

# Introduction:

The 2nd African Dialogue – African voices about alternative sustainability pathways

**THE SECOND AFRICAN DIALOGUE ON THE WORLD IN 2050** brought together stakeholders from the agriculture and food systems to unfold alternative pathways to the Sustainable Development Goals (SDGs).

## Context and purpose

The 2030 Agenda for Sustainable Development includes the 17 Sustainable Development Goals and was adopted by all United Nations Member States in 2015. The goals recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality – all while tackling climate change and working to preserve our terrestrial and aquatic ecosystems. The 2030 Agenda’s SDGs have a few unique features: they are universal and thereby applicable to all countries, they are integrated, and transformative.

The World in 2050 (TWI2050), is a global initiative in support of implementation of the United Nations’ 2030 Agenda (see Box 1). The first and second African Dialogues on TWI2050 are the result of a partnership between the Stockholm Resilience Centre/SwedBio and the SDG Center for Africa. The purpose of the African Dialogues was to contribute to TWI2050 by providing the initiative with regional perspectives about pathways to reach SDGs within the Planetary Boundaries. The first two dialogues have also provided a venue for voices otherwise not heard within the

initiative, by involving stakeholders from different parts of Africa.

The first two Dialogues have focused on agriculture and food systems transformation. The first Dialogue, held in Kigali in August 2017<sup>5</sup> (see report) introduced the TWI2050 initiative, its core concepts through a combination of plenary presentations and group discussions. The results from the first African Dialogue was presented in a side event to the UN High Level Political Forum on Sustainable Development 2018 and incorporated in The World in 2050’s first report.

For the second Dialogue, also held in Kigali, in October 2018, a structured pathways approach called the Three Horizons approach (see below and Box 2) was adapted to the SDG context. The 2<sup>nd</sup> Dialogue went deeper than the first in a Pan-African deep dive by exploring different geographical and socio-economics scales.

The specific goals of the second Dialogue were:

- (1) **To give voice to regional African aspirations related to pathways to sustainable futures**, incorporating them in the design of alternative (sustainability) scenarios for Africa, within the context of TWI2050 and other such initiatives; and
- (2) To provide relevant insights for practitioners/policy makers involved in the SDG implementation, shedding light on the option space (including tensions) around alternative pathways.

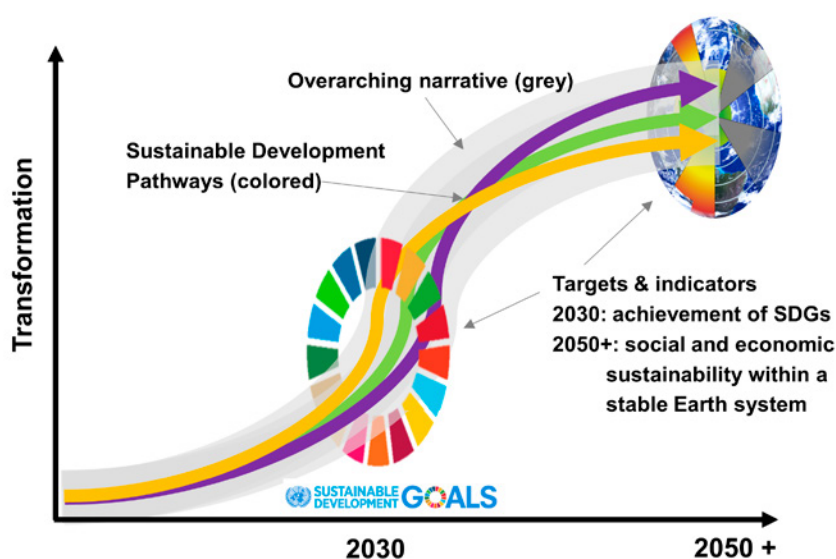


## Box 1: The 2030 Agenda and The World in 2050

TWI2050 was created in 2015 by the International Institute for Applied Systems Analysis (IIASA), the Sustainable Development Solutions Network (SDSN), and the Stockholm Resilience Centre (SRC). The initiative brings together a network of more than 150 participants including leading policymakers, analysts, modelling and analytical teams from 60 organisations from around the world to collaborate in developing pathways toward sustainable futures and the policy frameworks needed for implementing the SDGs, and

more importantly, for achieving the needed transformational change.

The initiative considers that the fundamental changes brought about by meeting the 2030 Agenda goals would need to extend through to 2050 and beyond to ensure a sustainable future for all and provision of stable Earth systems support for future generations, as Figure 3 illustrates. Such transformational pathways would ensure a prosperous and healthy future for all on a resilient and healthy planet.



**Figure 3: An illustration of the TWI2050 conceptual framework.** Two sets of targets provide bounds for the transformations toward sustainable futures. The first is illustrated by the SDGs for 2030 and the second (for 2050 and beyond) is illustrated by the planetary boundaries – symbolizing the achievement of just and safe futures for all on a resilient planet. The grey band illustrates the overarching narrative that indicates how the future is connected to the present. It indicates what needs to change to achieve the transformation toward sustainability by ‘back-casting’ from the normative targets. Also shown (in colours) are alternative Sustainable Development Pathways (SDPs) that will provide model-based quantifications of the transformational changes. They can be interpreted as alternative realizations of the overarching narrative. The next phase of TWI2050 will focus on developing multiple SDPs. Source: TWI2050.

The initiative launched its first large report at the UN annual follow-up of the 2030 Agenda – the High-Level Political Forum on Sustainable Development (HLPF) 2018 (link to the report). The report discusses six domains that capture a large proportion of the current global, regional, and local dynamics that drive us away from sustainability. TWI2050 researchers argue that major transformations in such

domains could redirect the global system towards sustainability (Figure 4). The Second African Dialogue focused on one of these domains (Food, biosphere and water), discussing pathways for transforming the agriculture and food systems. The results of the Dialogue will, in a later phase, feed the design of alternative SDPs.

cont. Box 1: The 2030 Agenda and The World in 2050

## Six Major Transformations



Source: TWI2050.

**Figure 4: TWI2030 focuses on six transformations** that capture much of the global, regional, and local dynamics and encompass major drivers of future changes: i) Human capacity and demography; ii) Consumption and production; iii) Decarbonization and energy; iv) Food, biosphere and water; v) Smart cities; and vi) Digital revolution. Together they give a people-centered perspective on building local, national and global societies and economies which secure wealth creation, poverty reduction, fair distribution and inclusiveness necessary for human prosperity. They are judged necessary and potentially sufficient to achieve the SDGs, if addressed holistically in unison. Source: TWI2050.

For more information, refer to: TWI2050 – The World in 2050 (2018). Transformations to Achieve the Sustainable Development Goals. Report prepared by The World in 2050

initiative. International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria. [www.twi2050.org](http://www.twi2050.org). Available at: <http://pure.iiasa.ac.at/15347>

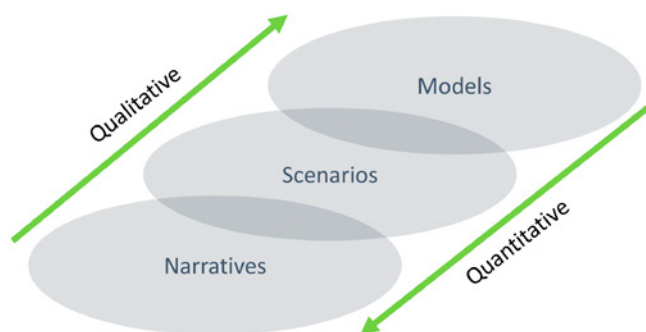
### Models, scenarios and stories representing alternative pathways to sustainability

Long-range assessments of the future development of social-ecological systems are characterized by high levels of complexity and uncertainty. In these cases, both qualitative and quantitative elements are useful. Narratives provide qualitative backbones that can be enriched with the help of models so that potential quantitative scenarios can be developed. The quantitative analysis offers structure, discipline, and rigor. The narratives can give voice to important qualitative factors that shape development such as values, behaviours, and institutions, thus providing a broader perspective than is possible from mathematical modelling alone.

The contribution of the African Dialogues is leaning towards the qualitative and narrative side of the spectrum by providing suggestions on how such narratives can be framed and what they could constitute when designing scenarios representing alternative pathways for Africa.

### The theme: Agriculture and food systems

This two-day Dialogue’s theme was food systems and agriculture. Discussions focused on the role of farming systems in providing elements for transformations to reach the Sustainable Development Goals (SDGs). This theme was chosen because food systems and agriculture are cross-cutting and span across all SDGs. Any Sustainable Development Pathway needs to consider links between



**Figure 5:** In the context of TWI2050, scenarios combining quantitative and qualitative elements will be designed to explore alternative pathways for sustainability. Source: Adapted from Nakicenovic et al., 2000<sup>6</sup>

SDGs, and to acknowledge the multiple roles and functions of agriculture and how it relates to issues of social, environmental, economic and governance nature. 70% of Africans are dependent on agriculture for their livelihoods<sup>7</sup>. 80% of the food supply in sub-Saharan Africa is produced by small-scale and family farmers. Moreover, having a theme close to that of the first Dialogue provided grounds for cross-fertilization and input for the first discussion.

### The Dialogue Organisers

The Second African Dialogue was co-convened by the Sustainable Development Goals Center for Africa (SDGCA) and SwedBio at the Stockholm Resilience Centre at Stockholm University. It was held at the Park Inn by Radisson in Kigali, Rwanda, on 30–31 October 2018.

The SDGCA, headquartered in Kigali, is part of the research team involved in TWI2050. The Center is an international organisation whose mandate is to support African governments, civil society, businesses and academic institutions in achieving the SDGs. SDGCA is the regional node of SDSN in Africa.

The Stockholm Resilience Centre (SRC) is an international centre that advances transdisciplinary research on governance of social-ecological systems with a special emphasis on resilience. SwedBio, which financed the African Dialogue, is a knowledge interface at the Stockholm Resilience Centre contributing to poverty alleviation, equity, sustainable livelihoods and social-ecological systems rich in biodiversity that persist, adapt and transform under global change such as climate change. Researchers from the Stockholm Resilience Centre, in collaboration with staff at the SDG Center for Africa, developed the method for this Dialogue.

### Participants

Over 30 participants from 11 countries took part in the African Dialogue. Dialogue participants included representatives of national governments, UN organisations, civil society and local communities, academia and research. They were invited from a diversity of organisations across Africa. The criteria for selecting participants were that they provided expertise and experience relevant to African agriculture and agro-biodiversity; and understanding and influence over related policy processes (e.g., social and economic development strategies, spatial planning, research/development/innovation, conservation and resource management, etc.). The full participants' list is provided in appendix B.

### The Method/Approach: 3 Horizons for the SDGs

The participatory method used during the second African Dialogue was developed by SRC researchers<sup>8</sup> with the goal of enabling a cross-scale discussion about pathways to the SDGs, addressing four core challenges:

- 1) To address a spectrum of transformational challenges related to achieving the 17 SDGs in an integrated manner, so as to minimize potential conflicts among them and to reap the benefits of potential synergies among them.
- 2) To include a discussion about global scenarios and their underlying premises, without imposing any narratives or limiting the emergence of a diversity of pathways.
- 3) To allow for multiple and alternative pathways to emerge, including non-dominant voices and narratives<sup>9</sup>.
- 4) And last but not least, the method had to be simple enough to be able to be replicated and contextualized for a diversity of initiatives focusing on the 2030 Agenda.

The design of the method originated with the 3 Horizons framework (Sharpe et al., 2016)<sup>10</sup> and previous experiences with that approach in the sustainability arena (IPBES scenario group, Seeds of Anthropocene project, etc.)<sup>9</sup>. The framework was combined with elements from the multi-scale scenario literature, especially drawn from the experience of SRC researchers on developing multiscale participatory methods for envisioning sustainable futures (Folhes et al. 2015 and Aguiar, 2015)<sup>12</sup>. The overall dialogue approach was inspired by SwedBio's Multi-Actor Dialogue Seminars (Schultz et al. 2016)<sup>13</sup> and rooted in systems thinking (Booth Sweeney and Meadows 2010; Meadows 2008; Reynolds and Holwell 2010)<sup>14</sup>. Box 2 presents the core elements of the method, detailed in Appendix C.

## Box 2: The Three Horizons (3 Horizons) Framework adapted to the SDG context

The 3 Horizons Framework<sup>13</sup> is an approach for making sense of and thinking about possible futures. The framework is used for discussions on transformational change in participatory settings. It was developed by Bill Sharpe of the International Futures Forum. The framework includes a map of three lines or horizons.

The three horizons diagram is an intuitive way of visualizing and discussing transformative change. The three horizons represent, respectively:

- Horizon 1: The system we want to transform from
- Horizon 2: The necessary changes to (i) break the current dominant patterns of the system we want to transform

from and (ii) support beginnings of the system we want to transform to – also referred to as ‘seeds’

- Horizon 3: The system we want to transform to.

During the Second African Dialogue the steps of the process were referred to as STEP 1 (focusing on the 3rd Horizon, in our case “**The desired future for agriculture in 2050+**”), STEP 2 (focusing on the 1st Horizon, “**Current challenges in agriculture and their deep causes**”) and Step 3 (focusing on the 2nd Horizon, “**How to get to the desired future from the present**”). These STEPS structured the dialogue sessions.

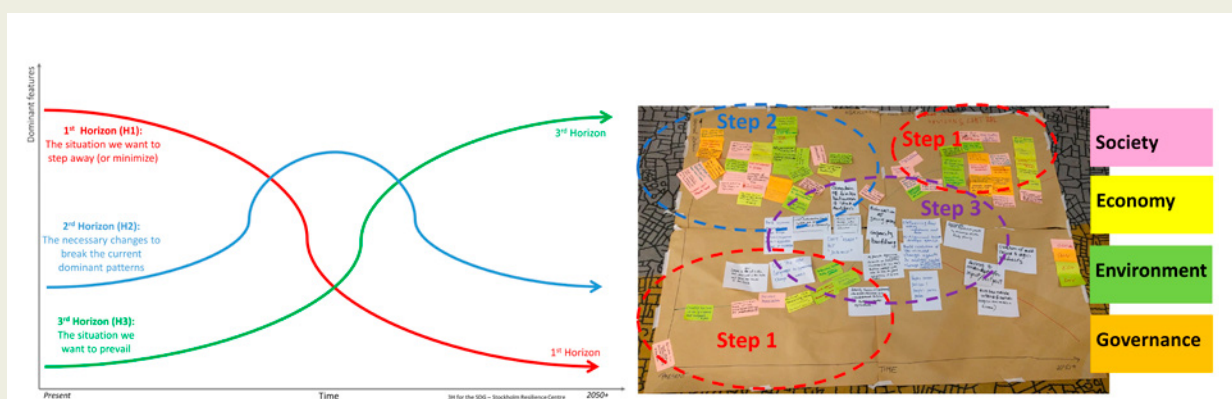


Figure 6: The three horizons diagram and how we adapted it to the SDG context.

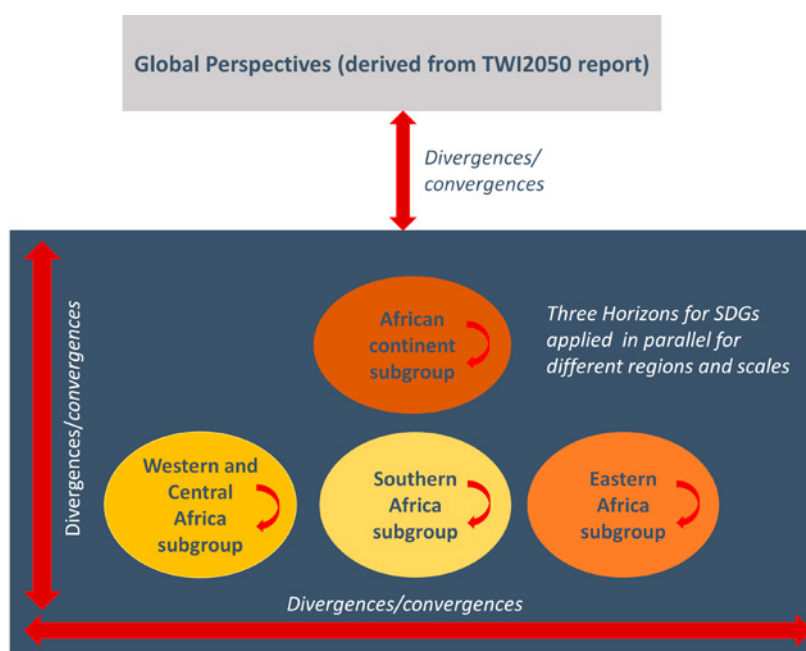
The four challenges mentioned above were addressed in the following way:

- 1) To discuss the link between regional pathways and global scenarios, a presentation was made about the premises and assumptions underpinning recent global scenario
- 2) To discuss the link between regional pathways and global scenarios, a presentation was made about the premises and assumptions underpinning recent global scenario
- 3) To allow the emergence of multiple pathways, the participants were divided in 4 parallel working groups building their own 3 Horizons Diagrams. In this dialogue, a (spatial) scale criterion was used to divide the groups. This resulted in one African Continent group, and three sub-regional groups: West and Central, East and Southern Africa, as Figure 7 illustrates. Besides the collective construction of the 3 Horizons Diagrams, the groups were instructed to take notes (in a separate flip-chart) of any divergent ideas that emerged within the group, across groups and also between their scenarios and the global scale perspectives.
- 4) To facilitate future use of the method in other contexts, the 3 Horizons approach is intuitive and requires inexpensive materials. The process of taking note of the divergences during the exercise, facilitated the final discussion and the elaboration of the synthesis for the report.

studies, in particular using Integrated Assessment Models (IAM). But this presentation was scheduled after STEP 1 and STEP 2, so as to avoid imposing the global perspective and thereby limiting the participants’ imagination.

- 3) To allow the emergence of multiple pathways, the participants were divided in 4 parallel working groups building their own 3 Horizons Diagrams. In this dialogue, a (spatial) scale criterion was used to divide the groups. This resulted in one African Continent group, and three sub-regional groups: West and Central, East and Southern Africa, as Figure 7 illustrates. Besides the collective construction of the 3 Horizons Diagrams, the groups were instructed to take notes (in a separate flip-chart) of any divergent ideas that emerged within the group, across groups and also between their scenarios and the global scale perspectives.
- 4) To facilitate future use of the method in other contexts, the 3 Horizons approach is intuitive and requires inexpensive materials. The process of taking note of the divergences during the exercise, facilitated the final discussion and the elaboration of the synthesis for the report.

## cont Box 2: The Three Horizons (3 Horizons) Framework adapted to the SDG context



**Figure 7:** Schematic representation of how we allowed for the emergence of multiple pathways, based on the convergences and divergences (i) within groups, (ii) across groups and (iii) in relation to the global perspectives. The red arrows represent these convergences and divergences.

Appendix C – The 3 Horizons Framework for the SDGs (3H4SDG) details the approach applied in the 2nd African Dialogue and its potential for further applications.

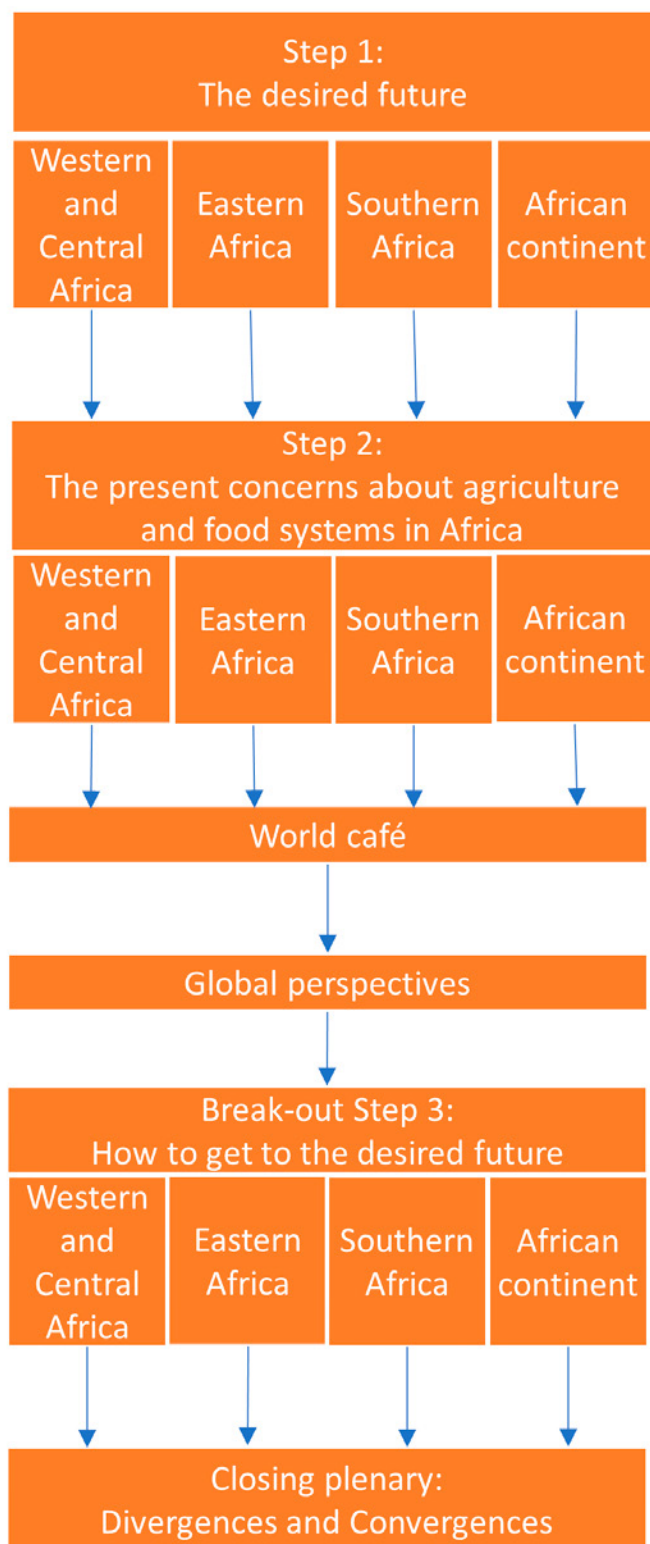
### The Dialogue plan

The language of the event was English. The break-out group sessions were based on Chatham House Rules. Under these rules, participants are free to use the information received during the session, but may not reveal who or which organisation said what. This rule allows people to speak as individuals and to express views that may not be those of their organisations. It enables free discussion because speakers are free to voice their own opinions, without concern for their personal or institutional reputation or their official duties.

Early in the process, the participants were divided into the four geographically focused groups (Figure 7) in which they remained throughout the Dialogue. The main focus of the Dialogue was on the group processes, and most time was spent in these break-out groups. However, the set-up also included several plenaries and a “World Café” section in which participants were moving between the groups to facilitate cross-fertilization of ideas. The dialogue’s full agenda is provided in Appendix A – Agenda of the Dialogue. Figure 8 synthesizes the overall dialogue plan.

### Structure of this report

The next section *Pathways for Africa* provides the elements of the pathways as they were provided by the participants. The section is followed by a discussion of divergences and convergences within and across the groups, and in relation to the global scale perspectives. The report concludes with recommendations about the implementation of the SDGs, for modelers and for future dialogues. As appendices, we provide the complete agenda of the Dialogue (Appendix A – Agenda of the Dialogue), the list of participants, including stakeholders from different sectors, the facilitators, the organisers and journalists (Appendix B – List of participants). Finally, Appendix C – The Three Horizons Framework for the SDGs (3H4SDG) details all the individual steps of the approach, as we expect the process to be appropriated and replicated in other contexts, to facilitate discussions about pathways to the SDGs.



**Figure 8:** The Dialogue plan (complete agenda in *Appendix A – Agenda of the Dialogue*).

# References and notes

- Existing scenarios include those of the Integrated Assessment Models (IAMs). These are simplified, stylized numerical approaches to represent enormously complex physical and social systems. See the IPCC's Working Group III (WG3).
1. TWI2050 – The World in 2050 (2018). Transformations to Achieve the Sustainable Development Goals. Report prepared by The World in 2050 initiative. IIASA Report. International Institute for Applied Systems Analysis (IIASA). Laxenburg, Austria. Available at: <http://pure.iiasa.ac.at/15347>

2. IPCC special Report on Global Warming of 1.5°C. Available at [https://www.ipcc.ch/sr15/Fazey, I. et al., 2016: Past and future adaptation pathways. Climate and Development, 8\(1\), 26-44, 37 doi: 10.1080/17565529.2014.989192](https://www.ipcc.ch/sr15/Fazey, I. et al., 2016: Past and future adaptation pathways. Climate and Development, 8(1), 26-44, 37 doi: 10.1080/17565529.2014.989192)

3. Seeds are initiatives of a good future that are exiting in the present, but to a smaller scale.

4. SDG|A and SwedBio. 2018. The African Dialogue on The World in 2050: How Can Agriculture Contribute to Meeting the SDGs? Report on a Multi-Actor Dialogue for TWI2050, 28–29 August 2017, Kigali, Rwanda. Sustainable Development Goals Center for Africa and SwedBio/Stockholm Resilience Centre at Stockholm University.

5. Nakicenovic N, Alcamo J, Grubler A, Riahi K, Roehrl RA, Rogner H-H, & Victor N (2000). Special Report on Emissions Scenarios (SRES), A Special Report of Working Group III of the Intergovernmental Panel on Climate Change. Cambridge: Cambridge University Press. ISBN 0-521-80493-0

6. <https://www.weforum.org/agenda/2016/05/70-of-africans-make-a-living-through-agriculture-and-technology-could-transform-their-world/>

7. Aguiar, APD; Collste, D; Harmackova, Z; Pereira, L; Selomane, O; Galafassi, D; van der Leeuw, S et al. (in prep) Challenging global pathways towards sustainability: a cross-scale participatory process giving voice to regional perspectives. and Collste, D., Aguiar, A. P., Galafassi, D., Harmáčková, Z., Pereira, L., & Selomane, O. (2019, February 22). A cross-scale participatory approach to discuss pathways to the 2030 Agenda SDGs: the example of the TWI2050 African Dialogues. A Methodology paper on the The Three Horizons Framework for the SDGs (3H4SDG). <https://doi.org/10.31235/osf.io/uhskb>

8. Melissa Leach. TWI2050 Governance Workshop, Bonn, January 2018.

9. Sharpe, Bill, Anthony Hodgson, Graham Leicester, Andrew Lyon, and Ioan Fazey. 2016. Three Horizons: A Pathways Practice for Transformation. *Ecology and Society* 21(2). <http://www.ecologyandsociety.org/vol21/iss2/art47/>, accessed November 27, 2018.

10. Lundquist, C. J., Pereira, H., Alkemade, R., Belder, E. Den, Carvalho Ribeira, S., Davies, K., ... Leigh, D. (2017). Visions for nature and nature's contributions to people for the 21st century. Auckland, New Zealand. Retrieved from <https://www.niwa.co.nz/coasts-and-oceans/research-projects/ipbes-nature-futures-workshop>; Pereira, L. M., Hichert, T., Hamann, M., Preiser, R., & Biggs, R. (2018). Using futures methods to create transformative spaces: visions of a good Anthropocene in southern Africa. *Ecology and Society*, 23(1). <https://doi.org/10.5751/ES-09907-230119>

11. Folhes, Ricardo Theophilo, Ana Paula Dutra de Aguiar, Emilie Stoll, et al. 2015. Multi-Scale Participatory Scenario Methods and Territorial Planning in the Brazilian Amazon. *Futures* 73: 86–99.

12. Schultz, M., T. Hahn, N. Hällström, and C. Ituarte-Lima 2016. The Biggest Single Opportunity We Have Is Dialogue-Dialogue Seminars as a Methodology for Transformative Social Learning and Conflict Resolution in International Environment Negotiations, SwedBio at Stockholm Resilience Centre. This Is a Modification of a Paper with a Similar Name under Review in *International Journal of Biodiversity Science, Ecosystem Services & Management*.

13. Booth Sweeney, Linda, and Dennis Meadows. 2010. *The Systems Thinking Playbook*. Chelsea Green Publishing. <https://chelseagreen.biz/product/the-systems-thinking-playbook/>, accessed November 27, 2018. Meadows, Donella 2008 *Thinking in Systems: A Primer*. Chelsea Green. Reynolds, Martin, and Sue Holwell. 2010. *Systems Approaches to Managing Change: A Practical Guide*. Springer London. [http://link.springer.com.ezp.sub.su.se/chapter/10.1007/978-1-84882-809-4\\_7](http://link.springer.com.ezp.sub.su.se/chapter/10.1007/978-1-84882-809-4_7), accessed October 31, 2016.

14. For more information and other applications of the framework, please see: Sharpe, B., A. Hodgson, G. Leicester, A. Lyon, and I. Fazey. 2016. Three Horizons: a pathways practice for transformation. *Ecology and Society* 21(2):47. <http://dx.doi.org/10.5751/ES-08388-210247> H3 Uni: A university for the third horizon.2018. <http://www.h3uni.org> Kate Raworth is presenting the use of 3Horizons in the following video: [https://www.youtube.com/watch?v=\\_5KfRQJqpPU](https://www.youtube.com/watch?v=_5KfRQJqpPU)

15. United Nations. 2015. Transforming Our World: The 2030 Agenda for Sustainable Development. Resolution Adopted by the General Assembly on 25 September 2015. A/RES/70/1. Available at <http://undocs.org/A/RES/70/1>

16. One of the participants added some comments after the workshop. Because these comments changed the content of the report, we do not include them in the tables. These comments related to Table 3:

  - Affordable locally produced food crops are accessible to all.
  - Easily accessible markets (for agricultural products and for farmers to purchase farm inputs)
  - Economy at service of society (not other way around)
  - Subsistence agriculture will completely transform (increase productivity and crop quality)
  - Reinforcing intra-African markets.

The same participant also noted that subsistence farmers are not a feature of this future. The participant also commented on the zero CO2 emissions: “we need to be realistic: Energy for food production is clean with reasonable CO2 emissions (not zero)”. To the point “A farming system fully organic”, the participant added: An integrated farming system that includes organic and reasonable use of chemical inputs.

17. One of the participants added some comments after the workshop. Because these comments changed the content of the report, we do not include them in the tables. This comment related to Table 4:

  - The participant suggested the following point: Old-fashioned education to be replaced by to Old-fashioned agricultural extension method

18. The original one was “Towards a Food Secure, Peaceful and Prosperous East Africa”

19. This step of the exercise is important as a preparation for discussing the actual pathways (and eventually to inform future quantitative/modeling analysis). In future dialogues, we will explicitly include the development of causal diagrams in the process (see Conclusion section – Recommendations for future dialogues).

20. Following the STEPS centre paradigm of first “opening up” to multiple perspectives, appreciating the existing pathways: [https://stepscentre.org/wp-content/uploads/STEPS\\_Pathways\\_online1.pdf](https://stepscentre.org/wp-content/uploads/STEPS_Pathways_online1.pdf)

21. For further information about this topic, see the DIE report: “Beyond the Agroecological and Sustainable Agricultural Intensification Debate: Is Blended Sustainability the Way Forward?”, Jonathan Mockshell and Josey Kamanda, Discussion Paper / Deutsches Institut für Entwicklungspolitik ISSN 1860-0441, Bonn, 2018.

22. For further information, please contact: [Youngfarmersinitiative@gmail.com](mailto:Youngfarmersinitiative@gmail.com), +250787694467

23. TWI2050 – The World in 2050 (2018). Transformations to Achieve the Sustainable Development Goals. Report prepared by The World in 2050 initiative. IIASA Report. International Institute for Applied Systems Analysis (IIASA). Laxenburg, Austria. Available at: <http://pure.iiasa.ac.at/15347>

24. FAO 2017. The future of food and agriculture. Trends and challenges. Rome: Food and Agriculture Organization of the United Nations.

25. WHO 2015. World report on ageing and health 2015. Geneva: World Health Organization.

26. According to the IPCC's Working Group III (WG3), Integrated models are simplified, stylized numerical approaches to represent enormously complex physical and social systems. Important input assumptions include population growth, baseline economic growth, resources, technological change, and the mitigation policy environment. However, they do not structurally represent many social and political forces that can influence the way the world evolves. The models use economics as the basis for decision making. This may be implemented in a variety of ways, but it fundamentally implies that the models tend toward the goal of minimizing aggregate economic costs of achieving mitigation outcomes. The models also typically assume fully functioning markets and competitive market behavior.



28. Parkinson, S., Krey, V., Huppmann, D., Kahil, T., McCollum, D., Fricko, O., ... Riahi, K. (2019). Balancing clean water-climate change mitigation trade-offs. *Environmental Research Letters*, 14(1), 014009. <https://doi.org/10.1088/1748-9326/aaf2a3>
29. van Vuuren, D. P., Stehfest, E., Gernaat, D. E. H. J., van den Berg, M., Bijl, D. L., de Boer, H. S., ... van Sluisveld, M. A. E. (2018). Alternative pathways to the 1.5 °C target reduce the need for negative emission technologies. *Nature Climate Change*, 8(5), 391–397. <https://doi.org/10.1038/s41558-018-0119->
30. Rogelj, J., Popp, A., Calvin, K. V., Luderer, G., Emmerling, J., Gernaat, D., ... Tavoni, M. (2018). Scenarios towards limiting global mean temperature increase below 1.5 °C. *Nature Climate Change*, 8(4), 325–332. <https://doi.org/10.1038/s41558-018-0091-3>
31. The Shared Socioeconomic Pathways (SSPs) were developed by the global change research community, to be used by the Intergovernmental Panel on Climate Change (IPCC). The SSPs are based on five different development routes for societal trends: i.e., sustainable development (SSP1), global fragmentation (SSP3), strong inequality (SSP4), rapid economic growth based on a fossil-fuel intensive energy system (SSP5) and middle of the road developments (SSP2). Each of the SSPs has been elaborated in a storyline and quantified using models. These storylines can be combined with different assumptions about climate policy to form a larger context of socioeconomic development and level of climate change (see for instance, Riahi et al., 2017 and Rogelj et al., 2018). The sustainable development scenario (SSP1) combined with stringent climate policy is a scenario exploring the route towards a more sustainable world—although the SDGs were not targeted in its development (Zimm et al, 2018).  
Sources:  
Riahi, K., van Vuuren, D. P., Kriegler, E., Edmonds, J., O'Neill, B. C., Fujimori, S., ... Tavoni, M. (2017). The Shared Socioeconomic Pathways and their energy, land use, and greenhouse gas emissions implications: An overview. *Global Environmental Change*, 42, 153–168. <https://doi.org/10.1016/j.gloenvcha.2016.05.009>  
Rogelj, J., Popp, A., Calvin, K. V., Luderer, G., Emmerling, J., Gernaat, D., ... Tavoni, M. (2018). Scenarios towards limiting global mean temperature increase below 1.5 °C. *Nature Climate Change*, 8(4), 325–332. <https://doi.org/10.1038/s41558-018-0091-3>  
Zimm, C., Sperling, F., & Busch, S. (2018). Identifying Sustainability and Knowledge Gaps in Socio-Economic Pathways Vis-à-Vis the Sustainable Development Goals. *Economies*, 6(2), 20. <https://doi.org/10.3390/economies6020020>
32. In fact, in one of the plenaries there was a comment that African concerns are more focused on adaptation than on mitigating (other countries') emissions (and leading to questions about which compensation mechanisms would be in place and how this would affect small farmers)
33. Collste, D., Pedercini, M., & Cornell, S. E. (2017). Policy coherence to achieve the SDGs: using integrated simulation models to assess effective policies. *Sustainability Science*, 12(6), 921–931. <https://doi.org/10.1007/s11625-017-0457-x>
34. A significant point in the design of the Second Dialogue was that funding was not provided for the invited stakeholders to travel to Kigali, so most of the accepted invitations came from Eastern Africa (although many were born or experts in the other regions). Maybe as a result of this, the division of groups according to a geographic criteria proved useful for fostering the emergence of diversity between the pathways, but it did not lead to regional specificities in general. The gender ratio of the event was not balanced – 7 women: 24 men (23%).
35. In fact, during the last phase of preparation of this report, we learned one of the participants actually applied the method to discuss pathways to the SDGs in an Italian city. See: <https://twitter.com/JacopoBencini/status/1096833769301032960> and <https://twitter.com/GiovaGraziani/status/1096728194739290112>
36. Schultz, M., T. Hahn, N. Hällström, and C. Ituarte-Lima. 2016. The Biggest Single Opportunity We Have Is Dialogue-Dialogue Seminars as a Methodology for Transformative Social Learning and Conflict Resolution in International Environment Negotiations, SwedBio at Stockholm Resilience Centre. This Is a Modification of a Paper with a Similar Name under Review in *International Journal of Biodiversity Science, Ecosystem Services & Management*.
37. Such divergences and branching points could for instance be a rural versus a total urban future; industrial versus agroecology; large scale versus small farms, land sharing versus land sparing; farmers subsidies like in the US and EU or not.
38. At the beginning of the third step of the Second African Dialogue, the break-out groups compared the content of their diagrams with the global scenarios that had been presented. They were asked to consider what was common and what was different between the global model scenarios and the pathways discussed by the participants. The facilitators noted the divergences on a flip chart. Also, the groups went back to consider the root causes that had been noted down during Step 2.