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Item 4 of the provisional agenda*

**Report of the Executive Secretary on the implementation
of the work programme 2014–2018****Update on the progress of the thematic assessment of pollination
and pollinators associated with food production
(deliverable 3 (a))****Note by the secretariat**

In its decision IPBES-2/5, the Plenary of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services approved the undertaking of an assessment of pollination and pollinators associated with food production, as outlined in the initial scoping document for the assessment set out in annex V to the decision, for consideration by the Plenary at its fourth session. The initial scoping for the thematic assessment was based on the prioritization of requests, suggestions and inputs submitted to the Platform (IPBES/2/3). The development of the pollination assessment is in accordance with the draft procedures for the preparation of the Platform's deliverables set out in the annex to decision IPBES-2/3. The annex to the present note provides information on the composition and work of the expert group carrying out the pollination assessment. It is presented without formal editing.

* IPBES/3/1.

Annex

Expert group for the pollination assessment

I. Composition of the expert group

A. Dedicated Multidisciplinary Expert Panel (MEP) and Bureau members

1. In accordance with the rules of procedure for preparing Platform reports, the following MEP and Bureau members are overseeing the report, ensuring that it is prepared in accordance with agreed procedures:

Alfred Oteng-Yeboah (Bureau member)

Ivar Baste (Bureau member)

András Báldi (MEP member)

Ann Bartuska (MEP member)

B. Selection of experts

2. The report co-chairs, coordinating lead authors, lead authors and review editors were selected according to the criteria set out in the procedures for the preparation of the Platform's deliverables in the annex to decision IPBES-2/3. A group of 62 experts comprising of two co-chairs, 18 Coordinating Lead Authors (CLAs) and 42 Lead Authors (LAs) was selected from a list of 121 nominations received from governments and other stakeholders. The selection process was performed by members of the Multidisciplinary Expert Panel, with advice from Bureau members, together reviewing all nominations that had been submitted, based on examination of nomination templates and curriculum vitae for each nominee. Selections were made on the basis of excellence and relevance of candidates' expertise with respect to relevant areas of the work programme. Once selected on merit, further selection was focused on balancing disciplinary, regional and gender diversity, as well as sectorial aspects (i.e. 80 per cent of selected experts coming from governments and 20 per cent from non-governmental stakeholders). A list of 13 Review Editors (REs) is currently being finalized.

3. The overall geographic balance of the final group of experts is as follows: 14 per cent of experts from Africa, 16 per cent from Asia Pacific, 3 per cent from Eastern Europe, 27 per cent from Latin America and the Caribbean and 39 per cent from Western European and Others Groups, with 77 per cent nominations made by governments and 23 per cent by other stakeholders, and an overall male to female ratio of 68 to 32. The composition of the expert group is presented in Annex II.

C. The technical support unit (TSU)

4. In March (2014), the Bureau and Secretariat initiated the process of operationalizing the technical support unit (TSU) for this deliverable. In the absence of in-kind support offers, the Secretariat was tasked by the Bureau with hiring a consultant to provide technical support for this assessment. The recruitment process of the consultancy position was in accordance to UN rules and regulations. Ms. Hien Ngo was selected as the consultant and started to work at the end of June 2014.

5. The role of the TSU is to provide scientific, technical and organizational support toward the delivery of the assessment report. In addition, the TSU liaises with the task forces and other deliverables (i.e. deliverable (2a) on Guide on production and integration of assessments from and across all scales, and deliverable (4a) on Catalogue of relevant assessments) in order to ensure that cross-cutting issues are properly addressed.

II. Progress towards preparation of the assessment report

A. First authors meeting

6. The first authors meeting for the pollination assessment was held from 30 June to 4 July 2014 in Siegburg, Germany. Participants included the co-chairs, CLAs, LAs, IPBES secretariat including the technical support unit, and dedicated MEP and Bureau members (Ann Bartuska, András Báldi, and Alfred Oteng Yeboah). Six experts (one CLA and five LAs) were unable to attend the meeting. In addition, the Multidisciplinary Expert Panel invited Dr Barbara Gemmill-Herren (Food and Agriculture Organization of the United Nations (FAO)) to the first authors meeting as a resource person.

7. The first authors meeting discussed the following items:
 - 1) Organization, overall objectives and functions of IPBES
 - 2) IPBES clients and end-users
 - 3) The IPBES Conceptual Framework, key messages, and work programme and procedures
 - 4) The team: co-chairs, CLAs, LAs, and REs
 - 5) The assessment timeline
 - 6) Confidentiality, resources, and treatment of uncertainty

The products resulting from the first authors meeting were detailed chapter outlines (Annex I) for each of the six chapters, based on the initial scoping report outlined in annex V to decision IPBES-2/5, development of initial content, detailed timeline, and an agreed process for file sharing within each chapter.

B. Preparation of the Zero Order Draft for the pollination assessment report

8. Following the first authors meeting, experts were given seven weeks to complete an initial draft of chapter content (22 August) based on the outline and initial content agreed at the first authors meeting. This was circulated among all assessment report experts in order to identify overlap in material among chapters. Four weeks later (19 September), the first zero-order drafts were submitted for internal review (i.e. circulated only among the authors). The first internal review and revision phase ended October 31st. The second internal review and revision phase is scheduled for 11 November to 12 December, 2014. This zero-order draft is being developed by all CLAs, LAs and Contributing Authors (CAs) in preparation for the first-order draft review (by experts), which will begin on 12 January, 2015 and end on 23 February 2015.

9. In parallel to the pollination assessment process, and in order to build a component on indigenous and local knowledge (ILK) for this assessment, a “Global Dialogue Workshop on Indigenous and Local Knowledge on Pollination and Pollinators associated with Food Production” is being organized by the IPBES task force on indigenous and local knowledge systems with technical support from its technical support unit hosted by UNESCO in Panama City, 1-5 December 2014. The meeting, generously supported by the United States Department of Agriculture (USDA) and the United States Geological Survey (USGS), is hosted by the Smithsonian Tropical Research Institute. The primary focus of the meeting is to build dialogue and share knowledge between selected ILK holders/experts and experts of the pollination assessment. This shared dialogue and knowledge is expected to reinforce the contribution of ILK to the pollination assessment report while piloting approaches and procedures to strengthen ILK in forthcoming IPBES assessments. Participation includes one of the pollination assessment report co-chairs, five of the pollination assessment report authors, and the pollination technical support unit. The workshop also includes 10-12 ILK experts and ILK holders, up to 8 of whom are indigenous, four ILK task force members, and the ILK technical support unit. One representative from the FAO and two members from the Indigenous Pollinator Network will also be in attendance, supported by the FAO.

In order for the outcome of this dialogue workshop to feed into the pollination assessment, a small group of participants (approximately 6) will be invited to attend the second authors meeting.

C. Second Authors Meeting

10. The second authors meeting for the pollination assessment will be supported by and held at the Technological Institute Vale in Belém, Brazil from 9-13 March 2015, with co-chairs, CLAs and Review Editors. The main objective of this second authors meeting is to respond to the review comments made in the context of the first-order draft by expert reviewers. During this second authors meeting, authors will also begin work on the Summary for Policymakers (SPM). Several indigenous and local knowledge holders (approximately 6 people) having attended the Global Dialogue workshop will participate in this second authors meeting, and share the experience gained at that workshop. They will be invited to support the assessment authors in addressing comments on ILK received in the context of the first-order draft review of the pollination assessment report.

D. Timeline

11. An updated annotated timeline is provided in Annex III.

III. Progress in work plan and next steps

12. The first review (by experts) of the first-order draft will be circulated on 12 January 2015 for a period of 6 weeks until 23 February 2015. Governments will be notified of the commencement of the first review process (December 2014). All comments generated by expert reviewers will be collated and provided to the appropriate authors.

A full list of expert reviewers will be made available on the Platform's website.

Annex I Overall scope, chapter summaries and outlines for the pollination assessment report

Overall scope

The scope of this assessment will cover changes in animal pollination as a regulating ecosystem service that underpins food production and its contribution to gene flows and restoration of ecosystems. It will address the role of native and exotic pollinators, the status of and trends in pollinators and pollination networks and services, drivers of change, impacts on human well-being, food production of pollination declines and deficits and the effectiveness of responses to pollination declines and deficits. The assessment is required for enhancing policy responses to declines and deficits in pollination. The assessment represents an early deliverable by the Platform that will identify policy-relevant findings for decision-making in government, the private sector and civil society. It will also help demonstrate how an essential ecosystem service contributes to the post-2015 development agenda. The deliverable responds to requests received. It is anticipated that the deliverable will contribute to Aichi Biodiversity Target 14 on safeguarding and restoring ecosystems that provide essential services.

Chapter Outlines

The following section includes a list of the chapters of the assessment, with, for each chapter, the description of its content, as approved by the Plenary in annex V to decision IPBES-2/5, and the list of sub-sections being drafted by experts.

Chapter 1 will include a brief review of the diversity of pollinators and pollination systems and their role in supporting food production specifically and human well-being and biodiversity maintenance more generally. It will assess the status of and trends in the biological elements and functions that interact to provide pollination services. The assessment will include the role of native and exotic pollinators, including insects and other invertebrates, bats and other mammals, birds, reptiles and other vertebrates. It will moreover take into account the role of multiple factors across spatial scales, such as plant community functional composition, pollinator diversity and specificity, climatic seasonality and fluctuations, landscape structure linked to processes of dispersal, and mobility. The assessment will include indigenous and local knowledge perspectives on pollinators and pollination systems and their benefits to those knowledge holders, as well as trade-offs between pollination processes and services and possible connections with disservices.

- Executive Summary
- 1.1 General introduction to this assessment
- 1.2 Pollination and plant mating systems
- 1.3 The diversity of pollinators and their role in food production
- 1.4 The diversity of cropping systems
- 1.5 Pollinators, traditional knowledge and human well-being
- 1.6 Pollinators and the maintenance of biodiversity
- 1.7 Local, landscape and global drivers upon pollinators
- 1.8 The economics of pollination, risks and uncertainty
- 1.9 Confronting the pollination crisis: legalities and governance
- Supplementary Appendix A

Chapter 2 will assess the drivers of change of pollinators, pollination networks and pollination services, especially those of importance for food production, including local crops, wild food plants and honey. It will include an assessment of indirect drivers of change, including trade and policies in areas such as agriculture and spatial planning. It will also assess direct drivers of change in pollination, including the risk posed by climate change, invasive species and diseases, land-use changes, changing agricultural practices and the use of chemicals, including fungicides and insecticides. The consequences of the cultivation of genetically modified plants for pollinators, pollination networks and pollination services and food production, including honey, will be assessed.¹

- Executive Summary
- 2.1 Changes in land use
- 2.2 Agricultural management effects on pollinators and pollination
- 2.3 Pesticides, veterinary medicines and other chemicals

¹ sub-headings are being reviewed as part of the 2nd internal review process and are likely to be updated before the First Order Draft is ready

- 2.4 Consequences of GMO cultivation on pollinators
- 2.5 Bee management
- 2.6 Diseases as a driver of change
- 2.7 Invasive Species
- 2.8 Pollination and Climate Change
- 2.9 Multiple, interacting threats to pollinators and pollination
 - Case study 1: Climate change and land-use
 - Case study 2: Pathogens and chemicals in the environment
 - Case study 3: Diseases and managed pollinators
 - References

Chapter 3 will assess the state of and trends in pollinators, pollination networks and pollination services as keystone ecological process and service in both human managed and natural terrestrial ecosystems. It will focus on the contribution of pollination by various pollinator populations to human well-being, based on the role of pollination in maintaining agricultural and natural biological diversity and in safeguarding communities that depend for their livelihood security on the use of natural resources, including for medicinal use. Consideration will be given to existing indigenous and local knowledge about pollinators, pollination networks and pollination services and how they contribute to the way of life of indigenous and local communities, and more generally to living in harmony with Mother Earth. Emphasis will be placed on the essential role of pollination in contributing to food security, including with regard to the quality, stability and availability of food as well as its role in income generation from the local to the global scale. The chapter will assess how the pollination deficit can be defined and what areas and agricultural systems are prone to pollination deficits and declines. It will also include information about the perception of indigenous and local communities about this deficit.

- Executive Summary
- 3.1 Introduction
- 3.2 Trends in wild pollinators
- 3.3 Trends in managed pollinators
- 3.4 Trends in introduced pollinators, pathogens, and plants
- 3.5 The structure of pollination networks
- 3.6 Wild plant pollination and reproductive success
- 3.7 Agricultural pollinator dependence
- 3.8 Trends in crop pollination and yield
- 3.9 Indigenous knowledge
- 3.10 Knowledge gaps and recommendations
- References

Chapter 4 will assess economic methodologies for determining the value of pollination for food production and the economic impacts of declines in food-relevant pollinator populations. It will assess the extent to which the current estimates of the economic value of pollination for food production reflect the contributions of pollination to food security and development as identified in chapter 3. It will also assess methodologies and approaches for undertaking such valuations at the national and local levels.

- Executive Summary
- 4.1 Introduction
- 4.2 Nature and significance of the economic evaluation of pollination
- 4.3 Methods for assessing the economic value of pollination services
- 4.4 Valuation across temporal and spatial scale
- 4.5 Valuing pollination service risk and resilience
- 4.6 Knowledge gap
- 4.7 How can economic valuation of pollination services be used in decision making?
- 4.8 Case study on pollination value
- 4.9 Conclusions and recommendation
- References

Chapter 5 will assess non-economic valuation, with special emphasis on the experience of indigenous and local communities, of impacts of the decline of diversity and/or populations of pollinators. Management and mitigation options as appropriate to different visions, approaches and knowledge systems will also be assessed.

	Executive summary
5.1	Introduction
5.2	Values and Valuation
5.3	Indigenous and Local Knowledge
5.4	Non-economic valuation methods
5.5	Non-economic valuation of pollinators and pollination services: Regional Overview
5.6	Quality of Information
5.7	Opportunities to restore and strengthen pollination services
5.8	Limits of non-economic valuation techniques/data
5.9	Conclusions and recommendations
	References
	Annex A: Table of wellbeing
	Annex B: Overview of methods: systematic and non-systematic searches

Chapter 6 will assess responses to risks associated with the degradation of pollination services and opportunities to restore and strengthen those services. Experience in the use of tools and methodologies for mapping, modelling and analysing options for action will be assessed based on existing work by actors such as FAO, including by assessing how ecological uncertainties can be managed and research and monitoring needs met. The existing experiences recorded by other knowledge systems will be incorporated into this chapter, contributing to the identification of management and policy options. The chapter will furthermore assess how an understanding of pollination declines and deficits can help advance practices and policies, particularly for land-use management, horticulture and agriculture, including through innovative approaches such as ecologically intensified agriculture as well as those used by indigenous and local communities. The assessment of response options will include considerations of policy trade-offs.

	Executive Summary
6.1	Introduction
6.2	Summary of risks and opportunities associated with pollinators and pollination services
6.3	Typology of responses
6.4	Responses
	6.4a Agricultural, agro-forestry and horticultural practices
	6.4b Pesticides and pollutants
	6.4c Nature Conservation
	6.4d Pollinator management and beekeeping
	6.4e Urban and Transport Infrastructure
	6.4f Integrating responses across sectors
6.5	Experience of tools and methodologies for assessing responses
6.6	Dealing with scientific uncertainty
6.7	Trade-offs and synergies in decisions about pollination
6.8	Gaps and Future Research
6.9	Methods and approaches
	References

Annex II List of experts for the assessment of Pollinators, Pollination and Food Production

Assessment co-chairs

Imperatriz Fonseca, Vera University of Sao Paulo, Brazil
Potts, Simon Reading University, United Kingdom

Chapter 1

Eardley, Connal - Coordinating Lead Author Agricultural Research Council/University of KwaZulu–Natal, South Africa
Freitas, Breno - Coordinating Lead Author Universidade Federal do Ceará, Brazil
Kevan, Peter - Coordinating Lead Author University of Guelph, Canada
Rader, Romina – Coordinating Lead Author University of New England, Australia
Gikungu, Mary – Lead Author National Museums of Kenya, Nairobi, Kenya
Klein, Alexandra – Lead Author University of Freiburg, Germany
Maus, Christian – Lead Author Bayer CropScience, Germany
Meléndez de Garcia, Virginia – Lead Author Universidad Autónoma de Yucatán , Mexico
Palni, Lok Man Singh – Lead Author Graphic Era University, India
Vergara, Carlos – Lead Author Universidad de las Américas, Mexico
Wiantoro, Sigit – Lead Author Museum Zoologicum Bogoriense/Indonesian Institute of Sciences (LIPI), Indonesia

Chapter 2

Kovács-Hostyánszki, Anikó - Coordinating Lead Author MTA Centre for Ecological Research, Hungary
Li, Jilian - Coordinating Lead Author Chinese Academy of Agricultural Sciences, China
Pettis, Jeffrey - Coordinating Lead Author United States Department of Agriculture – Agricultural Research Service, United States of America
Settele, Josef - Coordinating Lead Author The Helmholtz Centre for Environmental Research (UFZ), Germany
Aneni, Thomas – Lead Author Sustainable Environment Development Initiative, Nigeria
Espindola, Anahi – Lead Author University of Idaho, United States of America
Kahono, Sih – Lead Author Indonesian Institute of Sciences (LIPI), Indonesia
Szentgyörgyi, Hajnalka – Lead Author Jagiellonian University, Poland
Thompson, Helen – Lead Author Syngenta, United Kingdom
Vanbergen , Adam – Lead Author Natural Environment Research Council - Centre for Ecology & Hydrology, United Kingdom
Vandame, Remy – Lead Author El Colegio de la Frontera Sur, Mexico

Chapter 3

Aizen , Marcelo - Coordinating Lead Author Universidad Nacional del Comahue and INIBIOMA, Argentina
Biesmeijer , Koos - Coordinating Lead Author Naturalis Biodiversity Center, The Netherlands
Martins, Dino - Coordinating Lead Author Insect Committee of Nature Kenya/National Museums of Kenya, Kenya
Goka, Koichi – Lead Author National Institute for Environmental Studies, Japan
Inouye, David – Lead Author University of Maryland, United States of America
Jung, Chuleui – Lead Author Andong National University, Republic of Korea
Medel, Rodrigo – Lead Author University of Chile, Chile
Pauw, Anton – Lead Author Stellenbosch University, South Africa
Paxton, Robert – Lead Author Martin-Luther-University Halle-Wittenberg, Germany
Seymour, Colleen – Lead Author South African National Biodiversity Institute, South Africa

Chapter 4

Gallai, Nicola - Coordinating Lead Author Ecole Nationale de Formation Agronomique (ENFA), France
Garibaldi, Lucas - Coordinating Lead Author Universidad Nacional de Río Negro, Argentina
Li, Xiushan - Coordinating Lead Author Chinese Research Academy of Environmental Science, China
Breeze, Tom – Lead Author Reading University, United Kingdom
Espirito Santo, Mario – Lead Author Universidade Estadual de Montes, Brazil
Kelbessa Worati, Ensermu – Lead Author Addis Ababa University, Ethiopia
Rodríguez Fernández, Jaime – Lead Author Ecossistema Consultoria Ambiental- Bioespeleology, Brazil
Salles, Jean-Michel – Lead Author Centre national de la recherche scientifique, France
Sandhu, Harpinder – Lead Author Flinders University, Australia
Veldtman, Ruan – Lead Author South African National Biodiversity Institute, South Africa

Chapter 5

Kwapong, Peter - Coordinating Lead Author International Stingless Bee Centre (ISBC), Ghana
Nates, Guiomar - Coordinating Lead Author Universidad Nacional de Colombia, Colombia
Buchori, Damayanti – Lead Author Bogor Agricultural University (IPB), Indonesia
Howlett, Brad – Lead Author Plant & Food Research, New Zealand
Lebuhn, Gretchen – Lead Author San Francisco State University, United States of America
Maués, Márcia – Lead Author Embrapa Amazônia Oriental, Brazil
Quezada-Euán, José Javier – Lead Author Universidad Autónoma de Yucatán, Mexico
Sara Breslow – Lead Author National Oceanic and Atmospheric Administration, United States of America
Saeed, Shafqat – Lead Author Bahauddin Zakariya University, Pakistan

Chapter 6

Dicks, Lynn - Coordinating Lead Author University of Cambridge, United Kingdom
Viana, Blandina - Coordinating Lead Author Universidade Federal da Bahia, Brazil
Arizmendi, Maria del Coro – Lead Author Universidad Nacional Autónoma de México, Mexico
Bommarco, Riccardo – Lead Author Swedish University of Agricultural Sciences, Sweden
Brosi, Berry – Lead Author Emory University, United States of America
Cunningham, Saul – Lead Author CSIRO Ecosystem Sciences, Australia
Galetto, Leonardo – Lead Author Universidad de Cordoba, Argentina
Lopes, Ariadna – Lead Author Universidade Federal de Pernambuco, Brazil
Taki, Hisatomo – Lead Author Forestry and Forest Products Research Institute, Japan

Annex III Annotated timeline for the thematic assessment of pollination and pollinators associated with food production

Abbreviations: CCs (Co-chairs), CLAs (Coordinating Lead Authors), LAs (Lead Authors); REs (Review Editors), ERs (Expert Reviewers)

2014		Expert involvement
7 Jan – 28 Feb	Nomination of experts and initial preparations	
1-14 Mar	Selection of authors	CCs
30 Jun – 4 Jul	First author meeting, Siegburg (Bonn), Germany	CCs, CLAs, LAs
7 Jul – 31 Dec	Development of an initial draft report and two rounds of internal review	CCs, CLAs, LAs
2015		
12 Jan	IPBES – 3	
12 Jan – 23 Feb	First review phase (review by experts)	ERs
9-13 Mar	Second author meeting, Belém, Brazil	REs, CCs, CLAs
27 Apr – 10 May	Revision of the initial draft report, and preparation of second draft and Summary for Policymakers	REs, CCs, CLAs, LAs,
11 May	Second review phase	ERs + governments
27-31 Jul	Third authors meeting (location to be decided)	REs, CCs, CLAs, LAs,
1 Aug – 20 Oct	Preparation of final draft report and Summary for Policymakers	REs, CCs, CLAs, LAs
20 Oct – 17 Jan	Final review phase	
2016		
18-22 Jan	IPBES – 4 (tentative date)	