

## MATRIX OF SURVEY RESULTS, CONDENSED

Summary of issues identified by respondents, categorised by the nature of the knowledge gap or constraint.

<b>Existence of knowledge</b> Scientific gaps	<b>Access to knowledge</b> Is the knowledge in the right place? Is the knowledge relevant?	<b>Knowledge demand</b> Is the knowledge sought by the end users? Empowerment aspects	<b>Policy support</b> Is there support from government /management for the use of the knowledge? Enabling environment	<b>Resources/ Funding</b> Access to means/ resources to use and/or disseminate the knowledge
<ul style="list-style-type: none"> <li>• Need for more basic data regarding agricultural biodiversity</li> <li>• Documentation of indigenous and local knowledge needed</li> <li>• Climate change adaptation strategies need to be developed</li> </ul>	<ul style="list-style-type: none"> <li>• Local adaptation</li> <li>• Gap in communication between farmers and agriculture professionals</li> <li>• Building farmers and consumers knowledge on agricultural biodiversity</li> </ul>	<ul style="list-style-type: none"> <li>• Empowerment of farmers</li> <li>• Empowerment of women</li> <li>• Support development and capacity of networks</li> <li>• Create enabling environment and provide options</li> </ul>	<ul style="list-style-type: none"> <li>• Dominant large-scale, industrial agriculture paradigm</li> <li>• Need for intersectoral approach/ systems perspective</li> <li>• Tenure, land rights</li> <li>• Lack of coherence, cooperation</li> </ul>	<ul style="list-style-type: none"> <li>• Lack of funding directed at climate change adaptation</li> <li>• Lack of resources such as seeds, and related knowledge, seed systems</li> <li>• Governments lack human resources</li> </ul>

## REFERENCES

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## GLOSSARY

**ADAPTABILITY** is the capacity of the actors in the system to manage resilience in order to stay within a desired state during periods of change.

**ADAPTIVE CO-MANAGEMENT** refers to the multilevel and cross-organisational management of ecosystems. Such multilevel governance systems of institutional interplay often emerge to deal with crises. They combine the dynamic learning characteristic of adaptive management with the linkage characteristic of collaborative management.

**ADAPTIVE GOVERNANCE** is understood as a concept that focuses on institutional and political frameworks designed to adapt to changing relationships between society and eco- systems in ways that sustain services provided by the ecosystem, e.g. fresh water or fertile soil. It implies collaboration among different agencies across multiple scales, enabling systems that share power and (management) responsibilities.

**AGRICULTURAL BIODIVERSITY** encompasses the variety and variability of animals, plants and microorganisms which are necessary to sustain key functions of the agro-ecosystem, its structure and processes for, and in support of, food production and food security.<sup>1</sup>

**BIOLOGICAL DIVERSITY (BIODIVERSITY)** is the variability among living organisms from all sources including, inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.<sup>2</sup>

An **ECOSYSTEM** is a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit".<sup>3</sup>

**ECOSYSTEM SERVICES** are the benefits that people receive from ecosystems. Some of these, such as *provisioning services* (or goods) like food, timber, and fresh water, are well known and routinely included in assessments. Others, such as the *regulating services* of carbon storage and sequestration, watershed protection, storm protection and pollination; or *supporting services*, i.e. natural processes such as nutrient cycling and primary production; or the *cultural services* of recreation and spiritual values, can be less known and more difficult to put a price on.<sup>4</sup> It should be noted that the short-term possibility for delivering an ecosystem service does not always imply a rich biodiversity. For example, a monoculture tree plantation can successfully deliver the ecosystem service of carbon sequestration, in a short time perspective and usually with the help of inputs as pesticides and fertilizers.

**GOVERNANCE** is a process involving the interactions of diverse public and private actors, their sometimes conflicting objectives and the instruments chosen to steer social and environmental processes within a particular policy area.

**PLANETARY BOUNDARIES** are global biophysical boundaries, identified on the basis of the scientific understanding of the Earth System, which can define a 'safe planetary operating space' that will allow humanity to continue to develop and thrive for generations to come. Scientists first identified the Earth System processes and potential biophysical thresholds, which, if crossed, could generate unacceptable environmental change for humanity. They then proposed the boundaries that should be respected in order to reduce the risk of crossing these thresholds. Nine boundaries were identified: climate change, stratospheric ozone, land use change, freshwater use, biological diversity, ocean acidification, nitrogen and phosphorus inputs to the biosphere and oceans, aerosol loading and chemical pollution. The study that coined the expression suggests that three of these boundaries (climate change, biological diversity and nitrogen input to the biosphere) may already have been transgressed. In addition, it emphasizes that the boundaries are strongly connected — crossing one boundary may seriously threaten the ability to stay within safe levels of the others.

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<sup>1</sup> FAO 1999. Sustaining Agricultural Biodiversity and Agro-Ecosystem Functions. Opportunities, incentives and approaches for the conservation and sustainable use of agricultural biodiversity in agro-ecosystems and production systems. Workshop Report.

<sup>2</sup> Article 2 of the Convention on Biological Diversity

<sup>3</sup> Ibid

<sup>4</sup> Millennium Ecosystem Assessment, 2005. Ecosystems and Human Well-being: Synthesis. Island Press, Washington, DC; TEEB – The Economics of Ecosystems and Biodiversity for National and International Policy Makers (2009).

REGIME refers to a set of state in which a system exists while having the same basic structure and function. Most social ecological systems can have more than one regime in which they can exist.

REGIME SHIFT happens when a social-ecological system crosses a threshold to another regime, with a different structure and function. A resilient system has a greater capacity to avoid unwelcome surprises such as regime shifts.

RESILIENCE can be defined as the capacity of a social-ecological system to withstand perturbations from e.g. climate or economic shocks and to rebuild and renew itself afterwards, without shifting into a qualitatively different state. Resilience has increasingly been acknowledged as an important factor in determining ecosystems' capacity to continue generating ecosystem services in a world increasingly influenced by global environmental change. There is a strong correlation between biodiversity and an ecosystem's resilience, and its ability to deliver ecosystem services.<sup>5</sup>

- *Ecosystem resilience* is a measure of how much disturbance (like storms, fire or pollutants) an ecosystem can handle without shifting into a qualitatively different state. It is the capacity of a system to both withstand shocks and surprises and to rebuild itself if damaged.
- *Social resilience* is the ability of human communities to withstand and recover from stresses, such as environmental change or social, economic or political upheaval. Resilience in societies and their life-supporting ecosystems is crucial in maintaining options for future human development.

SOCIAL-ECOLOGICAL SYSTEMS are linked systems of people and nature. The term emphasises that humans are a part of, not apart from, nature — and that the delineation between social and ecological systems is artificial and arbitrary.

SOCIAL LEARNING is learning that occurs when people engage with one another, sharing diverse perspectives and experiences to develop a common framework of understanding and basis for joint action.

TRANSFORMABILITY refers to the interaction of the social and natural realm and is the capacity of people in a social-ecological system to transform that social-ecological system into a different kind of system.

VULNERABILITY refers to the propensity of social and ecological systems to suffer harm from exposure to external stresses and shocks.

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<sup>5</sup> Adapted from Resilience and Sustainable Development: Building adaptive capacity in a world of transformations (Skriptserie 2002:1)

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## Mapping survey

### Background information

#### Hivos-Oxfam Novib Knowledge Programme

Oxfam Novib and Hivos have started a learning trajectory in the view of a Knowledge Programme on sustainable agriculture, biodiversity management, and climate change adaptation and mitigation. The aim of this trajectory is to identify knowledge gaps on biodiversity conserving agricultural production, knowledge and marketing systems that can reduce risks and can improve the livelihoods of rural people living in poverty. The methodology we use contains an inventory (mapping) of current literature and experiences of main players (incl. partners of Oxfam Novib and Hivos).

The outcomes of the mapping will be important input for a meeting with key actors, both academics and practitioners. Based on the mapping and the discussion thereof with the participants, the contours of the knowledge programme will be shaped. The inventory for the mapping will be executed by the Stockholm Resilience Centre, a part of the Stockholm University in Sweden.

#### Rationale

Hivos and Oxfam Novib are committed to ensuring that sustainable (agro)biodiversity management goes hand-in-hand with fair and equitable development. After eight years jointly working on and developing the link through the Biodiversity Fund, Hivos and Oxfam Novib are particularly interested in the effects of biodiversity smart production processes on the livelihoods of marginalized people in the South. *The main question is:* what is the strategic value of biodiversity for (the livelihoods of) smallholder farmers (seeds, farming system, surrounding)? A key sub question is: What are (known to be) the obstacles for key players to recognise this strategic value (private sector, governments and research institutes)? Through this mapping we aim to get an overview of the current body of knowledge (theory and practice) and to find out where the niches and opportunities for a 3-year knowledge programme on this theme are.

#### About Hivos and Oxfam Novib

Together with local organisations in developing countries, Dutch development NGO Hivos strives for a world in which all citizens – both men and women – have equal access to resources and opportunities for development. Dutch development NGO Oxfam Novib supports people in developing countries working on their own future. Hivos and Oxfam Novib work together in the field of knowledge for development. By building on their individual experiences such as the Hivos Knowledge Programme and Oxfam Novib's KIC portal, they will jointly initiate and coordinate the knowledge programme *Sustainable Agriculture, biodiversity conservation and climate change adaptation and mitigation*.

#### The Resilience and Development Programme and the Stockholm Resilience Centre

The Resilience and Development Programme (SwedBio) at the Stockholm Resilience Centre (SRC) focus on linking and communication between different actors, in order to bring forward important local and global processes related to biodiversity, development, and resilient

societies. The SRC, is an international centre that advances transdisciplinary research for governance of social-ecological systems with a special emphasis on resilience. It is a joint initiative between the Stockholm University, the Stockholm Environment Institute and the Beijer International Institute of Ecological Economics at The Royal Swedish Academy of Sciences.

### **Framework for this mapping study**

As a starting point for the discussion and building of the framework for this mapping study to explore knowledge gaps related to agricultural biodiversity in a broad sense, we have focused on transformations, and on resilience theory. The aim is to explore knowledge gaps in a wide sense, applicable to the social-ecological systems that shape and reshape landscapes, seascapes, plant and animal populations, and genetic resources. In addition to the generation of new knowledge *per se*, key challenges include successful transfer, adaptation, exchange, and internalization of knowledge.

System transformations take place across the world, some positive for sustainable development and poverty alleviation, and some quite the contrary. One of our biggest challenges lies in catalysing change to achieve positive transformation. To build on this, one of the key issues we would like to explore together with you is how transformations take place, and how it may be possible to initiate change for positive transformation. There is currently no clear framework for this question of “how”, a question that has a direct significance for practice and policy implementation. One of the ways to explore this can be to identify and compare success stories with less successful interventions, where difficulties hindered implementation. Comparing cases of various level of success may identify obstacles at different scales - the barriers to change - a prerequisite for overcoming them.

The purpose of this survey and subsequent interviews is to share perspectives and experiences to develop a common framework of understanding and basis for joint action.

### **Contact details**

We would be very grateful if you can fill out and submit this questionnaire before **20 July 2011**, to the addresses below:

britta.skagerfalt@stockholmresilience.su.se  
sara.elfstrand@stockholmresilience.su.se  
pernilla.malmer@stockholmresilience.su.se

If you have any questions, please do not hesitate to contact us. We hope that you choose to share your experiences to provide a better platform for the development of the Hivos/Oxfam Novib Knowledge Programme on sustainable agriculture, biodiversity management, and climate change adaptation and mitigation.

Many thanks in advance for your participation and input.

Britta Skagerfält, Sara Elfstrand and Pernilla Malmer  
Stockholm Resilience Centre

## Questionnaire

### A. Contact information

<b>Name:</b>	
<b>Position:</b>	
<b>Organisation:</b>	
<b>Country:</b>	
<b>Web site (if any):</b>	
<b>E-mail address:</b>	
<b>Telephone number:</b>	

Stakeholder category	Non-governmental organisation	Community-based organisation	Inter-governmental organisation	Research	Other, please specify:

Level of operations	Local	National	Regional	Global	Other, please specify:

In which capacity do you share your views and experiences here?	Personal capacity:	As representative of my institution:	Other, please specify:

We will present your input as part of a report. Will you also allow us to cite you by name in the report?	Yes	No

We will conduct subsequent interviews with a number of stakeholders. Are you willing to participate in a follow up interview through Skype or over the telephone?	Yes	No
<b>If yes, please indicate your Skype identity (if any).</b>		

## B. Questions

**1. What are your strengths as an organisation, in an agricultural biodiversity context? (Give a very brief overview of your main focus in this area, 4-5 sentences).**

**2. Key issues of debate related to agricultural biodiversity. Please share some observations on current trends, issues of discussion and/or hot topics.**

**2.1 Observations from your geographical area:**

**2.2 Observations from your expertise area (indicate your field of expertise):**

**3. Give one (1) example of a *successful* project, related to agricultural biodiversity, your organisation has implemented, including a very brief general description (3-4 sentences).**

**3.1 Theoretical scope/Main objective(s)**

**3.2 Geographical scope**

**3.3 Target group**

**3.4 Time period**

**4. Give one (1) example of a project, related to agricultural biodiversity, where you ran into *difficulties* during the implementation, including a very brief general description (3-4 sentences).**

<b>4.1 Theoretical scope/Main objective(s)</b>
<b>4.2 Geographical scope</b>
<b>4.3 Target group</b>
<b>4.4 Time period</b>

<b>5. Lessons learned from the examples above. From your experience, what were:</b>
<b>5.1 The 3 most important factors for success</b>
<b>5.2 The 3 most important limiting factors (barriers to change)</b>

**6. Please elaborate on the obstacles to successful implementation of agricultural biodiversity-related projects. Where have you identified barriers to change?**

**6.1 In what context (physical, social, management/governance, or other)?**

**6.2 On what level (local, regional, national, global)?**

**7. What, in your view, is the most important knowledge gap, related to agricultural biodiversity, food security and climate change adaptation, that has been identified through the work of your organisation? (Please limit to one or two issues only, state the most important one/s)**

**8. From the above analysis, and other organisational experience, what would you suggest are the main obstacles for smallholder farmers to improve their quality of life?**

**8.1 In general terms**

**8.2 With emphasis on agricultural biodiversity**

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**8.3 With emphasis on food security and securing livelihoods**

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**8.4 With emphasis on climate change adaptation and mitigation**

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**8.5 With emphasis on marketing systems, and access to markets**

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**9. Identify the most important publication(s), in your view, on the subject of agricultural biodiversity for smallholder farmers (give one, two or at the most three examples). Please provide a searchable reference.**

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**RELEVANT ORGANISATIONS, SELECTED**

<b>Organisation</b>	<b>URL</b>	<b>Country</b>
African Centre for Biosafety	<a href="http://www.biosafetyafrica.org.za/">http://www.biosafetyafrica.org.za/</a>	South Africa/regional
African Biodiversity Network	<a href="http://www.africanbiodiversity.org/">http://www.africanbiodiversity.org/</a>	Regional Network, Africa
Agricultural biodiversity in the CBD	<a href="http://www.cbd.int/agro/">http://www.cbd.int/agro/</a>	Global
Agroecology	<a href="http://www.agroecology.org/">http://www.agroecology.org/</a>	Global
Biocultural Heritage	<a href="http://biocultural.iied.org/">http://biocultural.iied.org/</a>	Global
Biodiversidad en America Latina y el Caribe	<a href="http://www.biodiversidadla.org/">http://www.biodiversidadla.org/</a>	America Latina y el Caribe
Bioversity International	<a href="http://www.bioversityinternational.org/">http://www.bioversityinternational.org/</a>	Global
Centre for Genetic Resources, Netherlands	<a href="http://www.cgn.wur.nl/UK/">http://www.cgn.wur.nl/UK/</a>	Global
Consultative Group on International Agricultural Research	<a href="http://www.cgiar.org/">http://www.cgiar.org/</a>	Global
Convention on Biological Diversity	<a href="http://www.cbd.int">www.cbd.int</a>	Global
Centre for Indian Knowledge Systems	<a href="http://www.ciks.org">www.ciks.org</a>	Global
Commission for Genetic Resources for Food and Agriculture	<a href="http://www.fao.org/nr/cgrfa/en/">http://www.fao.org/nr/cgrfa/en/</a>	Global
Committee on World Food Security	<a href="http://www.fao.org/cfs/cfs-home/en/">http://www.fao.org/cfs/cfs-home/en/</a>	Global
Corporación Educativa para el Desarrollo Costarricense, CEDECO	<a href="http://cambio2.org/?lang=EN">http://cambio2.org/?lang=EN</a>	Costa Rica
Ecoagriculture Partners	<a href="http://www.ecoagriculture.org/">http://www.ecoagriculture.org/</a>	Global
Earth Net Foundation	<a href="http://www.greennet.or.th">Www.greennet.or.th</a>	Thailand
ETC Group	<a href="http://www.etcgroup.org/">http://www.etcgroup.org/</a>	Global
Farmers Rights Resource Pages for Decisionmakers and Practioners	<a href="http://www.farmersrights.org/">http://www.farmersrights.org/</a>	Global
Forest Peoples Programme	<a href="http://www.forestpeoples.org">www.forestpeoples.org</a>	Global
Globally Importnat Agricultural Heritage Systems	<a href="http://www.fao.org/nr/giahs/en/">http://www.fao.org/nr/giahs/en/</a>	Global
Global Crop Diversity trust	<a href="http://www.croptrust.org/main/">http://www.croptrust.org/main/</a>	Global
GRAIN	<a href="http://www.grain.org">www.grain.org</a>	Global
Foundation for Genetic resource, Energy, Ecology and Nutrition	<a href="http://www.Greenconserve.com">www.Greenconserve.com</a>	India
Hivos	<a href="http://www.hivos.nl/english">http://www.hivos.nl/english</a>	Netherlands/global
Institute for Sustainable Development, Ethiopia	<a href="http://www.isd.org.et">www.isd.org.et</a>	Ethiopia
ILEIA - Centre for learning on sustainable agriculture	<a href="http://www.agriculturesnetwork.org">www.agriculturesnetwork.org</a>	Global
International Institute for Environment and Development, IIED	<a href="http://www.iied.org/">http://www.iied.org/</a>	Global
International Federation of Organic Agriculture Movements	<a href="http://www.ifoam.org/">http://www.ifoam.org/</a>	Global
International Planning Committee for Food Sovereignty	<a href="http://www.foodsovereignty.org/">http://www.foodsovereignty.org/</a>	Global
International Treaty on Plant Genetic Resources for Food and Agriculture, IT PGRFA	<a href="http://www.planttreaty.org/">http://www.planttreaty.org/</a>	Global
International Union for Conservation of Nature (IUCN)	<a href="http://www.iucn.org/">http://www.iucn.org/</a>	Global
Landscape Measures Resource Center	<a href="http://www.landscapeasure.info">www.landscapeasure.info</a>	Global
Landscapes for People, Food and Nature (LPFN)	<a href="http://www.landscapes.ecoagriculture.org">www.landscapes.ecoagriculture.org</a>	Global
Leauge for Pastoral People	<a href="http://www.pastoralpeoples.org/">http://www.pastoralpeoples.org/</a>	Global
Masipag	<a href="http://www.masipag.org">www.masipag.org</a>	Philippines
Melca	<a href="http://www.melca-ethiopia.org/">http://www.melca-ethiopia.org/</a>	Ethiopia
Millenium Ecosystem Assessment	<a href="http://www.millenniumassessment.org">http://www.millenniumassessment.org</a>	Global
Montanosa Research Development Center	<a href="http://mrdcsagada.blogspot.com/">http://mrdcsagada.blogspot.com/</a>	Philippines
Natural Justice	<a href="http://www.naturaljustice.org/">http://www.naturaljustice.org/</a>	South Africa
National Biodiversity Centre, Bhutan	<a href="http://www.nbc.gov.bt/">http://www.nbc.gov.bt/</a>	Bhutan
Oxfam Novib	<a href="http://www.oxfamnovib.nl">http://www.oxfamnovib.nl</a>	Netherlands/global

<b>Organisation</b>	<b>URL</b>	<b>Country</b>
Participatory Ecological Land Use Management Association	<a href="http://www.pelum.net">www.pelum.net</a>	Regional Network, Africa
Platform for Agrobiodiversity Reserach	<a href="http://agrobiodiversityplatform.org/">http://agrobiodiversityplatform.org/</a>	Global
Practical Action	<a href="http://practicalaction.org/">http://practicalaction.org/</a>	Global
Sotheast Asia Regional Initiative for Community Empowerment, SEARICE	<a href="http://www.searice.org.ph/">http://www.searice.org.ph/</a>	Phillipine / regional
Regime Shifts Database	<a href="http://www.regimeshifts.org/">http://www.regimeshifts.org/</a>	Global
Revitalizing Rainfed Agriculture Network	<a href="http://www.rainfedfarming.org/">http://www.rainfedfarming.org/</a>	India
Resilience Alliance	<a href="http://www.resalliance.org/">http://www.resalliance.org/</a>	Global
RUZIVO Trust	<a href="http://www.ruzivo.co.zw">www.ruzivo.co.zw</a>	Zimbabwe
Satoyama Initiative	<a href="http://satoyama-initiative.org/en/">http://satoyama-initiative.org/en/</a>	Global
Sustainable Land Use Forum (SLUF)	<a href="http://www.sluf.org.et">www.sluf.org.et</a>	Zimbabwe
SHIRKAT GAH	<a href="http://www.shirkatgah.org">www.shirkatgah.org</a>	Pakistan
Stockholm Resilience Centre	<a href="http://www.stockholmresilience.org/">http://www.stockholmresilience.org/</a>	Global
Tebtebba Foundation	<a href="http://www.tebtebba.org">www.tebtebba.org</a>	Global
Third World Network, TWN	<a href="http://www.twinside.org.sg/">http://www.twinside.org.sg/</a>	Global
Traditional Knowledge Information Portal	<a href="http://www.cbd.int/tk/">http://www.cbd.int/tk/</a>	Global
United Nations Environment Programme	<a href="http://www.unep.org/">http://www.unep.org/</a>	Global
Via Campesina	<a href="http://viacampesina.org/en/">http://viacampesina.org/en/</a>	Global
World Agroforestry Centre	<a href="http://www.worldagroforestrycentre.org">http://www.worldagroforestrycentre.org</a>	Global
World Resource Institute	<a href="http://www.wri.org/">http://www.wri.org/</a>	Global
World Wide Fund for Nature	<a href="http://www.wwf.org/">http://www.wwf.org/</a>	Global