustrating what such curves projecting CO_2 concentrations in ppm, asymptotically approaching the concentration limits discussed above. Similar graphs can be constructed that map corresponding warming in degrees Celsius in different locations, but it would, as noted above, be essential to translate that warming projection to a local level.



Turning to the specifics of the report, the distinction in section B1 on p.7 between transition and physical risks is useful. The recommendations effectively treat externalities not as a problem in themselves but as a problem when they become expressed financially. The risk which is reported is not the risk to which society or the environment is exposed by the organisation's externalities, but the financial risk to which the organisation is exposed. More should therefore be done in parallel to encourage entities to report the climate-related (and other) negative externalities that they generate and the steps they are taking to mitigate them.

The proposals appear to focus on the relatively short-term time horizons typically used for financial planning. As pointed out in section D2(b) on p.29:

> *"Physical risk scenarios generally identify extreme weather threats of moderate or higher risk before 2030 and a larger number and range of physical threats between 2030 and 2050. Although most climate models deliver scenario results for physical impacts beyond 2050, organizations typically focus on the financial consequences of physical risk scenarios over shorter time frames that reflect the lifetimes of their respective assets or liabilities, which vary across sectors and organizations."*

By focusing on the shorter time frames, the proposals may ignore or miss the major risks being faced by future generations and by the biosphere.

It should be emphasized that long-term impacts can also be expected to have near-term impacts on commodity-based asset prices. However, in section B1(a) on pp.7–8 on the subject of transition risks no reference is made to stranded assets. It does appear under "markets" in Table 1 on p.11, but does not seem to relate to any of the risks under that heading.

In section B2, although sub-section (d) (metrics and targets) requires an organisation to "disclose" its "metrics and targets", it is not clear whether it must publish the values of the metrics for the reporting period concerned in comparison with the targets, or merely explain the formulation of those metrics and targets. It should be clarified that complete reporting of outcomes in terms of the metrics and targets is required.