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Abstract: Early-career experts can play a fundamental role in achieving sustainability by bridging generational divides and developing novel solutions to complex problems. We argue that intergenerational partnerships and interdisciplinary collaboration among early-career experts will enable emerging sustainability leaders to contribute fully to a sustainable future. We review 15 international, interdisciplinary, and sustainability-focused early-career capacity building programs. We conclude that such programs are vital to developing sustainability leaders of the future and that decision-making for sustainability is likely to be best served by strong institutional cultures that promote intergenerational learning and involvement.

Adelaide (Australia), 5th January 2018

Prof. Eduardo Brondizio
co-Editor-in-Chief of *Current Opinion in Environmental Sustainability*

REF: COSUST-D-17-00008

Dear Professor Brondizio,

Please find enclosed our manuscript “**Early-career experts essential for planetary sustainability**”, by Michelle Lim, Abigail J. Lynch, Álvaro Fernández-Llamazares and colleagues. We gladly accept your offer to re-submit the manuscript following minor revisions, and kindly ask that you consider this revised version for publication in *Current Opinion in Environmental Sustainability*.

We have revised the original text in response to the reviewer’s comments to highlight the focus of our paper on early-career capacity building programs. As a result, the manuscript now highlights more strongly our main intent of demonstrating the importance of early-career capacity building programs to achieving sustainability. We hope you agree that these revisions make our manuscript even more aligned with the readership of *Current Opinion in Environmental Sustainability*.

We are grateful for the opportunity to submit a revised manuscript that accounts for all the suggested changes. We set out below how we have addressed each of the reviewer’s comments. Overall, we are grateful to the reviewer and Editor for their useful comments and suggestions, and we think that the manuscript has improved considerably as a result.

The present version of the manuscript is 1749 words long, contains 2 figures, 1 box and 43 references. Supplementary Materials are provided as a background to the article. None of the material contained in this manuscript has been published or is under consideration for publication elsewhere in any form. All authors have approved the manuscript and agree with its submission to *Current Opinion in Environmental Sustainability*.

We look forward to hearing from you in due course about the outcome of our resubmission.

Yours sincerely,

Dr. Michelle Lim
University of Adelaide, Australia
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On behalf of all the authors

RESPONSE TO EDITOR'S COMMENTS

Editor's comment: The most substantive revision that I would like to request is the following. Please include in your review the START program. It would be a glaring gap in such a review if one of the oldest and most established programs on capacity building, global change, and sustainability is excluded. This will be discussed in more detail by reviewer 2. I believe that it will not represent a significant change to your current manuscript, and that an entry to table 1 could be prepared without much difficulty by reviewing START's website and reports, such as in <http://start.org/our-work/milestones-and-results/>.

Response: We are grateful for this suggestion and the inclusion of the link to the START program. We have reviewed the program and it is certainly an important one for capacity building for sustainability. However, our review is specifically of early-career capacity building programs. We have made mention of the program within the text but ultimately decided to not include the START program in our analysis.

We have revised the text and heading of Table 1 to make it explicit that we are reviewing early-career capacity building programs.

RESPONSE TO REVIEWER #1

Point #1.1: This paper has useful things to say but needs to be better written in parts. Here is a suggestion of how the abstract should look:

"Early-career experts can play a fundamental role in achieving sustainability by bridging generational divides and developing novel solutions to complex problems. A review of 15 international, interdisciplinary, and sustainability-focused capacity building programs suggest that Intergenerational partnerships and interdisciplinary collaboration among early-career experts will enable emerging sustainability leaders to contribute fully to a sustainable future. Such programs are vital to developing sustainability leaders of the future. Decision-making for sustainability is likely to be best served by strong institutional cultures that promote intergenerational learning and involvement, creating intergenerational partnerships in governmental and academic decision-making that are essential for ensuring planetary sustainability." should ipbes be mentioned specifically?

Response: We have adopted the suggested deletion of first sentence but, in an effort to maintain brevity in the abstract, have not included all of the additional recommended changes. We find that first making our argument, then discussing our review, and ending with our conclusion is the most direct way to communicate our key messages.

Point #1.2: line 42 after systematic change add in human behaviour

Response: Done.

Point #1.3: line 45 broad, not broader

Response: We retain the phrase 'broader' as it implies that more needs to be done than is currently the case rather than that nothing is being done at all.

Point #1.4: line 47 what is the actual percentage?

Response: Revised to include 65%.

Point #1.5: lines 48-51 could be better phrased

Response: The first paragraph has been rearranged to better communicate our message. We hope this addresses the Reviewer's concern about the phrasing.

Point #1.6: general comment: ipbes is supposed to be lower case...

Response: We respectfully disagree with this comment. IPBES is an acronym; in official usage, all letters are always capitalized.

Point #1.7: line 56 the word fellow is redundant and makes the sentence read oddly

Response: Here, we are referring to the backgrounds of the authors who are the IPBES Fellows. The article 'the' has been included to clarify.

Point #1.8: line 62 of missing before global

Response: Done.

Point #1.9: line 91 suggest wording "reasons of equity but also because generational, alongside gender and geographic, diversity."

Response: While we acknowledge the Reviewer's suggestion, we believe this is a matter of semantics and have chosen to keep the original wording on this point to keep the message simpler. .

Point #1.10: line 94 global change and anthropocene - are these not essentially the same? could you just use Anthropocene?

Response: Done.

Point #1.11: line 99 suggest "such early-career experts" not These..

Response: Done.

Point #1.12: line 109 suggest desirable rather than essential - we know you are good, but in presenting this piece the language is better expressed in a more moderate way

Response: We have considered this comment and have revised the text to be more moderate but still emphasizing the essential nature of our suggestion.

Point #1.13: line 118, as above suggest "can" before produce - age is no barrier to producing bad publications...

Response: We have revised this to get the point across but have adopted slightly different wording so as to accurately reflect the findings of Ebadi and Schiffauerova.

Point #1.14: line 125 senior staff - of what?

Response: ‘within those institutions’ added after ‘senior staff’.

Point #1.15: line 138 ipbes does not take decisions - that is fundamental to its role and niche - it provide the evidence base for decisions to be taken...

Response: Yes. However, what is also core to IPBES is the co-production of Assessments with scholars and decision-makers. This process is part of decision-making. IPBES Fellows are enabled to participate in this process and this point has been clarified within the text.

Point #1.16: lines 146-147 "such initiatives." i do not understand what this is saying?

Response: ‘hold promise’ substituted with ‘are important’. Further clarification has been made within the text.

Point #1.17: lines 158/159 suggest "integrating early-career experts into knowledge generation processes around decision-making for environmental sustainability."

Response: Changed to knowledge generation and decision-making processes for environmental sustainability.

Point #1.18: lines 171 suggest to add or informal after formalized

Response: We respectfully disagree and have retained the original text. Our findings highlight the importance of funding *formalized* programs as informal networks easily fizzle out.

Point #1.19: lines 179-181 i get what is being said here but it seems a little too strident. Can you find some words to convey the urgency without "give us the levers now" coming through...

Response: While we acknowledge the Reviewer’s position, we firmly believe that these issues require urgent, immediate response. We are not asking to “give us the levers now,” but asking for integration into the current patchwork of the process. Action is needed now on that and this sentiment is what we wished to express in this statement. We have revised it to clarify.

Highlights

- Intergenerational partnerships are essential for planetary sustainability.
- There is no explicit reference to intergenerational equity in the SDGs.
- Progress has not been made in cross-fertilization across generations.
- Emerging experts should be more prominent in government and academia.
- Capacity-building programs are vital to developing future sustainability leaders.

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1 **Early-career experts essential for planetary sustainability**

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28 † The first three co-authors contributed equally in leading authorship of the paper. The 13
29 subsequent authors each made equal contributions and are listed alphabetically by last name.

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30 **Abstract**

31 Early-career experts can play a fundamental role in achieving sustainability by bridging
32 generational divides and developing novel solutions to complex problems. We argue that
33 intergenerational partnerships and interdisciplinary collaboration among early-career experts will
34 enable emerging sustainability leaders to contribute fully to a sustainable future. We review 15
35 international, interdisciplinary, and sustainability-focused early-career capacity building
36 programs. We conclude that such programs are vital to developing sustainability leaders of the
37 future and that decision-making for sustainability is likely to be best served by strong
38 institutional cultures that promote intergenerational learning and involvement.

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39 **Emerging and future generations should have a more prominent role in decision-making**
40 **and knowledge production**

41 Human activity is pushing our planet beyond sustainable limits [1-2]. Systematic change in
42 human behaviour is therefore needed to address growing threats to the environment and human
43 well-being. It is important that younger generations play a key role in bringing about this
44 required change. This is because younger generations will not only be the most affected by the
45 realities of the Anthropocene, they also bring important generational perspectives to the
46 development of sustainability solutions. A key problem, however, is that while younger
47 generations (those under 40 years of age) constitute sixty-five percent of the world's population,
48 they are insufficiently integrated into decision-making or science-policy interfaces (Fig. 1).
49 There is increasing recognition that global sustainability initiatives need to incorporate diverse
50 knowledge systems and worldviews by using a broader range of stakeholders, disciplines,
51 methods, and tools [3-9]. At the same time, intergenerational partnerships are critical to
52 achieving effective decision-making and knowledge production [10].

53 The authors of this paper comprise all 16 Fellows of the Global Assessment of the
54 Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES).
55 IPBES assesses the state of biodiversity and of the ecosystem services it provides to society, in
56 response to requests from decision makers. The expertise of the IPBES Fellows spans the
57 disciplines of ecology, anthropology, economics, law, and governance. Our multidisciplinary
58 fellow team thus brings together early-career experts from every inhabited continent to
59 contribute to the key IPBES function of knowledge generation while building capacity for
60 intergenerational collaboration for sustainability.

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61 More than ever before, an integrated paradigm is needed to enable continued advancement of
62 human societies and the maintenance of environmental systems underpinning human well-being
63 [7,11-12]. Other authors have highlighted the need to re-evaluate the role and design of global
64 initiatives to ensure inclusion of a greater diversity of perspectives [e.g., 10]. We add to this
65 discourse by emphasizing that intergenerational partnerships can facilitate new ways of
66 conceptualizing and achieving global sustainability. We, therefore, offer intergenerational
67 partnerships in decision-making and knowledge production and the empowerment of early-career
68 experts (< 10 years post- first publication or terminal degree) as means of facilitating continued
69 human and planetary well-being. This echoes several calls to involve early-career experts in
70 sustainability science and its application [see 13-14].

71 Early-career experts can play a fundamental role in bridging generational and disciplinary
72 divides. Capacity building programs are, however, essential to enabling early-career experts to
73 contribute fully to global sustainability. We reviewed 15 international sustainability-focused
74 capacity building programs that facilitate interdisciplinary collaboration between early-career
75 experts. From this, we identify challenges and best practices for including early-career experts in
76 science and decision-making. This, in addition to our focused review of the fellowship programs
77 of the comparable Millennium Ecosystem Assessment (MA) and the Regional and Thematic
78 Assessments of IPBES (which occur a decade apart), facilitates examination of the role that such
79 programs can play in developing sustainability leaders of, and for, the future.

81 **Intergenerational equity is essential for sustainability**

82 The importance of sustainability has been reinvigorated globally by the United Nations' 2030
83 Agenda for Sustainable Development (2030 Agenda) [15] and its 17 Sustainable Development

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84 Goals (SDGs). When striving towards sustainable development, it is essential that
85 intergenerational equity, a key pillar of sustainable development [16-19], is not overlooked.

86 The SDGs [15], for example, have a strong focus on *intragenerational* equity with the terms
87 ‘equitable,’ ‘equal,’ ‘equality,’ and ‘address/combat inequality’ occurring almost 50 times within
88 the 2030 Agenda and across a range of goals and targets. Meanwhile, the term ‘future
89 generations’ appears only three times in the Declaration and there is also no explicit reference to
90 *intergenerational* equity in any of the goals or targets or indeed any part of the 2030 Agenda.

91 It is important that intergenerational equity is not neglected in science and decision-making. This
92 is not only for reasons of fairness, but also because generational diversity contributes to novel
93 approaches to navigating the uncertainties of global environmental change. For example,
94 achieving sustainability requires an integrated and interdisciplinary approach that incorporates
95 systems thinking to address the challenges of the Anthropocene and social-ecological systems
96 [13,20-25**]. Also essential is the ability to collectively analyze complex systems across
97 different sectors and scales [26].

98 Early-career experts are well positioned to facilitate systems approaches and to generate change
99 through new research fields and innovative methodological approaches and to solve problems
100 that have not been addressed by classical discipline-based methods [27]. Such experts are also
101 among the first generations of scholars and practitioners to have interdisciplinarity embedded in
102 their training and research. Of the world’s 50 leading universities in the field of environmental
103 sciences [28], 66% now have interdisciplinary postgraduate programs where students can choose
104 training courses and thesis topics within research groups spanning social and natural sciences.
105 There has also been a growing increase in interdisciplinarity in scientific publications [29]. These

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106 trends clearly show a shift to holistic and interdisciplinary approaches compared to traditional
107 compartmentalized discipline-based publications [30].

108 While important progress has occurred in the cross-fertilization of knowledge across disciplines,
109 similar progress has not been observed across generations (Fig. 1). A greater role for early-career
110 experts in knowledge generation and policy-making is, therefore, beyond merely desirable as it
111 facilitates collaboration across disciplines and generations.

112 Partnerships with an emerging generation of scholars and practitioners, to whom
113 interdisciplinarity and the use of new media and technologies are second nature, will facilitate
114 the development of new research fields and innovative methodological approaches as well as
115 innovative solutions to problems that have not been addressed by classical discipline-based
116 methods. This aligns well with the notion of reverse mentoring (i.e., younger employees sharing
117 expertise with their older counterparts), which has been adopted as best practice within the
118 private sector [31]. At the same time, Ebadi and Schiffauerova [32**] suggest that while
119 publication quantity generally grows with career age; younger researchers tend to produce higher
120 quality publications. This is particularly so when they work in large teams. This highlights the
121 benefits of including early-career experts in research endeavors.

122
123 Pathways to success through capacity building for intergenerational collaboration

124 Even with targeted programs of study and novel skill sets, early-career experts still require
125 training to best contribute to decision-making, policy, and management for sustainability.
126 Effective capacity building includes support from institutions, senior staff within those

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127 institutions, information and technical guidance, which create an atmosphere that fosters the
128 development of intergenerational partnerships [30].

129 The larger goal of building capacity for intergenerational sustainability partnerships is not merely
130 to assimilate emerging professionals into existing academic, governmental, and non-
131 governmental systems. Capacity building also has the important role of facilitating sustainability
132 transformations by empowering and embracing diversity and fostering a range of skills,
133 leadership styles, and values across generations. This can lead to improved professional
134 environments and a more egalitarian and cooperative community [33]. At the same time, the
135 motivating effects of education and training opportunities contribute to staff retention
136 particularly among early-career experts [34]. This fosters intergenerational continuity within
137 organizations. Such continuity is crucial to maintaining institutional memory, particularly during
138 periods of change and crisis [35-36].

139 To support intergenerational partnerships, intergovernmental bodies, such as IPBES, are
140 increasingly encouraging the participation of early-career experts in co-production of
141 information relevant to sustainability decision-making [37]. At the same time, emerging
142 professionals recognize the multiple benefits of capacity building programs and have
143 demonstrated an eagerness to develop and apply cross-cutting methods and interdisciplinary
144 expertise beyond academic settings to address pressing sustainability issues. The Young Fellows
145 Pilot Programme of IPBES, for example, attracted more than 400 applications from all over the
146 world [38]. Along these lines, the emerging ‘Global Young Academies’ movement is also
147 encouraging networks of interdisciplinary collaboration within the sciences [39-40]. Such
148 initiatives are important for fostering intergenerational reciprocity as present generations may
149 feel more inclined to make decisions in favor of the future [41]. Yet, for these aspirations to be

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150 reflected in practice, intergenerational interactions must be accompanied by continuous training
151 opportunities and sustained funding support [42].

152 While acknowledging the existence of important capacity building programs for sustainability
153 with broader scope (e.g., the START program), our focus in this paper is on *early-career*
154 opportunities. Our review of early-career capacity building programs highlights that participation
155 by early-career experts can result in strong collaborative networks and scientific outputs that
156 address current societal needs and those of future generations (Fig. 2). We identified programs
157 that use structured approaches to build individual, institutional, and societal capacity for
158 addressing complex social-ecological challenges (Table S1). These programs have different
159 levels of funding, training, mentoring, and alumni support. They also vary in their primary
160 objectives which range from conservation biology to human dimensions of global change. Each,
161 however, aims to build – and maintain – capacity in their programs and professional networks by
162 integrating early-career experts into knowledge generation and decision-making processes for
163 environmental sustainability.

164 Our findings highlight that early-career capacity building programs can be fruitful long-term
165 investments which bolster social capital in professional communities. These programs formalize
166 connections between groups across career stage, discipline, and institutions. A common benefit
167 of these programs is the capacity for professional development through the creation of strong
168 interdisciplinary networks not only with established scholars but also with their peers. Early-
169 career capacity building programs can, therefore, enhance professional networks, cross-
170 disciplinary engagement, and a sense of community directed at addressing multi-faceted social-
171 ecological challenges.

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172 Examining these programs collectively underlines the invaluable nature of bringing together
173 gender-balanced groups of emerging professionals from diverse geographical, cultural, and
174 disciplinary backgrounds. Funding for all participants, effective mentorship programs, and
175 continued formalized networks (e.g., alumni groups) are important for capitalizing on the
176 investments made in the programs (Table S1). Our detailed analysis of the fellowship programs
177 of the MA and the ongoing regional and thematic IPBES assessments echoed these best practices
178 and illustrated the important role these fellowships play in aiding the necessary transfer of
179 institutional knowledge to sustain productivity through membership and leadership transitions
180 (Box 1).

181
182 **Achieving a sustainable future through intergenerational contributions to today’s decisions**

183 The urgency with which threats to biodiversity and ecosystem services need to be tackled is
184 increasingly recognized. Decision-making for sustainability is likely to be best served by a strong
185 institutional culture which promotes intergenerational inclusion and capacity building. By
186 institutionalizing intergenerational and interdisciplinary dialogues on sustainability decision-
187 making, fellowship programs (e.g., those in Table S1) provide valuable pathways to nurture
188 intergenerational networks. Fostering such an institutional culture is important in the global
189 sustainability arena as it integrates the stewards of the future into the decisions of the present.
190 Intergenerational partnerships which ensure broad participation of early-career experts are
191 therefore essential to achieving intergenerational equity and ultimately planetary sustainability.

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193 **Acknowledgments**

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198 survey respondents for their contributions. Any use of trade, firm, or product names is for
199 descriptive purposes only and does not imply endorsement by the U.S. Government.

200 **References and recommended reading**

201 Papers of particular interest, published within the period of review, have been highlighted as:
202 *of special interest
203 **of outstanding interest

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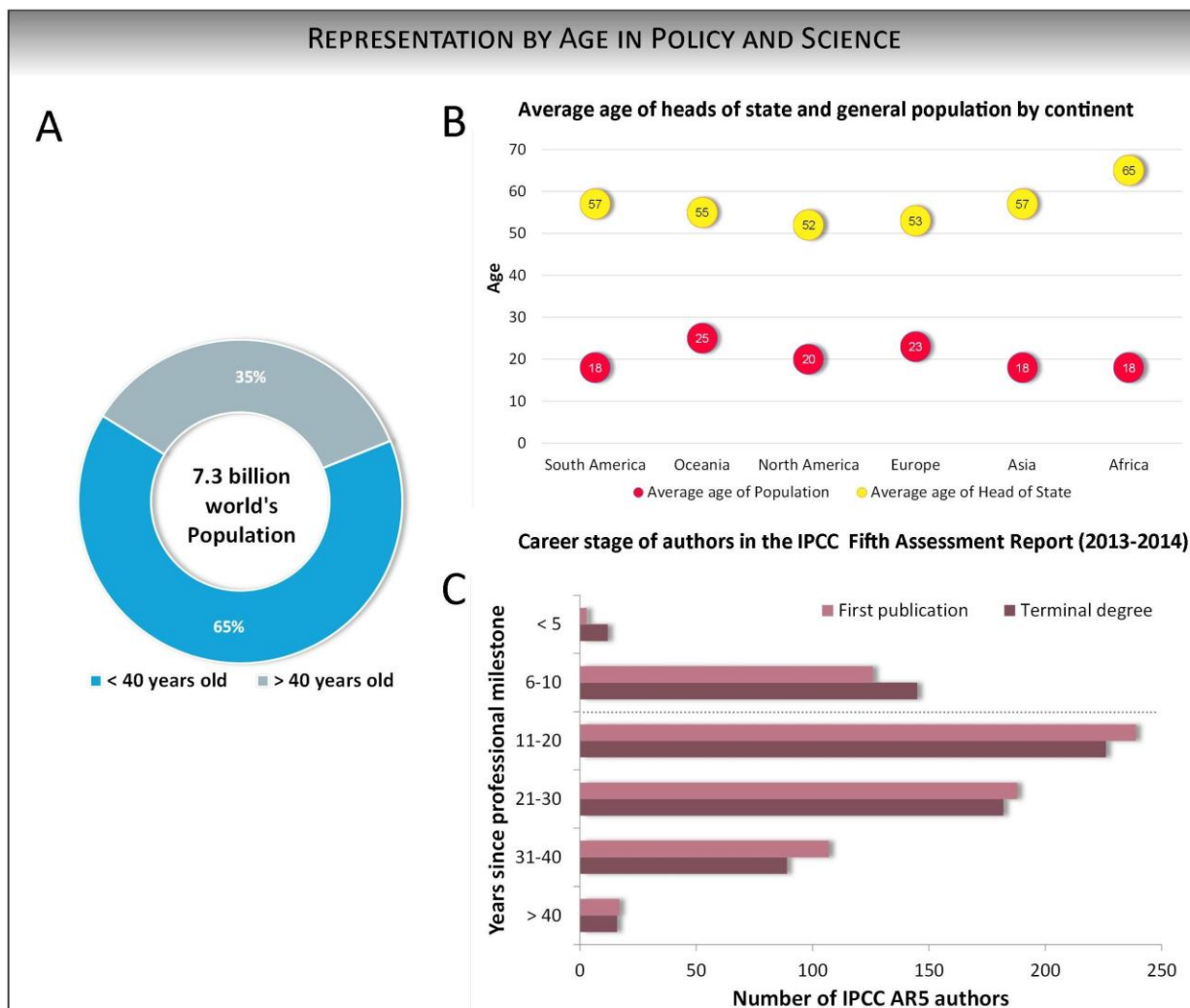
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319 **Boxes and Figures**

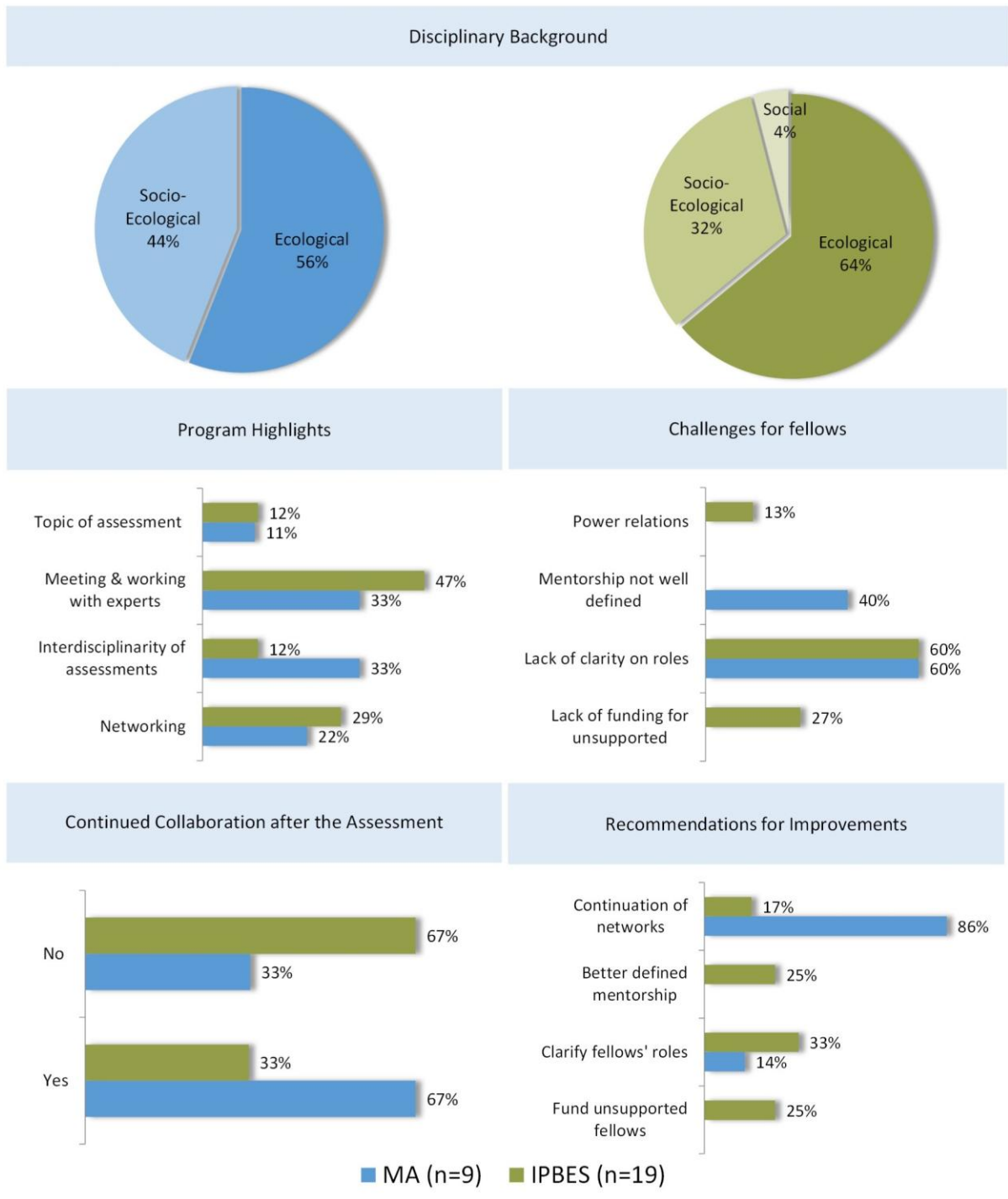
320 **Fig. 1. Under-representation of younger generations in decision-making and science.** Sixty-
321 five percent of the world's population is below 40 years of age (A). Those below 40 years of age
322 are under-represented in decision-making (e.g., the age distribution of heads of state) (B); and at
323 the science-policy interface (e.g., career stage of authors of the IPCC 5th Assessment Report -
324 represented by proxies of terminal degree and first publication). Early-career scholars
325 represented as < 10 years post-first publication/terminal degree (above line). Established scholars
326 represented as ≥ 10 years post-first publication/terminal degree (below line)(C).



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329 **Fig. 2.** Description of early-career capacity building programs of Intergovernmental Science-
 330 Policy Platform on Biodiversity and Ecosystem Services (IPBES) and Millennium Ecosystem
 331 Assessment (MA) based on fellows' responses to a structured survey.



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5 **Box 1 | Fellows of the Intergovernmental Science-Policy Platform on Biodiversity and**
6 **Ecosystem Services (IPBES) and Millennium Ecosystem Assessment (MA) Fellowship**
7 **Programs**
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10 We set up a survey to gain insight into the extent to which early-career capacity building
11 programs achieve their aims. We focused on the MA and IPBES fellowship programs as a
12 comparative case-study of two similar efforts across time. IPBES and its Fellowship Programme
13 are ongoing and draw on the experience of the MA. The MA ran from 2001 to 2005 and
14 assessed the consequences of ecosystem change for human well-being. Many MA authors also
15 contribute to current IPBES Assessments. The assessment processes are of approximately the
16 same length (i.e. 3-4 years).
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19 A survey was completed by 38% of all the 73 fellows of both the MA and IPBES (excluding the
20 fellows of the IPBES Global Assessment). Both the MA and IPBES fellowship programs aimed
21 to build the capacity of early-career researchers to conduct assessments on biodiversity and
22 ecosystem services. Both programs attracted fellows from all over the world, selected largely
23 through institutional (IPBES) and government (MA) nominations. Fellows of the MA were
24 mostly funded, whereas IPBES only funds fellows that are eligible for support under the IPBES
25 Rules of Procedures. Based on the responses of our survey, most fellows in both assessments
26 have backgrounds in ecology (16), closely followed by social-ecological sciences (11), with
27 only one fellow from the social sciences.
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31 The survey outcomes are summarized into the following areas: 1) disciplinary background of
32 fellows; 2) program highlights and challenges, 3) whether there was continued collaboration
33 between fellows following the assessment, and 4) suggestions for improvement in future
34 fellowship programs (Figure 2). Fellows from both programs indicated that collaboration with
35 scientific experts was the most positive aspect of such programs. The need to clarify fellows'
36 roles in the assessment was highlighted as a 'challenge' for both programs. An important insight
37 from the former MA fellows was the need to nurture and formally foster the network of fellows
38 especially after the completion of the Assessment. Fellows reported that while they had interest
39 in staying in contact and collaborating within their cohort, this was not always possible.
40 Nevertheless, 67% of MA Fellows reported that the fellowship programme facilitated
41 collaboration with other fellows. In contrast, only 21% of IPBES fellows responded in the
42 affirmative. A likely explanation of the differences between the two programmes is that the 12
43 years since the MA have allowed MA fellows to build and reflect on networks which have
44 emerged from their fellowship experience. These results suggest that even where formal
45 structures are lacking, the networks formed through the fellowship process are valued as fellows
46 advance in their careers. Overall, these programs are achieving their goals of building
47 institutional capacity. For example, at least eight of the 37 MA fellows are currently in
48 leadership roles in the ongoing IPBES assessment process. A program evaluation report on the
49 MA concluded that "The MA Fellows programme aimed at encouraging younger researchers
50 was outstandingly successful at such capacity building" [43]
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Supplementary Materials: Table S1

Table S1. Review of international sustainability-focused early-career capacity building programs

Program name	Program description					Selection criteria	Role of Fellow
	Funding	Training	Mentorship	Alumni network	Main purpose		
Millennium Ecosystem Assessment	Yes	Partially	Partially	No	Capacity building for assessments	Information unavailable.	Information unavailable.
PBES Fellowship	Yes	Yes	Yes	Yes	Capacity building for assessments	Institutional nomination. Early-career, preferably <35 years, 5-10 years after completion of relevant academic degree. Preferred disciplines: social, economic and biological sciences, policy development and/or indigenous and local knowledge systems. Demonstrated interdisciplinary, analytical and English language skills.	Fellows are chapter Lead Authors and have additional professional development opportunities.
Future Earth Young Scientists Networking Conference	Yes	No	No	No	Sustainability	No more than 10 years of experience post-PhD and preferably under 40 years of age.	Participants have discussions with other participants and work towards developing joint publications.
Future Earth Early Career Network of Networks	Yes	Partially	Partially	No	Sustainability	Must be involved in/leading other groups that have come together as the Future Earth early-career network of networks.	Participants facilitate involvement of early-career scholars and practitioners in Future Earth to build networks across early-career groups.

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UNESCO MAB Young Scientists Awards	Yes	Partially	Partially	No	climate change; biosphere reserves; research projects; human activities; natural ecosystems; socio-economic processes; biological and cultural diversity; human well-being; sustainable development	Targets young researchers (up to 40 years old) carrying out interdisciplinary research in line with UNESCO's Man and the Biosphere (MAB) Programme. Priority is given to projects carried out in biosphere reserves, and to applicants from developing countries.	Recipients of the grant must accomplish their research project within two years. They also must submit reports of Award-funded research to the MAB Secretariat in Paris and to their MAB National Committees
The Inter-American Institute for Global Change Research (IAI)	Partially	Partially	Partially	No	collaborative process; young scientists; professional development; communication; graduate and postgraduate students	The initial group of young scientists were invited by the IAI to initiate the network from IAI collaborative research networks.	Participants must build a collaborative process between young researchers within the IAI program.
Youth in Landscapes Initiative of the CIFOR Global Landscapes Forum	Yes	Yes	Yes	Yes	discussing key conference themes from the perspective of youth; strong emphasis on intergenerational learning	18 - 35 years, young people working or studying in agriculture, forestry and agroecology.	Fellows have specific roles to execute during the conference, including participating in conference planning committees, moderating panels and debates, giving keynote/plenary talks. Fellows undertake 'masterclasses' and mentoring programs aimed at building these skills through blended learning approaches.
Global Environments Network	Partially	Yes	Yes	Yes	Human dimensions of global environmental change	Course conveners select 18-21 activists, professionals, or students from around the world who have the capacity to become environmental leaders who impact academia, civil society, the private sector or government. Applications are invited from English-fluent candidates in the arts and humanities, natural sciences and social sciences - as well as those working in advocacy, law, media or policy - who focus on the relationship between environment and society.	The Fellows are trained to be future environmental leaders. The Networks acts as a multidisciplinary process of sustained common reflection around environmental issues.
David H. Smith Conservation Research Fellowships	Yes	Yes	Yes	No	Conservation biology	To be eligible, individuals must have completed their doctorate within the past five years. Applicants should be based at a United States institution, and work on topics of conservation concern in the United States.	The Fellows are expected to carry out their own research plan, directing their efforts towards problems of pressing conservation concern for the United States.

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Provia Young Researcher Fellowship Programme (PYRFP)	Yes	Yes	Yes	Yes	Climate Change Vulnerability, Impacts and Adaptation (VIA)	<p>Professional candidates must have at least a Master's degree in a field related to climate change VIA (e.g., geography, environmental sciences, climate research, etc.) and 3 years of research or work experience in adaptation. Preference will be given to early-career professionals and researchers (i.e., those under 35 years of age who have received graduate degrees within the last 5 years). Each call emphasizes a specific geographic area and preference is given to candidates from developing countries.</p>	<p>The Fellows are expected to carry out scientific assessments of climate change vulnerability, impacts and adaptation. The Fellowship provides participants with funding to enhance knowledge generation (e.g., visiting fellowships), improve their capacity to undertake research on VIA (e.g., training workshops, mentoring program) and exchange results at the national, regional and international levels (e.g., participation in conferences, joint fellowship activities).</p>
Chapter Scientist Program of IPCC	No	No	No	No	Climate Change Vulnerability and Adaptation (IPCC's WGII and WGIII)	<p>The call advertised a volunteer, unpaid position that would require applicants to dedicate at least 1/3 full time equivalent over a 2.5-year period while working from their home institutions, and offered no remuneration other than 'the opportunity to be involved in the IPCC process.'</p>	<p>Fellows assisted chapter teams in IPCC's WGII and III with technical aspects of chapter development, including cross-checking between findings presented in different parts of the report, additional fact-checking and reference management.</p>
Young Ecosystem Services Specialists (YESS)	No	No	No	No	Ecosystem services, knowledge sharing, dissemination, education, implementation	No restrictions	<p>Fellows contribute to the YESS community by participating in the discussions, exchanging information, and engaging in educational processes.</p>
Knauss Marine Policy Fellowship	Yes	Yes	Partially	Yes	Marine science and policy	<p>Any student, regardless of citizenship, who is enrolled towards a degree in a graduate or professional program, that have an interest in ocean, coastal and Great Lakes resources and in the national policy decisions affecting those resources. The graduate degree needs to be awarded through a United States accredited institution of higher education in the United States or U.S. Territories.</p>	<p>There are two types of fellowships: executive fellows are placed within an office of a federal agency to experience how federal regulations and policies are developed and implemented; legislative fellows are placed in a member office in the Senate or House or a Committee office and serve the interests/activities of their host offices.</p>
POGO-SCOR Visiting Fellowship	Yes	Yes	Yes	No	Biodiversity monitoring, conservation, sustainability.	<p>Open to scientists, technicians, graduate students (preferably of PhD level), and post-doctoral fellows of developing countries and countries with economies in transition and involved in oceanographic work. Early-career applications get preference.</p>	<p>The Fellows are expected to carry out their proposed research plan and gain skills in other fields than their current expertise to enhance their career potential.</p>

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International Network of Next Generation Ecologists	Partially	Partially	Yes	No	Ecology	All early-career individuals (up to junior professor) can join the network for free.	Individual members can participate in various ways including fostering links with other networks/societies, serving on the board, or initiating their own initiatives.
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