

**Agenda Brief:** ESCOP Science and Technology Committee

**Date:** February 22, 2010

**Presenter:** William Ravlin/Daniel Rossi

**Background Information:**

1. Committee Membership:

- Chair
  - William Ravlin (NCRA)
- Delegates
  - John Liu (SAAESD)
  - Nancy Cox (SAAESD)
  - Mike Hoffmann (NERA)
  - Tom Brady (NERA)
  - Steve Meredith (ARD) – Vice Chair
  - Ambrose Anoruo (ARD)
  - Larry Curtis (WAAESD)
  - Jozef Kokini (NCRA)
  - Abel Ponce de Leon (NCRA)
- Executive Vice-Chair
  - Dan Rossi (NERA, Executive Director)
- NIFA Representative
  - Meryl Broussard
- ERS Representative
  - Terry Nelsen
- Social Science Subcommittee Representative
  - Travis Park
- Pest Management Strategies Subcommittee Representative
  - Frank Zalom
- Liaisons
  - Cliff Gabriel (Office of Science and Technology Policy)
  - Edwin Price (ICOP)

2. Meetings

The Committee met by conference call on January 5, 2010 jointly with the Research ED's. The purpose of the conference call was to discuss plans for the development of the Science Roadmap. The next formal committee meeting is scheduled for March 29-30, 2010 in Dallas, TX.

3. Multistate Research Award

The announcement for the next round of awards was sent out to directors and participants in the NIMSS System on December 11. Nominations are due at offices of the Executive Directors on February 26. The regional associations will review the nominations and

forward their recommendations to the Committee by April 30. The Committee will review the regional nominations and forward their recommendation for a national winner to the ESCOP Executive Committee by May 21. The Executive Committee will forward their selection of the national winner to APLU by July 1 and the award will be made at the November APLU meeting.

#### 4. Science Roadmap

The Science Roadmap challenge area teams are being appointed. Attached are the most recent list of team assignments and a summary document describing the Science Roadmap process. Approximately five science leaders plus representatives of the Science and Technology Committee and ED's are assigned to each team. The teams will frame the issue, assess current capacity and science gaps, refine research objectives, identify resource needs and describe expected outcomes for each of the challenge areas. They will prepare initial drafts of the challenge area sections by May. A draft overall document will be prepared for the July 2010 ESCOP meeting and then revised for presentation and discussion at the September 2010 ESS workshop. A final report will be prepared and forwarded to key audiences following the meeting. The committee will work on an operational plan next year.

#### 5. Social Science Subcommittee

The Social Science Subcommittee met on February 2-3 in Washington, D.C. Dan Rossi attended the meeting. The Subcommittee heard presentations by Roger Beachy (NIFA Director), Diana Jerkins (Acting Director of Integrated Programs, AFRI), Dan Kugler (Transitional Leader, Institute of Youth, Family and Community), Howard Silver (Executive Director, Consortium of social Science Associations) and Sally Maggard (NPL, Rural Sociology). There was a very good discussion of the Science Roadmap process and a number of constructive suggestions were made, particularly relative to potential participants for the challenge area teams and concerning the preamble to the final document. The Subcommittee also discussed its own organization and possible changes in representation.

**Action Requested:** For information.

## Assignments for the Science Roadmap for Food and Agriculture

February 3, 2010

Challenges	Science Leaders [Contact]	ESCOP Science & Technology Members/ ED's
<p>We must enhance the sustainability, competitiveness, and profitability of U. S. food and agricultural systems.</p>	<p>Steve Slack Ohio Agricultural Research and Development Center The Ohio State University 1680 Research Services Building Wooster, Ohio 44691 Phone: 330-263-3701 Fax: 330-263-3688 <a href="mailto:oardc@osu.edu">oardc@osu.edu</a></p> <p>Philip Pardey Professor Director, International Science and Technology Practice and Policy (InSTePP) Center 218j Classroom Office Building 1994 Buford Avenue St Paul, MN 55108 Phone: 612-625-2766 <a href="mailto:ppardey@umn.edu">ppardey@umn.edu</a></p> <p>Casey Hoy Kellogg Endowed Chair Ohio State University <a href="mailto:hoy.1@osu.edu">hoy.1@osu.edu</a></p>	<p>Steve Meredith</p> <p>John Liu</p> <p>Jozef L. Kokini</p> <p>ED – Mike Harrington</p>
<p>We must adapt to and mitigate the impacts of climate change on food, feed, fiber and fuel system in the U.S.</p>	<p>David Wolfe Cornell University Department of Horticulture Plant Science Building, Room 117 Phone: 607-255-7888 <a href="mailto:dww5@cornell.edu">dww5@cornell.edu</a></p> <p>Art DeGaetano Cornell University Associate Professor Department of Earth and Atmospheric Sciences 1119 Bradfield Phone: 607-255-0385</p>	<p>Mike Hoffmann</p> <p>F. Abel Ponce de León</p> <p>Jozef L. Kokini</p> <p>ED – Arlen Leholm</p>

	<p>atd2@cornell.edu</p> <p>Jim Jones  Biological Engineering  PO Box 110570  University of Florida  Gainesville, FL 32611-0570  Phone: 352-392-1864  <a href="mailto:jimj@ufl.edu">jimj@ufl.edu</a></p> <p>Steve Pueppke, Michigan State Univ.  [Note: Agreed to serve as Reviewer]</p>	
<p>We must support energy security and the development of the bio-economy from renewable natural resources in the U.S.</p>	<p>Steve Pueppke  Director, Michigan Agricultural Experiment Station Assist. Vice-President for Research &amp; Graduate Studies  Michigan State University  109 Agriculture Hall  East Lansing, MI 48824-1039  Phone: 517-355-0123  Fax: 517-353-5406  pueppke@anr.msu.edu</p> <p>Shri Ramaswamy  Professor  Bioproducts/Biosystems Engr  UMN Twin Cities  Bioproducts/Biosystems Engr  Room 203 KaufL 6130  2004 Folwell Ave  St Paul, MN 55108  Phone: 612-624-8797  Fax: 612-625-6286  <a href="mailto:shri@umn.edu">shri@umn.edu</a></p> <p>Tom Richards  Dept. of Ag. and Biological Engineering  Pennsylvania State University  University Park, PA 16802-1909  phone: (814) 865-3722 direct  fax: (814) 863-103  <a href="mailto:trichard@psu.edu">trichard@psu.edu</a></p> <p>Maria Gallo  Agronomy</p>	<p>Mike Hoffmann</p> <p>Ambrose Anoruo</p> <p>ED – Arlen Leholm</p> <p>Mike Harrington</p>

	<p>University of Florida  Gainesville, FL 32611-0500  PO Box 110500  Phone: 352-392-1811  <a href="mailto:mgm@ufl.edu">mgm@ufl.edu</a></p>	
<p>We must play a global leadership role to ensure a safe, secure and abundant food supply for the U.S. and the world.</p>	<p>Francisco Diez-Gonzalez  Associate Professor  Department of Food Science and Nutrition  258 ABLMS  Phone: (612) 624-9756  Fax: (612) 625-5272  <a href="mailto:fdiez@umn.edu">fdiez@umn.edu</a></p> <p>Jacque Fletcher  Entomology &amp; Plant Pathology  127 Noble Research Center  Oklahoma State University  Stillwater, OK 74078  Phone: 405-744-9948  <a href="mailto:jacqueline.fletcher@okstate.edu">jacqueline.fletcher@okstate.edu</a></p> <p>Jim Hill, UC Davis [Zalom]</p>	<p>John Liu  Frank Zalom  ED – Carolyn Brooks</p>
<p>We must improve human health, nutrition and wellness of the US population.</p>	<p>Melinda Manore  Professor and Extension Specialist  Dept. of Nutrition and Exercise Sciences/FCH  103 Milam Hall (Mail)  107D Milam (Office)  2520 SW Campus Way  Oregon State University  Corvallis, OR 97331  Phone: 541-737-8701  Fax: 541-737-6914  <a href="mailto:melinda.manore@oregonstate.edu">melinda.manore@oregonstate.edu</a></p> <p>Mindy S. Kurzer  Professor, Director of Graduate Studies- Nutrition  Director of the University of Minnesota Healthy Foods, Healthy Lives Institute  Department of Food Science and Nutrition  266 FScN  Phone: (612) 624-9789</p>	<p>Larry Curtis  ED – Dan Rossi  Carolyn Brooks</p>

	<p>Fax: (612) 625-5272  <a href="mailto:mkurzer@umn.edu">mkurzer@umn.edu</a></p> <p>Jozef L. Kokini  Associate Dean of Research  Director, Illinois Agricultural  Experiment Station  Bingham Professor of Food Engineering  College of Agricultural, Consumer and  Environmental Sciences  211B Mumford Hall  1301 W Gregory Drive  Urbana, IL 61801  Phone: 217-333-0240  Fax: 217-333-5816  kokini@illinois.edu</p> <p>Steve Clinton, OSU [Curtis]</p>	
<p>We must heighten environmental stewardship through the development of sustainable management practices.</p>	<p>Nancy Creamer  Horticultural Science  Director Center For Environmental  Farming Systems  Kilgore Hall, Box 7609  NCSU  Raleigh, NC 27695  Phone: 919-515-9447  <a href="mailto:nancy_creamer@ncsu.edu">nancy_creamer@ncsu.edu</a></p> <p>Kate Scou, UC Davis [Zalom]</p>	<p>Steve Meredith  Ambrose Anoruo  Frank Zalom  ED – Eric Young</p>
<p>We must strengthen individual, family and community development and resilience.</p>	<p>B. Jan McCulloch  290D McNeal Hall  Mail Code 6140  290 McNeal Hall  1985 Buford Avenue  St Paul, MN 55108-6140  Phone: 612-624-1208  <a href="mailto:jmccullo@umn.edu">jmccullo@umn.edu</a></p> <p>Bo Beaulieu  Director and Professor  Southern Rural Development Center  Box 9656  Mississippi State, MS 39762-9656  Phone: 662-325-3207</p>	<p>Ed Osbourne  [Ravlin]  ED – Dan Rossi  Travis Park</p>

	Fax: 662-325-8915 <a href="mailto:ljb@srdc.msstate.edu">ljb@srdc.msstate.edu</a>  Steven Taylor, Auburn Univ. [Anoruo]	
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## **Experiment Station Committee of Organization and Policy (ESCOP)**

### **Developing a Science Roadmap for Food and Agriculture**

**Revised 1/8/10**

#### Background

The previous Science Roadmap for Agriculture was completed in 1998-99. It was based on input from disciplinary experts within the Land Grant system. The Roadmap was updated in 2006 and key challenges and objectives were reviewed again in 2008 based on input from deans and directors. It is understood that the Roadmap provided critical guidance to decision makers in academia and in Federal agencies that fund agricultural research. Given the rapid advances in science, changes in societal needs, and a changing budgetary environment, the comprehensive development of a new Science Roadmap is critical.

The audiences of the Roadmap include research administrators, funding agencies, legislators, stakeholders, and the private sector. The goals of the Roadmap are to:

- Chart the major directions of agricultural science over the next 5 – 10 years.
- Define the needs and set the priorities for research.
- Provide direction to decision makers in planning and investing resources to future program areas.
- Support advocates of the food and agricultural research and education system.
- Support marketing of the SAES system.
- Facilitate the building of partnerships for a stronger coalition to solve problems.

In the winter of 2009, the ESCOP leadership decided to undertake a project to develop a new Roadmap and assigned the task to the Science and Technology Committee. The Committee met jointly in March of 2009 with the Social Science Subcommittee and prepared a proposal to initiate development of the Roadmap through the use of the Delphi process for identifying and confirming grand challenge areas and respective research objectives. The Delphi process gathers the ideas of experts and moves them and their ideas to consensus. The Science and Technology Committee received approval to engage Dr. Travis Park of Cornell to conduct survey process and analyze the data.

ESCOP Chair Steve Pueppke sent a letter to Deans and Directors of Research, Extension and Academic Programs in the Land Grant system requesting their participation and the nomination of up to five researchers or Extension educators from their institutions to also participate in the process. The researchers and educators were to have the perspective, experience, and expertise to provide quality input about identifying grand challenges and research priorities within each of the problems for the next 10 years. A total of 457 individuals were nominated from a broad array of disciplines.

Participants were asked to complete four rounds of Delphi surveying regarding future directions for agricultural research over the next 5-10 years. Using information from the previous Science Roadmap as the starting point, participants were asked to identify new research priorities and



amend current priorities. The first three rounds involved participants response to proposed research priorities in a summated rating scale format of (5) *strongly agree* to (1) *strongly disagree*. The final round consisted of a dichotomous *yes-no* format, answering the question as whether to not to include that particular research priority in the updated Roadmap.

The first round was initiated on June 10 and 264 individuals participated. More than 100 “research priorities” were suggested from respondents during the first three rounds. The fourth and final round was completed on August 10 and included 246 participants. A total of 13 grand challenge areas and 64 research priorities were identified.

Recognizing the need to further focus the challenge areas, the ESCOP Science and Technology Committee analyzed the 13 challenges and performed a cross-walk of them with agricultural research challenge areas identified by other organizations and agencies. As a result, a consensus was formed around the following seven grand challenges for food and agriculture:

1. We must enhance the sustainability, competitiveness, and profitability of U. S. food and agricultural systems.
2. We must adapt to and mitigate the impacts of climate change on food, feed, fiber and fuel systems in the U.S.
3. We must support energy security and the development of the bio-economy from renewable natural resources in the U.S.
4. We must play a global leadership role to ensure a safe, secure and abundant food supply for the U.S. and the world.
5. We must improve human health, nutrition and wellness of the US population.
6. We must heighten environmental stewardship through the development of sustainable management practices.
7. We must strengthen individual, family and community development and resilience.

### Next Steps

Given the seven challenge areas and associated research needs identified through the previously described inclusive process, it is now necessary to analyze these areas and to identify how science can contribute to them. For each challenge area, we will need to describe its importance, the current capacity and gaps within the Land Grant system, specific research priorities, additional resource investment needs, and the expected outcomes of research investments.

We propose that teams of key scientists from the Land Grant system be assigned the task of preparing short (approximately five pages) white papers for each of the challenge areas. These scientists should be leaders in their respective disciplines but also broad thinkers who understand the larger picture. We are referring to the participants as science leaders. We expect approximately five leaders be assigned to each of the challenge areas. Each team will select a team leader. One or two members of the ESCOP Science and Technology Committee will also participate on the teams to help provide coordination to the overall effort. Finally, at least one regional research Executive Directors will also be assigned to each team to provide additional support and coordination.

We anticipate that the work of the teams will be primarily through electronic means with face-to-face meetings left up to the discretion of the team members. However, we have no ready source of funding to support travel for such meetings. The teams will work between January 2010 and May 2010 to complete draft reports for each challenge area. The reports should address the following issues:

1. Background and justification for the challenge
2. Specific research priorities
3. Current capacity and gaps in the Land Grant system
4. Additional resources needed (\$ and SY's)
5. Expected outcomes of the research investments

A general vision will be developed and combined with the seven challenge area reports to produce an overall report. It will be a living document that allows for continuous input and reflects changes and needs.

We further plan to utilize professional writers to develop a series of shorter versions of the Roadmap that will be tailored for specific audiences. Operational strategies (structure and organization; personnel and expertise; infrastructure and facilities; and funding and support) will be addressed in another phase.

The proposed overall timetable is as follows:

- January 2010 – science leaders identified and challenge area teams convened; team leaders selected; begin work on background, justification, current capacity, science gaps, research objectives; resources needs and expected outcomes
- March 2010 – status reports from challenge areas teams presented and reviewed at convening of team leaders; mid-course adjustments made
- May 2010 – preliminary drafts of challenge area sections reviewed and refined
- June 2010 – preliminary draft of overall report completed and reviewed by team leaders
- July 2010 – preliminary draft report reviewed at ESCOP meeting
- August 2010 – draft report revised
- September 2010 – draft report mailed to Experiment Station Section and discussed at the Section workshop
- October 2010 – final report prepared
- November – December 2010 – final report forwarded to key audiences; tailored versions of report prepared; operational plan initiated