

Knowledge Systems for Sustainability

17-20 June 2015

International Institute for Applied Systems Analysis

All meeting sessions will be held at IIASA, Schlossplatz 1, A-2361, Laxenburg, Austria
Meeting hotel: Hotel Refugium, Kirchengasse 4, A-2353 Guntramsdorf ; phone +43
2236 506650; office@hotel-refugium.at

Meeting organized by Molly Jahn, Marc Levy, David LeZaks and Michael Obersteiner
with logistical support from Beth Floyd and Cynthia Festin

In early 2012 a set of prospective partners came together as a community of practice to explore mutual interests in building and testing improved knowledge systems for sustainability (KSS), a key enabling capability for many global, national, financial and other processes, and a convergent science frontier. The community elected to focus on strategies to provide more adequate objective reflections of Earth-human systems relevant to humanity's demands for water, energy, food and materials. In 2015, a core set of organizational partners, known informally as KSSCo, is formalizing its commitment to this goal.

KSSCo members possess complementary competences and assets with regard to scientific domain expertise, data capabilities, research methodologies, and abilities to link with decision-makers and support at-scale learning. Collectively they have the potential to deploy at a scale that more closely matches demand than the fragmented sustainability science, or single dimension, domain-focused efforts, e.g., energy, water, food, etc. currently offers.

We will convene to formalize and advance the design, operation and management of KSSCo including a plan for a new moniker for the partnerships involved, and to advance the development of collaborative projects in this next phase of our collective work. We will also introduce the details of a proposed “joint venture” between KSSCo and Battelle Memorial Institute.

In pilot mode, the KSS community of practice has already proved its value to partners individually and collectively through new bilateral projects, enhanced existing activities and increased visibility where desired. Novel initiatives have been launched that have brought together diverse scientific disciplines, crafted new methodologies, and executed to professional standards in a way that engaged critical actors in new ways and advanced scientific understanding. These initiatives will be reviewed at this meeting as the foundation of our future work and exemplars of our shared strategies, including a common emphasis on systematic exploration of risk at the land/water/energy/climate nexus.

We will build on these successes by exploring new, large-scale, investor-ready opportunities to partner in a research / operations mode focused on risk and resilience at the land/water/energy/climate nexus. We will accomplish this by working in a rigorous scientific mode at scale toward high quality outputs in decision-relevant formats.

At this meeting, we are delighted to welcome Jill Engel-Cox from Battelle Memorial Institute as part of a collaboration that will allow us all to move more quickly at larger scales to realize our shared goals. We will begin with a reception and dinner on Wednesday, 17 June, at IIASA with an evening presentation in which Jill will introduce Battelle. We will meet all day Thursday and Friday, both in plenary and in break-out groups, to report on progress, fine-tune our vision, specify core principles and needs to guide organizational design, and coordinate near and medium-term next steps. Participants are expected to be present for both days, and are invited to stay for dinner Friday night and to depart on Saturday morning. Participants who can stay through Saturday would have the ability to pursue specific collaborations in more depth.

We thank our host, Michael Obersteiner and his team at IIASA, especially Cynthia Festin for their hospitality and support. David LeZaks and Beth Floyd have provided core support for all aspects of the meeting.

Meeting attendees:

Jill Engel-Cox, Battelle Memorial Institute
Steffen Fritz, IIASA
Mike Grundy, CSIRO
Jay Gullede, ORNL
Jim Hall, U Oxford (non-attending)
Molly Jahn, U Wisconsin, joint faculty at ORNL, adjunct researcher at Earth Institute
Martin Keller, ORNL
Sylvia Lee, Skoll Global Threats Foundation
Marc Levy, Earth Institute, Columbia University
David LeZaks, U Wisconsin
Annie Maxwell, Skoll Global Threats Foundation
Andy McDonald, CIMMYT
Michael Obersteiner, IIASA
Steve Kasputis, MACE
Bob Piccerillo, MACE (non-attending)
Linda See, IIASA

Marc Gordon, UNISDR
Andrew Maskrey, UNISDR
Scott Williams, PwC

Pre-Workshop Assignments

As part of the agenda below, we have identified 4 tasks for each participating organization. For each of the tasks below, please come to the meeting with no more than one slide or sheet of paper to summarize each idea. These assignments will be presented in plenary.

ASSIGNMENT 1:

Identify (1) your organization's key priorities and strengths in the context of the KSSCo 'ecosystem,' (2) the key 'ingredients' most needed for your organization from a formal and more centrally managed KSSCo joint venture with Battelle, from a brazenly self-interest perspective, and (3) an illustration or two from existing near-term prospects from your organization of how KSSCo partners can help solve problems or catch important opportunities. Be selective and focus on key issues only.

ASSIGNMENT 2:

Identify the most important organizational requirements for a formal KSSCo and the joint venture with Battelle to be viable for you: (1) What are must-have organizational traits? (2) What are kiss-of-death organizational traits? Include anything that matters, no matter how petty or grandiose it might appear.

ASSIGNMENT 3:

Identify some things you think KSSCo and the joint venture with Battelle could plausibly do that would fundamentally reset expectations in the world about what is possible and that would justify the efforts to bring the KSSCo JV into existence at scale.

ASSIGNMENT 4:

List some current or contemplated projects that could be expanded to integrate other members of the quint, in furtherance of both KSSCo's and the joint venture with Battelle's objectives. Who are the potential sponsors?

Meeting Agenda for Knowledge Systems for Sustainability

17-20 June, 2015

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Wednesday 17 June 2015

Time	Topic	Notes
17:00-21:00	<p><i>Introductions, drinks and review of meeting objectives and dinner (served 18:30)</i></p> <p><i>Introduction to Battelle Memorial Institute and update on discussions with Marc Levy and Molly Jahn on joint venture between KSSCo and Battelle Memorial Institute, hereafter referred to as the KSSCo-Battelle Joint Venture (KSSCo JV)</i></p>	<p><i>Led by Molly Jahn, Marc Levy</i></p> <p><i>Led by Jill Engel-Cox supported by Marc Levy and Molly Jahn</i></p> <p><i>Location: Kirchheuriger Hofstädter, Kirchenplatz 2, A-2353 Guntramsdorf (2min walk from hotel)</i></p>

Thursday 18 June 2015

Time	Topic	Notes
7:00-8:15	<i>Breakfast at hotel</i>	Hotel Refugium
8:15-8:30	<i>Shuttle to IIASA</i>	
8:30-9:00	<p>Introductions and Meeting Objectives</p> <ul style="list-style-type: none"> • <i>Welcome (5 minutes)</i> • <i>Review of workshop agenda (5 minutes)</i> • <i>Recap the KSSCo vision – summarize our diagnosis of the challenge and our approach to providing solutions in two diagrams. Ask participants to affirm or note questions. Big questions will be incorporated in to the agenda for later discussion. (20 minutes)</i> 	<p>PLENARY</p> <p><i>Led by Michael Obersteiner and Molly Jahn</i></p> <p><i>Led by Marc Levy and David LeZaks</i></p> <p><i>Led by Molly Jahn</i></p> <p>Expected Outcomes:</p> <ul style="list-style-type: none"> • Working diagram of our diagnosis of the challenge and the nature of our response (Marc Levy) • List of items regarding vision and partner activities that need follow-up discussion • Approved agenda and meeting objectives • Define must have outcomes needed by end of

9:00-10:30	<p>The building blocks of the KSSCo organization</p> <ul style="list-style-type: none"> • <i>Presentation of ASSIGNMENT 1 Identify (1) your organization’s key priorities and strengths in the context of the KSSCo ‘ecosystem,’ (2) the key ‘ingredients’ most needed for your organization from a formal and more centrally managed KSSCo joint venture with Battelle, from a brazenly self-interest perspective, and (3) an illustration or two from existing near-term prospects from your organization of how KSSCo partners can help solve problems or catch important opportunities. Be selective and focus on key issues only. (3 minutes per organization + 25 minutes for mapping and discussion)</i> • <i>Presentation of ASSIGNMENT 2: Identify the most important organizational requirements for a formal KSSCo and the joint venture with Battelle to be viable for you: (1) What are must-have organizational traits? (2) What are kiss-of-death organizational traits? Include anything that matters, no matter how petty or grandiose it might appear. (5 minutes per organization + 15 minutes for mapping and discussion)</i> 	<p>PLENARY <i>Led by Marc Levy, Columbia U.</i> Expected Outcomes:</p> <ul style="list-style-type: none"> • Portrayal of the KSSCo and JV ecosystem, including articulating of its constituents, a first-order sense of how they relate to each other and constraints relevant to scoping a viable organizational structure • Identification of (1) areas of commonality and agreement; (2) areas of useful difference –e.g. synergies and complementarities; and (3) areas of problematic difference – e.g. incompatible interests or divergent organizational requirements. Note that, having committed to working as a group to discover the best way to organize and operate, any problems we identify at this stage are problems that are owned by the collective as opposed to being attached to a single organization
10:30-11:00	Coffee Break	
11:00-12:30	<p>Mapping KSSCo + Battelle Joint Venture <i>Presentation of workplans and possible organizational structures for discussion (30min)</i></p> <p>Big Picture Themes and Vision</p> <ul style="list-style-type: none"> • <i>Presentation of ASSIGNMENT 3: Identify some things you think KSSCo and the joint venture with Battelle could plausibly do that would fundamentally reset expectations in the world about what is possible and that would justify the efforts to bring the KSSCo JV into existence at scale. (30 minutes – 5 minutes for each organization)</i> • <i>Group discussion: Are some ideas so similar they should be</i> 	<p>PLENARY <i>Led by Jill Engel-Cox</i></p> <p><i>Led by Mike Grundy, CSIRO</i> Expected outcomes:</p> <ul style="list-style-type: none"> • Coalescing around a few high level themes • Specific visions of how the KSSCo JV ecosystem could evolve and what it could produce, including first-order sense of how the pieces, their linkages and their supporting organizational structure can combine to make such visions real. We won’t have

	<p><i>combined? Can we organize these ideas into a smaller set of clusters? Rearrange on board as appropriate. Taking into account the outcome of the previous discussion, which ideas are especially strongly connected to our unique capabilities and structure? Do we think some ideas should be fast-tracked? If so, who should lead such an effort? Which stakeholders and additional partners need to be engaged early on? How do we get funding to begin work? Do we have an idea of the long-term business model, or how we would figure out the business model?</i></p>	<p>answers to how to do this, but we'll have a painted the portrait of what we want it to look like, analogous to an architect's sketch prior to drawing up blueprints</p> <ul style="list-style-type: none"> • Candidate portfolio to present to external stakeholders • Contingent short-list of ideas to explore and how to begin, including champion
12:30-13:30	Lunch	IIASA
13:30-14:00	<p>Integrated project development</p> <ul style="list-style-type: none"> • <i>Presentation of ASSIGNMENT 4: list some current or contemplated projects that could be expanded to integrate other members of the quint, in furtherance of both KSSCo's and the joint venture with Battelle's objectives. Who are the potential sponsors? (20 minutes – 3 minutes per organization)</i> • <i>Group discussion – Rapid identification of relevant patterns and themes; initial thoughts on triage (flag ones people are especially excited about) (10 minutes)</i> 	<p>PLENARY <i>Led by Jay Gullede, ORNL</i> Expected Outcomes:</p> <ul style="list-style-type: none"> • List of projects emerging out of existing processes that could potentially be folded into KSSCo JV activity • Identification of common themes and gaps • Contingent list of project ideas to explore actively
14:00-15:40	<p>Bilateral relationship round-robins to explore shared project modules that can be integrated into project proposals / bids</p> <ul style="list-style-type: none"> • 14:00-14:20 – ORNL & CSIRO, CU & IIASA, CIMMYT & Battelle • 14:20-14:40 – ORNL & CU, CIMMYT & CSIRO, Battelle & IIASA • 14:40-15:00 – ORNL & CIMMYT, Battelle & CU, IIASA and CSIRO • 15:00-15:20 – ORNL & Battelle, IIASA & CIMMYT, CSIRO & CU • 15:20-15:40 – ORNL & IIASA, CSIRO & Battelle, CU and CIMMYT 	<p>Break-out Groups Expected outcomes:</p> <ul style="list-style-type: none"> • 4 collaborative project proposals • Suggestions for how data streams and models might get connected

15:40-16:00	<i>Coffee Break</i>	
16:00-17:00	<p>Marketing the capabilities of the KSSCo JV and developing projects for traditional and non-traditional sponsors</p> <p><i>How does a large research organization working at the interface of interdisciplinary science and practice go about marketing its services? How do we start marketing right away? What are our short-term and near-term milestones in terms of projects/contracts? Can we agree on them now, or a process for how to generate them? How do we build an effective sustained marketing strategy? Who's responsible?</i></p>	<p>PLENARY</p> <p><i>Led by Marc Levy, Jill Engel-Cox, and Molly Jahn</i></p> <p>Expected outcomes:</p> <ul style="list-style-type: none"> • Common understanding of how to think about the KSSCo JV's marketing needs and activities • Agreement on short-term approach, including assignment of leads and agreement on milestones • Planning for potential joint road shows to investors for direct marketing purposes
17:00-17:30	<p>Review of the day</p> <p><i>Reflections of priorities for agenda tomorrow, tasks for the evening</i></p>	<i>Led by Molly Jahn</i>
17:30-	<i>Reception and dinner with IIASA colleagues</i>	Reception at IIASA, followed by dinner at Gallo Rosso (Franz Josef Plaza 3, A-2361 Laxenburg)

Friday 19 June 2015

Time	Topic	Notes
7:30-8:30	<i>Breakfast</i>	Hotel Refugium
8:30-8:45	<i>Shuttle to IIASA</i>	
8:45-10:00	<p>Processes to identify thematic and structural priorities for the KSSCo JV</p> <p><i>Taking into account the results of the discussions to this point:</i></p> <ul style="list-style-type: none"> • <i>How can we most effectively characterize our priority areas of work thematically?</i> • <i>What is the best structure to ensure that the KSSCo JV maintains dynamism and innovation, internal team building and coherence, external engagement and outreach, and entrepreneurship?</i> • <i>Who shall take responsibility within our themes, and what terms of reference shall we give them?</i> <p><i>Divide into two groups (avoiding multiple participation from the same organization in one group)</i></p>	<p>PLENARY</p> <p><i>Led by Martin Keller, ORNL</i></p> <p>Expected outcomes:</p> <ul style="list-style-type: none"> • Framing of thematic focal areas • Plan for how to organize ourselves to be able to pursue work in these thematic areas effectively

	<ul style="list-style-type: none"> • Spend 10 minutes proposing a thematic structure to the KSSCo JV's work • Spend 10 minutes identifying some ideas for an organizational structure to advance effective thematic work • <i>Then in plenary synthesize the results of the two groups and agree on a process for moving forward (40 minutes)</i> 	
10:00-10:30	<i>Coffee break and group picture</i>	
10:30-12:15	<p><i>Introduction to the Global Assessment Report and Global Risk Model (GRM)</i></p> <ul style="list-style-type: none"> • <i>Presentation and discussion on the integration of agriculture and drought into the GRM and development of a probabilistic risk model for the agriculture sector</i> • <i>Interactions between the KSSCo JV and UNISDR</i> • <i>Identify volunteers for Q4 meeting and specific interfaces with the KSSCo JV to achieve UNISDR's goals</i> 	<p>PLENARY <i>Led by Andrew Maskrey, UNISDR</i> Expected outcomes:</p> <ul style="list-style-type: none"> • Shared understanding of the GRM and possible modes of engagement with the KSSCo JV
12:15-13:30	<i>Lunch</i>	IIASA
13:30-14:30	<p><i>Organizing ourselves for upcoming manuscripts, proposals and projects</i></p> <p>Taking into account the results of discussions to this point, create a workable short list of specific projects to pursue in the immediate term. Modify the list below and create leads, teams, milestones, support mechanisms and review procedures</p> <ul style="list-style-type: none"> • <i>RISE / Green Climate Fund – Scott Williams & Marc Gordon</i> • <i>Sustainable Development Goals implementation and tracking – Marc Levy</i> • <i>Drought / Cereal Systems Initiative for South Asia / Monsoon Intervention Project – Andy McDonald, Andrew Maskrey</i> 	<p>Break out groups <i>Introduced and managed by Michael Obersteiner, IIASA</i> Expected outcomes:</p> <ul style="list-style-type: none"> • Short list of near-term project development priorities • Assignment of tasks • Milestones and support mechanisms • Review procedures • A calendar of expected proposal effort

14:30-15:30	<p><i>Beyond projects: Synthesizing a distributed, federated research capability that can share information</i></p> <ul style="list-style-type: none"> <i>Organization models and governance structures to stabilize our relationships, values, practices starting now for the longer term</i> 	<p>PLENARY <i>Led by Steve Kasputis and Bob Piccerillo, MACE</i> Expected outcome:</p> <ul style="list-style-type: none"> Develop a plan to explore longer-term governance options that manage the transitions from proprietary to open source, open access; that move from market to gift economies and that stabilize this type of alliance. Draw insights from other organizations and current best practice and theory
15:30-16:00	<i>Coffee break</i>	
16:00-17:00	<p><i>Next steps, calendar, meeting conclusions</i></p> <ul style="list-style-type: none"> <i>How do we arrive at fair, effective solutions to conflicts or problems identified in the discussion of needs and constraints?</i> <i>What pathways are we confident pursuing vigorously?</i> <i>What pathways are we ruling out?</i> <i>What information do we need to make further choices?</i> <i>How are we to govern ourselves for the time being?</i> <i>Task assignment and milestones</i> 	<p>PLENARY <i>Led by Molly Jahn, U. Wisconsin</i> Expected outcomes:</p> <ul style="list-style-type: none"> Consensus around the choices we have made and the choices we have yet to make Agreement on what we are doing next, and how to do it
17:00-19:00	<i>Break – Optional tour</i>	
19:00-	<i>Cocktails and dinner for those who can stay</i>	<p>Rathausüberl Laxenburg - Schloßplatz 8 2361 Laxenburg (Across from IIASA's main entrance)</p>

Saturday 20 June 2015

Time	Topic	Notes
7am – departure time	<i>Self service continental breakfast & side-meetings for those who are staying</i>	Hotel Refugium/Forest hut/ IIASA
	All meeting attendees depart	