Meeting Notes ESCOP Social Sciences Subcommittee Meeting February 19-20, 2013 Washington, DC Location APLU Building (Multipurpose Room) 1307 New York Avenue, NW Phone: 202.478.6040 http://www.aplu.org

Members Present

Abigail Borron (Purdue), Dwayne Cartmell (Oklahoma State), David Doerfert (Texas Tech) Adell Brown (Southern University), Tracy Irani (Univ. of Florida), Stephan Goetz (NERDC, Penn State), Scott Loveridge (NCRDC Michigan State), Bruce Weber (Oregon State), Ntam Baharanyi (Tuskegee University), Matt Fannin (Louisiana State), Travis Park (Cornell), Mike Retallick (Iowa State University), Jack Elliot (Texas A&M), James Connors (University of Idaho), John Ricketts (Tennessee State), Bobby Torres (Univ. of Arizona), Daniel Perkins (Penn State), Soyeon Shim (U. of Wisconsin-Madison), Bo Beaulieu (SRDC, Mississippi State), Don Albrecht (WRDC, Utah State), Dreamal Worthen (Florida A&M).

Liaison/Ad Hoc/Ex-Officio Members

Dan Rossi, Rutgers University, NE Regional Assoc of AES Directors ESCOP S&T Chair Pat Hipple, National Program Leader, Division of Family and Consumer Sciences, NIFA, USDA ESCOP Science & Technology Committee Chair: Bill Ravlin, The Ohio State University

Ex-Officio (non-voting)Members:

Regional Rural Development Centers: Scott Loveridge, Bo Beaulieu, Stephan Goetz, and Don Albrecht Chuck Fluharty, Rural Policy Research Institute (RUPRI)

Board on Human Sciences Liaisons: Soyeon Shim, University of Wisconsin

Howard Silver, Executive Director, Consortium of Social Science Associations (COSSA)

Tuesday, February 19, 2013

8:00 AM Introductions, Review of Agenda, Committee Focus Subcommittee Membership Update

Jack Elliot, SSSc Chair, presided over the meeting that began at 8:00 am with introductions, then followed the agenda:

8:20 AM - Dr. Meryl C. Broussard, *Deputy Director, National Institute of Food and Agriculture* (on behalf of Dr. Sunny Ramaswamy)

- The senior leadership values the SSSc Gap Report and its usefulness to the Agency. The report serves as a model of communication with senior leadership as a document for change, particularly RFAs.
- Challenges in the mist
 - Current Pending Sequestration. "What if" plans are in place by the Agency, however lots of uncertainty exists.
 - A declining resource base. NIFA was cut \$100 million (10% of its budget) with the loss of mandatory program funding and could lose up to 15% more due to sequestration cuts.
 - The President's budget is not yet available
 - Unfilled vacancies of senior position (within grant and financial management) because of a freeze in hiring Thus "mission-critical" travel is only allowed.
- The Response to the challenges:
 - Larger (but fewer) RFA Challenge grants.
 - Planned updates to the IT infrastructure
 - Building bridges with other agencies (e.g., NFS, NIH)

8:45 AM - NIFA & SSSc Overview: Dr. Pat Hipple, National Program Leader, Division of Family and Consumer Sciences

- SSSc Review of function and NIFA structure
 - o NIFA Changes

With a 10% loss of budget as well as baby boomers retirement having an increasing influence in decision making, we've lost 10% of our staff who will likely not be replaced, expect for key positions. New people are not coming in so existing staff are wearing multiple hats. Rural development function within NIFA - Loss of leadership - tasks picked up by others NPLs. Team approach to this portfolio. PPT is located on the website http://escop.ncsu.edu/ViewCommittees.cfm?comid=23.

- Review SSSc role
 - Report underscores the mission and focus
 - Purpose statement to be noted on future agenda
 - o APLU authority operations with variety of commissions
 - Advisory committee on technology
 - Commission of economics
 - Commission on International
 - Commission on food, environmental and renewable resources
 - Crossing cutting issues within the REE network
 - Board of Ag Assembly (BAA) is one of 5 APLU boards- ESCOP Science and Technology committee SSSc
 - Amplify the voice of the social science so that it is heard up the chain of APLU structure and to NIFA, USDA and beyond.
 - Key point: Important to understand the hierarchy and the leadership of committees in suggesting change. As a group we speak for the group of SSSc; but must work within the 'system'... one voice.
 - o Dedicated webpage as a record of transaction (repository of the work)
 - \circ $\,$ One page committee list and abstract of work from the previous work
 - Missed opportunity to communicate to "lower" organizations.
 - Social scientists have a more difficult time locating where they fit within the RFAs now that the human and social dimensions are being diffused through AFRI programming.

10:00 AM - Jim Richards, representing "Cornerstone Government Affairs," the APLU contract lobbying firm to talk about their efforts/strategy and farm bill and budget predictions

- "Today's Climate = Change?" an overview
- BAA includes all Land-Grant Colleges
- Budget and Advocacy and Farm Bill committees overseen by Policy
 - Attempt to impact NIFA budgeting
 - Work with congress to develop strategies
- Of immediate congressional concern are the BIG "3" issues
 - Debt ceiling mid May
 - Automatic sequestration delayed to March 1 (super committee)
 - Continued resolution expires March 27th
- Other issues driving the congress
 - Immigration reform (likely to see some change in policy)
 - o Gun Control
 - o Gay Rights
- Climate change
 - o Budgetary Process (diagram displayed and described)
 - Result in appropriation bill
- Gap between federal spending and tax revenues is the "biggest issue" leading to national debt (average spending 20% versus average taxing 18%)

- Sequestration and Spending Caps
 - Budget reductions are split between defense and non-defense on discretionary expenditures.
 - o Likened to "eating our seed corn." Feed and Fuel the world
- CAERT delegates advocacy group- needs to be revitalized with new representation, perhaps young, more engaged individuals on timely issues
 - NIFA prevents disease NSF & NIH treat disease. Prevention is more important.
- Need to learn the issues to personalize the message use the "KISS" principle vitalize rural communities to fuel larger committees.
- Currency of the day is "impact statements."

11:00 AM - Dr. Howard Silver, Executive Director, Consortium of Social Science Associations (refer also to http://www.cossa.org/)

- Purpose of COSSA is to promote and defend the social and behavior sciences in Washington
 - Membership is comprised of 4 tier membership (17 governing member; 26 member organizations, 58 universities, & 14 centers and institutes)
 - o Biweekly newsletter available at www.cossa.org
- Deficit situation similar discussion to Jim Richards
 - Fixated on deficit and debt
 - Leads to cutting budgets for a long time
- Last Year (2012):
 - Last year, amendments lead to problems for the social and behavioral sciences.
 - Called for the elimination of NSF political sciences program
 - Elimination of the American Community Survey (ACS)
 - A call to make ACS voluntary making data problematic
 - o Lead to substantial COSSA activity
 - NSF Social and Behavior Sciences...
 - COSSA taken the lead on:
 - Workshop to follow-up a 2008 to develop common data, measures, and standards
 - Summary of the workshop is on the website
- 2013- An attack on social science on NSF quit funding political science research Coming up:
 - The America Competes Act comes up for reauthorization science technology legislation
 - Social Science funds for NSF, Department of Energy, etc.
- Activity on Human Subjects Research Participation
 - Floating the idea which governs the "common rule" for working human subjects.
 - Activity on STEM education and where it fits. NSF keeps saying yes, the others, not so much. STEM Ed a lot of duplications and cost likely to get more scrutiny. Move from social studies to social science.
 - A presence of Leadership gaps as a result of election year. Departure of key persons.
 - 2014 No budget yet. Mid-March is likely to have results. Will receive broad parameters, details will not come out until April. This is not unprecedented as it appears.
 - Leaks in what might be in the budget. President interested in the 'Decade of the Brain' likely lead to large funding in neuroscience and genomics
 - Deficits are still driving what is occurring in congress.

12:00 PM - Working Lunch

12:45 PM - ESCOP Science & Technology Committee Interface with SSSc - Dr. Dan Rossi, Northeastern Regional Association of State Agricultural Experiment Station Directors, Rutgers & Bill Ravlin, Professor and Associate Director, OSU/OARDC

- Bill Ravlin ESCOP Science & Technology Committee Interface with SSSc
 - Road Map for Food and Agriculture refresher (see ppt)
 - Discussion on where to go...so what?
 - Use of the Roadmap as a communication piece for goals for directions, priorities, and marketing, and facilitate partnerships
 - Delphi process to identify challenge Areas and Priorities (n=250 scienists)
 - 13 challenges identified
 - Cross walks with other organizations (usda, nih)
 - o 7 Grand challenge areas Writing teams resulted in independent white papers
- Resulted in the current document with seven grand challenges, and 35 objectives three main areas (Food Security and Human Health, Economic Growth and Job Creations and Sustainable Environment and Natural Resource). Final products of the process completed and/or in progress: original roadmap document, synthesize into shorter and more accessible brochure or card, and web sites.
- Area for active "system engagement" with social science (e.g., databases of expertise, review panels, responding to stakeholder input opportunity, review the USDA and ESCOP grand challenges to find ways to fit, active role to engage in existing and newly formed teams, active role in forming new teams, actively engage the APLU structure, and impact statements that relate to social science that affect rural and urban areas.)
- Dan reiterated a need for impact statements, a need for messaging with social implications, a need to work within our own institutions to make a social science impact and defining the value of social science need to crossover to urban from rural. Also noted were a lack of social science assignments from ESCOP and a need to be "at the table." Need to use the "process" in place to communicate with others and tap into committee talent (e.g., measuring impact, how to do this, etc.).

1:30 PM - Dr. Muquarrab Qureshi, Assistant Director - Institute for Youth, Family, and Community

- Shared his vision, challenges, and opportunities as Director of the IYFC.
- IYFC is the hub for social science activities; has a diverse portfolio; focuses on formal and nonformal education and 4-H & Youth and Family & Consumer Sciences.
- We need to tell congress what we delivered from the 2012 Farm Bill? There is a need to provide stories that are impact based from the Farm Bill programs; communicate with US congress as they consider the next version of the Farm Bill by highlighting the past in moving into the future
- "Good News" Education portfolio numbers relative to this group how many NIFA fellows have been funded, for example, related human and social sciences. This year, number of applications are up 25-35% (533 letters of interest) increase in submissions 50 letters of interest in the human and social sciences.
- A NIFA response to the Gap Analysis Report existing system to inform the 'system' and it is an impressive document that created a synthesis of the issues and opportunities. It was reviewed by both by Drs. Ramaswamy and Qureshi. As a result, Dr. Ramaswamy sent a memo to senior leadership in NIFA as a critical role of human and social dimensions in social sciences. The report findings started the conversation.
- Results: 1) 2012 RFA incorporated some of the recommendations of the report; not final, need more...making progress, 2) incorporated an interdisciplinary approach should there be a social science stand alone component? Diffusion way or stand alone?, and 3) Farm Bill priority #6 most relates to social sciences. Wouldn't it be nice to have a 7th priority area social science? There is an opportunity to re-write the Farm Bill by developing impact stories; make a case in the gap, deliverables and impacts for social science areas; (his) proposed name: "Social and Family

Sciences Food and Natural Resources Processes." There is strong support to move the proposal through the system.

• Challenging times for NIFA. Despite the budget issues, on going discussion on building teams interdisciplinary writing teams in RFA, including social, behavior and human sciences representation. Suggestions were offered for the SSSc. Need to begin working on the Farm Bill draft. Other suggestions cited include a need to populate RFA writing teams, RFA review panels (USDA web page to self identify) with social scientists, and maintain an 'engaged' approach to continue the influence on the 'system'.

3:00 PM - NIFA Panel (Science Advisory Council) – Report out on Stakeholder Feedback and next steps for SSSc

Dr. Frank Boteler, Assistant Director, Institute of Bioenergy, Climate, and Environment Dr. Robert Holland, *Assistant Director* invited, *Institute of Food Safety and Nutrition*

- Robert Handout: AFRI Stakeholder Report
 - o "Incorporated" the report in to the RFA Food Safety (no difference appear to be there)
 - received push back apparent disconnect
 - Some surprise, some not. a natural reaction
 - silo effect
 - threat to funding pool
- Frank Response to the report (see handout)
 - -Key points:
 - RFA are developed by team (National Program Leaders). Referenced several documents including the SSSc document
 - Upward trend in funding for social science in NIFA RFAs in:
 - AFRI Foundational area in Ag Econ and rural Comm
 - Sustainable Bioenergy
 - NIFA Fellowships Grant Program
- "Help us meet our challenges"
 - Points to consider:
 - Cited recommendations followed by response and comments
 - Lack of social sciences capacity within the agency to express the issues
 - Need social sciences to help define the outcomes and metrics, particularly in the food safety area.

4:30 PM - Officer Elections – Chair Elect -Reflection/Implications/Next Steps

Jack - Ideas to Consider:

- Social Impact Assessments (metrics, embedded process) in CAP projects
 - o pre assessment scan (eg., economic Impact assessments)
 - will contribute to REE score card
 - technologically RFA can benefit from this. Avoiding the "if we build it they will come."
 - Measure of unintended consequence, or negative effects as a result of new technology.
 - o cannot assume 100% adoption
 - o Investigate the inhibitors of Impact
 - Need to contribute to knowledge level on social impact
 - o perhaps valued only with CAP projects? Individual projects?
 - o Evaluation of Impacts- formative/summative/developmental systems model
 - o Balance social, economic and environmental impact
 - Sharing / Communication Documents
 - Rack card
 - Distribution process
 - Preface noting materials are advisory
- Populate Review Panel

• Determine a next round of gaps

David Doerfert was nominated and unanimously elected as Secretary/Chair Elect. Selecting a liaison to the S&T Committee was postponed to Wednesday morning.

4:45 pm Adjourn

Wednesday, February 20

8:00 am Next Steps as Stakeholder/SSSc Rack Card, Jack

Don Albrecht nominated **Scott Loveridge** to serve as the to the ESCOP Science & Technology committee and unanimously elected. Scott replaces Travis Parks in this capacity.

Three (3) follow-up topics: Social impact assessments (SIA), Review panels and Document sharing

- David Doerfert offered opening comments and information on social impact assessments. Discussed organizations (e.g., AEA) who have looked at impact assessments. International Association for Impact Assessment, for example focuses on the topic There are existing guiding principles, data collection, standards, etc on impact assessment. These efforts could serve as starting points for SSSc in considering best practices when developing impact statements.
 - Further discussion:
 - Should we explore Social Impact Assessment (SIA) as a working session in futher meetings?
 - Need to sell the agency on the SIA concept
 - Proposed the idea of tagging onto AEA (for example) to investigate SIA to move up the process as a result of a need to speed up the timeline.
 - Discussion of a meeting in the fall of 2013 with Experiment Station leadership in Columbus, OH.
 - David moved to hold the next SSSc meeting September 26-27 in Columbus, OH (held concurrently with the Experiment Station meeting), seconded by Tracy; motion passed by unanimous vote.
 - Established a Working Subcommittee (David, Ntam, Abigail, Dwayne [chair] & Tracy) to collate related resources and begin working on SSSc's contribution to development of social impact assessments; to be used within NIFA.

Populating the RFA review panels with SSSc members is a priority. Jack will send a message to Dr. Ramaswamy and the assistant directors reminding them to involve the SSSc members and the groups the SSSc represents.

Sharing Documents:

- Website ready access to information
- Follow-up meeting with local Experiment Station Directors the work of SSSc and, now, working on SIAs.
- Perhaps a deed to build on this work, Rack Card, for example
- Link the SSSc website to social science professional organizations to increase awareness
- How does this committee communicate with the larger agency groups?
- Need to advocate social science as a solution to problems
 - Travis (and subcommittee consisting of Pat, Michael, and Dwayne) will work to develop a one page (stand alone) page; containing mission statement, messaging, what ss problems within Ag Ed, Ag Comm, Rural Sociology, Ag Econ, etc.

9:00 AM - NSF Sociology Program Officers – Patricia White and Saylor Breckenridge - discuss NSF program options and assess needs

- NSF Panel members communicated opportunities for sociologists in the Social, Behavioral, and Econmic (SBE) Sciences program (1 of 7 areas). there are several interdisciplinary programs across SBE sciences and lots of 'homes' for social science within the SBE program area (several example areas cited). NSF favors funding "things" that have basic applications.
- Within NSF sociology programs, sustainability, climate, water, environmental issues are valued. Timely topics include: migration paths; shift in populations (rural to urban; urban to rural), land use, climate (things that affect humans). At present most efforts have been attitude studies (climate, polar regions, etc.). Encouraging broader studies similar to those in found in agriculture. There is a need to engage each other to identify topics of common interest to NSF & social sciences in agriculture. NSF is interested in proposals within the agriculture social science community that have an applied focus. NSF is in the initial stages of making calls for proposals to engage the social science community.
- Purpose for meeting with the SSSc is to learn more about what "you" are doing and to hold a conversation. Acceptable to suggestions. Current efforts include holding a session with American Sociologyl Association to talk about research. There is a desire to establish relationships with social scientist (e.g., SSSc) with an interest in representing agriculture in the social science integrating of thoughts (with NSF) to help social scientists and the scientific community in answering important questions. NSF has a desire to provide some direction to a community of scholars who are not reaching out to 'your groups' for funding. NSF is capable of addressing social science issue in agriculture and would like see more proposals come through NSF. There are a lots of 'broader impacts' associated with agriculture (e.g., issues of sustainability, lives and livelihoods, the environment, resources, labor, etc.). These are frequent sociology topics, but rarely have a agriculture component. There appears to be a separation of sociology and rural sociology.
- New initiative within NSF Interdisciplinary research across the behavior and social sciences (IBES) for collaboration but must have a 'home' program. Other interdisciplinary areas include BCC produce community of scholars for establishing capacity of analyzing large amount of data. Also, have RCN Research Coordination Network, which is a 5 year grant to meeting on a research topic to discuss research differences to help cross disciplinary lines (web page) or bring new insight within discipline.

Break reception with SSSc and NSF panel members

- Appreciation and thank you to Pat Hipple for her role on the SSSc.
- Final comments: Words are everything... there is a need to pick up buzz words to engage the rural sociology community. NSF will continue to be in touch to continue this conversation. NSF is open to invitations to attend meetings. Encourage communities in using NSF to research SS topics. Consider ways that agencies can work together.
 - NSF funds workshops, smaller budgets (\$15 to 70k) that require only a 5-6 pages online of agenda. an example is available. It is possible to use this funding for SSSc in developing the impact assessments.

10:30 AM Chuck Fluharty, President and CEO, Rural Policy Research Institute

- Suggested framework for thinking where rural social science fits and relates to our nations public sector. Some observations:
 - The term 'rural' America will have a impact on our work because of the recent electorial season democrats felt they couldn't influence rural areas; republicans didn't think they needed to.
 - As the recession is diminished, two topics have been remised in the public dialog; rebirth of rural manufacturing and ag exports in maintaining a balance in trade during this time.

- Lack of political relevance of "rural america" because of the focus on 1) gun control and 2) immigration; of which there is no greater geogrpahical area in need; greatest in rural communities
- The basic social contrast between rural and urban Amerian is frayed on the issues of gun control and immigration.
- Recent global OECD study to build indicators, beyon GDP per capita, of wealth, sustainability and economic growth of developed nation - 5 yr study. (see web site - Growth in all Regions report)
 - 45% metro regions grew faster in GDP than the average. Implications for social impacts of growth
 - Key findings related to social science: Different regions need different vehicles (e.g., infrastructure, human capital, innovation, etc.).
- Observations of our current culture.
 - Opportunities in the years to come
 - Affordable Care Act within rural communities (rural workforce) expressed in an allied rural workforce as an economic driver.
 - Climate change and mitigation/adaptation
 - State and local government as related to regional government Reduction in a "federal footprint" leading to an increase in rural democracy.
 - Challenges .. less funding. Need to think about new instituational designs
- Closing with things we are doing
 - Add research capability
 - Build analytic team to investigate opportunities
 - State and local government
 - funding and supporting 30 states on rural policy efforts
- How can SSSc serve RPRI?
 - Sharing research under way
 - o Building a sustainable advocacy within the DC area
- Energy
 - Huge and the jury is still out.
 - Public investment

11:15 AM Summary Discussion/Implications/Next Steps/SSSc Business

- Meet in September, two working committees, membership update (vacancies and refills).
- Jack thanked the committee for being engaged and its efforts in producing the GAP document.
- Pat and the SSSc thanked Jack for his years of leadership.

12:00 pm – Adjourn

Respectfully submitted by

Bobby Torres, Secretary/Chair Elect Spring 2013

Next Meeting: September 26 & 27 – Coincides with the Fall ESS/ARD/AES meeting Location: Hilton Easton, Columbus, OH

AFRI STAKEHOLDER FEEDBACK

Results of an AFRI Gap Analysis conducted by the ESCOP Social Science Subcommittee on February 21-22, 2012.

Introduction

In response to NIFA's call for stakeholder feedback to the Agriculture and Food Research Initiative (AFRI), the ESCOP Social Science Subcommittee (SSSc) conducted a gap analysis of recent AFRI RFA's to identify ways these could solicit more robust contributions from social scientists. Suggestions are provided to help AFRI envision the signature and foundational programs in ways that better address the human and social dimensions of the grand challenges and foundational research that shape AFRI priorities.

The purpose of the ESCOP SSSc is to "Recommend specific actions to help the Land-Grant system address high priority research and education issues leading to outcomes that deal with social issues in a significant, measurable way and that will generate sustained financial support." The SSSc hopes that this gap analysis will produce results not only for AFRI, but for the many other science initiatives at NIFA and within the Land-Grant system that can benefit from the body of work, perspectives and approaches, and skill sets that social scientists bring to solving some of our most vexing food, agricultural, and rural problems.

The SSSC reviewed the science priorities of available 2012 RFAs, including Food Safety, Agricultural and Natural Resources Science for Climate Variability and Change, Food Security, and Sustainable Bioenergy, as well as the 2011 RFA for foundational programs, including Plant Health and Production and Plant Products; Animal Health and Production and Animal Products; Food Safety, Nutrition, and Health; Renewable Energy, Natural Resources, and Environment; Agricultural Systems and Technology; and, Agriculture and Rural Communities.

The SSSc conducted their review by organizing into five small multidisciplinary working groups, each tasked with a different RFA. This was done to divide the labor and focus the attention and expertise of participants on a specific set of challenges. The SSSc defined the scope of their work by focusing exclusively on those 30 pages extracted from the five RFAs which articulated the science priorities in each of the challenge and foundational areas. No other facets of the solicitation or competitive process were reviewed.

Instructions for the gap analysis were open-ended and non-prescriptive, so each group was able to tailor their responses and recommendations as best suited the needs of their work. As a result, working groups reported back in a variety of ways; this will be evident in the various ways that feedback is presented below.

There are, however, general themes, cross-cutting issues, and overarching concerns that are presented first. Then, attention in focused on the specific science priorities of each RFA. The ultimate purpose of this gap analysis and stakeholder feedback is so NIFA may reap greater benefits from their social science investments to solve the grand and foundational challenges identified within AFRI.

Cross-cutting Areas from the Five Working Groups

The SSSc has high regard for the work done by NIFA and the RFA developers in reshaping the Agriculture and Food Research Initiative. As a result of your efforts, important work is being done by the land grant partners and other AFRI awardees. No recommendation made in this SSSc review is meant as a criticism of this hard work. Rather, our comments and suggestions are offered as a means to continually improve the science enterprise and to assist NIFA to remain nimble in response to dramatic changes in food, agriculture, natural resources, and the environment, and the coupled natural and human systems we are all trying to better understand.

Hundreds of pages of RFA text were sifted through to distill the 30 pages of science priorities that were their focus. This burdensome task hints at a challenge that all social scientists may face when trying to respond to NIFA solicitations. The human and social dimensions are diffused throughout NIFA programming (as we believe they should be), but this means that social scientists must work much harder to identify competitive opportunities in NIFA RFAs. We would recommend that NIFA create some mechanism to provide a summary of the human and social dimensions solicited by the aggregate of NIFA RFAs. We believe this would facilitate more robust contributions from social scientists in the competitive process and, ultimately, to the outcomes of AFRI investments.

The problems to be addressed in each RFA are almost always framed from a technological perspective, rather than from human needs perspective. Most RFAs are quite prescriptive, requesting an assumed solution to a problem rather than eliciting projects that propose a new way to solve the problem or that represent an array of potential solutions. Moreover, the assumed solutions solicited by the RFAs are almost always of a technological nature, which do not derive from an understanding of social systems and human behavior. If the human needs are assumed, they are implicit, not explicit, as though all RFA developers agree on the problem. The outcome of science application may be a product OR a process. Examples of some vexing paradoxes that require research on the human and social dimensions rather than technological fixes include: food processers and preparers frequently neglect even basic food safety practices; farmers do not automatically switch production to a carbon sequestering cultivar; consumers often do not select the healthiest foods on the grocery shelf; and, increasing the food supply does not ensure food security or feed the hungry.

RFA developers need to integrate the social sciences in the framing of the issue, rather than bringing them in at the end to evaluate behavioral change. Ask "How does this RFA address the human condition?" And make the answer explicit in the solicitation and in the proposed projects. USG solicitations for international development work require that all proposals include a social impact assessment (SIA). Inclusion of an SIA requirement for AFRI-funded projects would go a long way to strengthening the human and social dimensions of AFRI investments and solving human problems. The RFAs frequently rely on social science buzzwords without defining them. For example, what is meant by cost-benefit analysis or social, economic, and environmental sustainability? What are the components? What are the benchmarks? Costs to whom? Benefits for whom? How will we know when we've achieved sustainability? Without defining and providing benchmarks, how can we evaluate whether a proposed project is designed to achieve it? This repetition of buzzwords gives the impression that RFA developers don't understand the incredible potential of social science research or the nuanced approaches that each science can contribute. The social sciences can do so much more than cost/benefit analysis!

If behavior change is an end goal, it is essential to understand the drivers of human decision-making, adoption and diffusion, and action to change conditions. Where do the RFAs (and the proposed projects they solicit) consider producer or consumer adoption? What cultural elements contribute to variability in acceptance, response, choice, etc.? What are the barriers that thwart and enhancers that facilitate changes in human behaviors, policies and institutions, and social systems?

There seems to be a disconnect in the RFAs between the science being solicited and those who hold a stake in its success, especially farmers and consumers. For example, is it implicit or explicit that a market exists for the technology developed or practices recommended as a result of AFRI investment? Assessing producer and consumer needs prior to developing new agricultural technologies and practices will be essential.

RFA developers need to consider a number of questions, including: Who are the intended users of AFRI-developed technologies? Who will adopt this technology? Is this a farmer decision, consumer decision, voter decision, manufacturer decision? Whose behavior needs/is going to change? Who will implement this change? And what are the implications of these changes for individuals, communities, institutions, governments, and social systems? What will be the impact on agriculture? What will be the impact on communities? Does the technology contribute to people prosperity or place prosperity? What conditions will change as the result of diffusion of these technologies, and how will they impact quality of life?

We were pleased to see that a number of RFAs solicit systems analyses. Their presentation in the text, however, appeared quite linear, rather than iterative. We could not detect whether a feedback loop was considered. If so, we would recommend that this be made more explicit in RFAs that solicit systems analyses. If not, we would recommend its inclusion.

In many solicitations, the evaluation component is missing or invisible. A three-year award constrains the ability to measure outcomes, and science can't verify impacts by the end of five years. Is AFRI considering extending the timeframe of awards to allow more robust evaluation of results?

The RFAs should solicit education research, not just education doing. Education and extension is not just an activity or a product, it is a researchable science. Education and Extension scholarship should be expected and invested in.

We didn't see much in the way of addressing the needs of limited-resource producers, communities, and populations, including the 1890 institution stakeholders. This could be addressed by insistence on involvement of minority-serving institutions, 1890, 1994, and HSIs. Proposed project should be able to demonstrate how all partners were involved in the development and integration of the project and will contribute to its outcomes.

Finally, is there a way for NIFA (or Congress) to define Hispanic-serving institutions that would allow focused partnerships with the Land Grant system? Defining them by enrollment figures creates a "moving target," which thwarts meaningful long-term collaborations. This is compounded because HSIs are NOT structurally similar to Land Grants, as they have no colleges of agriculture or Extension services. If NIFA could designate a number of HSIs it seeks to support and identify them, this would help the Land Grant system establish working relationships that are easier to sustain.

FY 2012 Food Safety (AFRI)

General Observations and Reflections

The RFA does not question how consumers and producers will respond to changes in food safety. That is assumed. But if erroneously assumed, the investment may be wasted. Food safety needs to include research on what drives consumers' preferences and behaviors. Such research would examine motivation, affective and cognitive development, and emotional intelligence, among other things. This would attract other social sciences (psychology, e.g.) to make contributions to solving food safety problems.

Social structures, social and economic systems, the market and organizational structures (ownership, contracts, organizational literature on how business, industry, & gov't interaction, incentives) and how they interact among one another are key dynamics that should be among the subjects solicited for food safety science.

The supply chain is NOT a buzzword. We recommend the RFA encourage examination of the entire value chain in terms of food safety, especially critical control points, broadly defined. This would require looking at potential breakdowns in technology and behavior and what the costs and benefits of success or failure are. Food safety behaviors of farmers and producers and processors and manufacturers are all significant areas of inquiry. The food processing and production links in the chain are essential to include, as are interactions among social system factors and external influences.

We did not see food safety priorities related to potential contaminants in the food supply. Is there a way to incorporate issues related to antibiotics, pesticide residue, food irradiation, and/or biotechnology in the solicitation?

The RFA did not seem to provide a way to evaluate how people assess their food safety risk. An informed choice is not correlated to a change in behavior. How are consumers responding to food safety information? What are their perceptions of food safety risk? These are important areas of inquiry for food safety.

In the RFA, education appears to simply be an add-on. There is no attention given to education scholarship or education science. Simply "educating" the public is not the solution; labels don't elicit consumer response. A perfect food safety system is cost prohibitive. What is needed is better understanding of which food safety practices are more economically important to focus on. Which gives the greatest margin for safety? Of all the potential problems and solutions, which gives us the greatest bang for the buck?

Specific Suggestions are embedded below **in bold** in the text of the Food Safety RFA. Extracts of Program Priorities from the Food Safety RFA follow.

Background

While the U.S. food supply is generally considered to be one of the safest in the world, food-borne illness continues to be a source of concern for the American consumer, federal government, and industry. The Food Safety Challenge Area promotes and enhances the scientific discipline of food safety, with an overall aim of protecting consumers from microbial, chemical, and physical hazards that may occur during all stages of the food chain, from production to consumption. This requires an understanding of the interdependencies of human, animal, and ecosystem health as it pertains to food-borne pathogens.

To meet these identified needs, the long-term outcome for this program is to reduce food-borne illnesses and deaths by improving the safety of the food supply, which will result in reduced impacts on public health and on our economy. Projects are expected to address one of the stated Program Area Priorities which collectively contribute to the achievement of the following goals:

- 1. Improve the safety of the food supply through developing and implementing effective strategies that prevent or mitigate food-borne contamination, including food processing technologies, resulting in a reduction in the incidence of food-borne illness, while preventing future food-borne outbreaks. In addition, identifying and promoting the development of incentives, organizational structures, and contracts that lead to behavior on the part of producers and consumers that promote food safety.
- 2. Promote the development, adoption **and diffusion** of detection technologies for food-borne pathogens and other contaminants in foods, which are sensitive, specific, rapid, economical, easily-implemented, and usable under a variety of conditions, including use in the field. **This will involve the need to understand what factors influence producer and consumer behavior and how they respond to incentives. Topics that are important are cultural values, social structures and organization, brain mapping, etc.**
- 3. Evaluating the value chain to identify the critical control points (with costs and benefits broadly defined to incorporate the values of the participants). Contracting will also be important. Another area is a reporting system where consumers are able to report problems with food illnesses – thus there will be a need for a data repository (data – information – knowledge). Reduce negative public health and economic impacts through the development and demonstration of effective traceability systems that track the source, movement, critical tracking events (CTEs), storage, and control of contaminated food and food ingredients from production to consumption.
- 4. Increase the number of food safety scientists, as well as scientists who are cross trained in environmental science, animal science, microbiology, genetics, epidemiology, economics, social science, food science, engineering, and public health, to provide a holistic approach to ensuring the safety of the food supply, from pre-harvest through consumption.

5. The role of contaminants in our food supply is another question of importance here.

In order to achieve these program goals, the Food Safety Challenge Area will address several focused objectives over the next three years. These specific objectives are intended to allow for a stepwise progression toward effective strategies for prevention and mitigation of contamination, evaluation and demonstration of effective food processing technologies, rapid detection of food contaminants, and development of effective traceability systems for food and food ingredients. In FY 2010, the AFRI Food Safety program focused on the following priority areas: shiga-toxin producing *Escherichia coli* (STEC) in beef, food processing technologies, food-borne viruses, food safety education and emerging food safety issues. In FY 2011, the AFRI Food Safety Program will solicit new grant applications that address *Salmonella* and *Campylobacter* in poultry products. In addition and like the FY 2010 priority areas, the AFRI Food Safety Challenge Area will request applications for critical and emergent food safety research needs to prevent and control threats to the safety of the U.S. food supply. Contingent upon the availability of new funds, in FY 2012, the priority areas will include: microbial ecology of food-borne pathogens and control of other food-borne pathogens of concern, e.g., Listeria monocytogenes.

Comment: This suggests that the entire problem relates to food contamination, and if we just educate people all will be solved. However people respond in sometimes seemingly irrational ways – so further understanding of human behavior on the part of all players in the value chain will be essential.

1. Prevention and Control of Salmonella and Campylobacter in Poultry Flocks and Poultry Products, including Eggs

Comment: Why is the focus on such a specific example when there are food-borne illnesses from many food sources (e.g.; other animal products; fruits and vegetables?)

Program Area Priority – Applicants must address the following:

Projects in this priority area should generate information and/or strategies critical to the reduction of *Campylobacter* and/or *Salmonella* in poultry and poultry products. Projects are encouraged to identify risk factors and develop intervention and risk management strategies for reducing *Campylobacter* and/or *Salmonella* contamination in the pre-harvest and/or post-harvest environments and evaluate the effectiveness of the strategies using a risk-informed approach. Highly focused projects that include two of three functions (research, education, extension) will be considered for funding.

Applications are encouraged to include one or more of the following topic areas:

Comment: This sort of evaluation will be incomplete without an understanding of the systems, and the incentives that result from those systems, and how those incentives lead to particular behavior (with respect to taking on risk) that decision makers will use.

- Develop new and improved methodologies for monitoring poultry flocks for the presence of *Campylobacter* and/or *Salmonella*. Monitoring and surveillance should target both chicks known to be pathogen-negative, and suspected targets of vertical transmission from grandparent, to parent, to offspring (or to egg).
- Develop improvements in slaughter hygiene and technology that are effective for reducing contamination of poultry products. Improvements should address a combination of control factors that provide a series of "hurdles" to minimize the risk of poultry meat contamination.
- Develop and implement guidelines for taking appropriate action when finding positive flocks.
- Develop novel technologies to reduce human pathogens in live birds and/or poultry products, including eggs.
- Develop guidelines and recommendations for best practices to reduce human pathogen loads in poultry flocks.
- Investigate improvements in control technologies that promote protective mechanisms in individual live birds, such as vaccinations, and optimization of the intestinal flora of poultry.
- Develop effective and efficient processing and packaging methods for prevention, control, and elimination of contamination of poultry products.
- Design effective training, education (graduate and undergraduate), and outreach programs for industry, veterinarians, producers, processors, and others who are critical influencers of effective infection control and prevention of contamination, both for live animals, poultry meat, and eggs.
- There may be a need to study the impact of scale of operation on the propensity for problems with food safety in production operations. On the one hand a large scale poultry operation may be safer because that organization can afford to have a veterinarian on-site to watch for problems and have them treated before they become severe. On the other had, if there is an outbreak that quickly spreads through the flock there are many more animals affected and that can affect consumer safety.
- Sometimes consumer response to a food safety crisis is to "buy local" or "buy organic" or "grow your own" and the relative safety of these approaches is unknown. This is another area in need of study.
- Design new, innovative, and effective consumer education programs that focus on the best ways to avoid infection, including safe handling and preparation and proper cooking instructions (for example, proper temperature and time controls) for poultry and poultry products. Identify and develop knowledge diffusion systems for the 21st century. How do we inform consumers and producers in a manner that is effective and wide-spread?

- Use school based (formal) education for safety education and take a lesson from the positive experiences with recycling and farm safety.
- Cultural sensitivity, norms and traditions play a very large role here. More study is needed to identify how these factors are influencing consumer behavior and how educational programs might be structured.
- Determine the most effective and practical methodologies for measuring and evaluating the impact of potential interventions on preventing and controlling infections associated with poultry products.
- Conduct economic analyses that compare the costs and benefits of implementing various prevention and control measures from farm to fork. These measures should be developed for small, medium, and large producers and/or processors. There is a need to broaden this to incorporate the impact of different organizational (different market structures, different ownership organization) and contract structure on incentives and behaviors.

Other Program Area Requirements:

- Detail Removed
- To increase the potential impact of projects on control of *Campylobacter* and *Salmonella*, inclusion of animal scientists, food microbiologists, poultry plant operators, veterinarians, engineers, economists, epidemiologists, social scientists, educators, extension educators and specialists, and statisticians to the project team is highly recommended, where applicable.

Comment: In order to understand the cultural and social factors it will be important to expand this list to include other social scientists (anthropology, sociology, psychology)among others, including other life sciences for investigations that include bio-chemistry, brain mapping, etc.

2. Addressing Critical and Emerging Food Safety Issues

Program Area Priority – Applicants must address the following:

• Research generated in this priority will reduce the burden of food-borne illness by supporting a wide range of critical and emerging food safety research needs. Emerging pathogens and contaminants are defined in this program as being potential food safety hazards where little to no science-based information is available demonstrating that the hazard is a cause of food-borne disease. This program will support both fundamental and applied research focused on identifying and characterizing emerging food-borne human pathogens and other contaminants (*e.g.*, chemicals, nanoparticles, and toxins) in foods; development of concentration and purification methods for isolating pathogens and contaminants from foods; identification and evaluation of under-researched food vehicles that harbor or support pathogen growth and transmission; and/or

novel and practical processing, mitigation, and control strategies that reduce the transmission, growth, and survival of pathogens in food environments.

Applications are encouraged to include one or more of the following topic areas:

- Evaluate the value chain to identify the critical control points using broad based measures of cost and benefits and return on investment (ROI).
- Identify and characterize emerging human food-borne pathogens and contaminants of significance to the food supply.
- Develop novel intervention strategies in live animals for emerging human foodborne pathogens and/or contaminants, with special emphasis on the critical period leading up to, and ending with presentation for slaughter and hide removal (meat) or collection (milk).
- Conduct pre-harvest basic and applied studies to develop sensitive, accurate and validated pen-, chute-, or animal-side emerging food-borne human pathogen detection tests that are cost-effective and amenable to high-throughput scaling.
- Develop and statistically validate an improved method for the detection of *Brucella* in cheeses or *Mycobacterium avium* or *bovis* in dairy products including cheese. The method should be rapid, specific, practical, and sensitive. Determine the incidence of these pathogens in these products.
- Develop and statistically validate and improved method for the detection of, and if possible to distinguish between, the meat-associated and feline-associated *Toxoplasma gondii*. The method should be rapid, specific, practical, and sensitive.
- Determine the incidence of *Toxoplasma gondii* in live food animals and identify interventions to reduce contamination of meat and/or produce.
- Develop novel concentration and purification procedures for isolating human pathogens or contaminants from foods.

Other Program Area Requirements:

- Detail Removed
- To improve the potential impact of projects on enhancing food safety, inclusion of engineers, food microbiologists, economists, epidemiologists, social scientists, animal scientists, and statisticians to the project team is highly recommended where applicable.

Comment: Include other disciplines as well, such as psychology.

3. Research Projects

Single-function Research Projects will be support fundamental or applied research conducted by individual investigators, co-investigators within the same discipline, or multidisciplinary teams.

Fundamental research means research that (i) increases knowledge or understanding of the fundamental aspects of phenomena and has the potential for broad application and (ii) has an effect on agriculture, food, nutrition, or the environment.

Applied research means research that includes expansion of the findings of fundamental research to uncover practical ways in which new knowledge can be advanced to benefit individuals and society.

Multidisciplinary projects are those in which investigators from two or more disciplines collaborate closely to address a common problem. These collaborations, where appropriate, may integrate the biological, physical, chemical, or social sciences.

- **4.** Integrated Research, Education, and/or Extension Projects An Integrated Project includes at least two of the three functions of the agricultural knowledge system (*i.e.*, research, education, and extension) within a project, focused around a problem or issue. The functions addressed in the project should be interwoven throughout the life of the project and act to complement and reinforce one another. The functions should be interdependent and necessary for the success of the project and <u>no more than two-thirds of the project's budget may be focused</u> <u>on a single component</u>.
 - 1) The proposed research component of an integrated project should address knowledge gaps that are critical to the development of practices and programs to address the stated problem.
 - 2) The proposed education (teaching and teaching-related) component of an Integrated Project should develop human capital relevant to overall program goals for U.S. agriculture. An education or teaching activity is formal classroom instruction, laboratory instruction, and practicum experience in the food and agricultural sciences and other related matters such as faculty development, student recruitment and services, curriculum development, instructional materials and equipment, and innovative teaching methodologies.

Educational activities may include any of the following: conducting classroom and laboratory instruction and practicum experience; faculty research internships for curricula development; cutting-edge agricultural science and technology curriculum development; innovative teaching methodologies; instructional materials development; education delivery systems; student experiential learning (student led-research; internships; externships; clinics); student learning styles and student-centered instruction; student recruitment and retention efforts; career planning materials and counseling; pedagogy; faculty development programs; development of modules for on-the-job training; providing knowledge and skills for professionals creating policy or transferring to the agriculture workforce; faculty and student exchanges; and student study abroad and international research opportunities relevant to overall program goals for U.S. agriculture. Educational activities must show direct alignment with increasing technical competency in AFRI priority area(s) to ensure that U.S. agriculture remains globally competitive in the knowledge age. Educational components must address one or two of the following key strategic actions:

- Train students for Associate, Baccalaureate, Master's or Doctoral degrees; and/or
- Prepare K-12 teachers and higher education faculty to understand and present food and agricultural sciences.

These projects should synthesize and incorporate a wide range of the latest relevant research results. Note that routine use of graduate students and postdoctoral personnel to conduct research is not considered education for the purposes of this program.

3) The proposed extension component of an Integrated Project should conduct programs and activities that deliver science-based knowledge and informal educational programs to people, enabling them to make practical decisions. Program delivery may range from community-based to national audiences and use communication methods from face-to-face to electronic or combinations thereof. Extension Projects may also include related matters such as certification programs, in-service training, client recruitment and services, curriculum development, instructional materials and equipment, and innovative instructional methodologies appropriate to informal educational programs.

Extension activities address one or more of the following key strategic actions:

- Support informal education to increase food and agricultural literacy of youth and adults;
- Promote science-based agricultural literacy by increasing understanding and use of food and agricultural science data, information, and programs;
- Build science-based capability in people to engage audiences and enable informed decision making;
- Develop new applications of instructional tools and curriculum structures that increase technical competency and ensure global competitiveness;
- Offer non-formal learning programs that increase accessibility to new audiences at the rate at which new ideas and technologies are tested and/or developed at the community-scale; and
- Develop programs that increase public knowledge and citizen engagement leading to actions that protect or enhance the nations' food supply, agricultural productivity, environmental quality, community vitality, and/or public health and well-being.

These projects should synthesize and incorporate a wide range of the latest relevant research results. Please note that research-related activities such as publication of papers or speaking at scientific meetings are not considered extension for the purposes of this program.

Integrated Projects aim to resolve today's problems through the application of science-based knowledge and address needs identified by stakeholders. Integrated Projects clearly identify anticipated outcomes and have a plan for evaluating and documenting the success of the project. These projects should lead to measurable, documented changes in learning, actions, or conditions in an identified audience or stakeholder group.

<u>Agricultural and Natural Resources Science for</u> <u>Climate Variability and Change (AFRI)</u>

General Observations and Reflections

Everything is dynamic (social, economics, environmental) so there is no firm target for a sustainable climate. Costs are going to rise. People's choices will be influenced. Food access/security is the key question with climate change. What are the responses? The market will respond to climate change because people will react and adjust. But where is the market? And how does it respond? Answers to such questions are not solicited by this RFA.

Does the RFA consider a feedback loop in all systems analysis? It's not explicit, but it should be.

The evaluation component is invisible, due to the contracted timeframe for measuring outcomes within 3 years. Researchers can't verify impact by end of 5 years. The intermediate or long-term outcomes can't be measured within timeframe.

Specific Suggestions are presented below **in bold**:

- 1. General Frame Question: The basic formulation of the RFA is on the production/technology side of the problem:
 - a. For example, maybe the optimal response to rising seawater is to move rice production inland and use the freed land for something else.
 - b. A larger/regional response to climate change.
- 2. General Frame Question: The RFA focuses on place prosperity rather than people prosperity.
- 3. General Frame Question: These decisions may imply that people have to make different consumption decisions than they did before some commodities may become more expensive does this impact food security?
- 4. With regard to 5.1 Assess the existing and potential market for ecosystem services focusing on carbon sequestration.
- 5. With regard to 5.4 and 5.5 This may not be attainable given the lifespan of the projects. An instrument may show a difference, but we cannot show impact [Pic 1,2, or 3 and then 4 or 5].
- 6. What is the difference between 5 and 6? Is the focus in 6 on increased variability or regional shifts?
 - a. They use the term ecosystem services in the individual objectives.
 - b. Regional changes in production/mitigation.
- 7. How would supply chains have regional context?
 - a. Clarification of the economic dimension of the second bullet point on 6.

- 8. Why do producers decide to participate in decision-making, management practices, and supply chains on second bullet point on 6?
- 9. What is the educational research content? It seems to be more a delivery of service instead of research.
- **10.More detail on collaboration between education and research would be helpful.**

FY 2012 Food Security (AFRI)

General Observations and Reflections

The focus of the RFA is on increasing food production, but food security is about more than producing more food. The paradox is that hunger goes up as production goes up. Consequently, the science of food security needs to be reframed. What are the human issues causing food insecurity and how do we address these? Create new category in the RFA—on the food system. Refocus the new program priority on the food system and human behavior; neither animal nor crop, but instead looking at human factors—the behavior of people. People will have to behave differently. Not everything is amendable to a technological fix. Food access and affordability, and public and private food distribution systems are essential areas of inquiry, as are economics, logistics, infrastructure, etc.—to improve food security. It is not essential to have social scientist on every project, but researchers do need to recognize the human dimensions of these problems. The RFA needs to facilitate this, so it is not simply tacked on to the end of any project.

Human behavior is affected by information and policy. How will we use the information generated by the program to implement change? This suggests that policy analysis should be built into the RFA as essential area of inquiry for food security, too. Likewise, how will the knowledge generated be disseminated? Considering how information will be disseminated should be part of RFA, to initiate discussion and development of food system that ensures food security.

Specific suggestions are presented below **in bold**:

The Food Security Group was struck by several things in critiquing the Program Priorities of the 2012 AFRI RFA. The first would be that the RFA focused on increasing food production as a primary way of increasing food security. The primary assumption for this "production focused" proposition seems that food insecurity occurs largely because of lack of food, ignoring myriads of other social and human consumption issues. We recognize that the food security issues being addressed are global as well as national and support research that enhances production. But we note, for example, the RFA indicates that between 2007 and 2008, food insecurity increased 30 percent in this country. Food production during the same period increased and the food system became more efficient: food production increased by 2 percent, and total agricultural inputs decreased by 2 percent. We argue that increased food production and food production efficiency alone does not lead to reductions in food insecurity. Therefore, we suggest that the introductory section of the RFA broadens the assumption underlying as well as causes of food insecurity.

We further noted that the RFA summary was structured into two sections that address the production side: the first dealing with "increasing animal health and production" and the second with "increasing sustainable crop production. The first section had three programs that focused on animals and the second section had four programs, three of which focused on crops and the last of which dealt with "sustainable food systems to improve food security". We believe that the section "sustainable food systems" should be treated as a separate category, dealing with the human factor. Therefore, we suggest restructuring the seven programs into three major categories: food systems (dealing with the human factor), animal systems, and crops systems.

Based on the above observations, we identified several ways in which the RFA categories can be improved and the social sciences and human dimensions can be incorporated into the AFRI process:

- 1. The human dimensions need not be explored in every priority: economic impacts have some relevance to many programs, but analysis of human behavior and social systems has marginal relevance to 5 of the 7 programs priority reviewed.
- 2. Consider taking advantage of the human and social science expertise in the system by refocusing existing programs or focusing new programs on human behavior and the food system, broadly conceived.
- 3. Specifically, we'd recommend a new category on "improving food systems through understanding human behavior and economic/social systems" (in addition to the sections on "increasing animal health and production" and "increasing sustainable crop production") that draws on the strengths of the human and social sciences as well as the agricultural production sciences. And bring this category to the front of the description of Food Security research.
- 4. The program under Food Security that fits in this new category and that most heavily draws on this expertise was Number 7 on "sustainable food systems to improve food security". This program supported analysis of food access and affordability issues, the public and private and nonprofit food distribution system and the production and value chains embedded in this system.
- 5. Human behavior is changed by new information as well as policies. (Think about how new information and policies about smoking and health affected tobacco use over the last 50 years.) This program can contribute to information about human behavior related to food choices, food system functioning, and policies that affect the food system and human health in a way that can lead to improvements in global and national food security. Requests for proposals should encourage analysis of policies that affect food systems and plans for getting the information to potential users.

FY 2012 Sustainable Bioenergy (AFRI)

General Observations and Reflections

This RFA needs to be more prescriptive in inclusion of social & human dimensions of bioenergy and the participation of social scientists. Researchers responding to the RFA should demonstrate a foundational understanding of what a human system is and what it encompasses.

The RFA needs to articulate the sustainable dimensions of each of the three legs of the stool: environmental, economic, and social. What are the social pieces that have to be in place before a sustainability goal can be achieved? Sustainability analysis should reach down to the social components.

Specific suggestions are presented below and embedded below in bold.

Comment: In framing and shaping the science for sustainable bioenergy, as well as for developing the program description, it would be advantageous to also view the challenges through the lens of farmers and communities.

Extracts of Program Priorities from the Sustainable Bioenergy RFA follow:

Sustainable Bioenergy Challenge Area:

• Detail Removed

Background

The AFRI Sustainable Bioenergy Program will fund grants that target vital topical areas related to the development of regional systems for the sustainable production of bioenergy, biopower and biobased products. These programs will, where appropriate, align with existing Regional Bioenergy Coordinated Agricultural Projects (CAP) to promote NIFA's goal and mission of economic, environmental, and rural community sustainability **through research**, education, and outreach.

Comment: Extension scholarship should be a requirement, especially with regard to goals 7 and 8 below.

Demand for biomass continues to increase as additional targets for heat, transportation fuels, power, and biobased products are realized. Current policies are designed to provide agricultural support, rural enhancement, reduced dependence on foreign sources of energy, climate change mitigation/adaptation, and environmental sustainability. Policy developments often are identified as drivers of production decisions in the biofuels and bioenergy industries. New policies will need to take into full account associated risks/uncertainties and unintended consequences of feedstock production systems on natural resource and ecosystem service sustainability. Research is not well developed around the implications of current and alternative regulatory policies, fuel and portfolio standards, market distorting and other production subsidies, tax credits, and agricultural assistance programs on both bioenergy and agricultural markets and production decisions, which are subject to further evaluations of environmental and other indirect effects.

To meet these identified needs, the long-term outcome for this program is to implement regional systems that materially deliver liquid transportation biofuels to help meet the Energy Independence and Security Act (EISA) of 2007 goal of 36 billion gallons/year of biofuels by 2022 and reduce the National dependence on foreign oil and, as appropriate, produce biopower and biobased products. Projects are expected to employ a systems approach to address the stated Program Area Priorities which collectively contribute to the achievement of the following goals:

- 1. Deployment of superior genotypes of regionally-appropriate dedicated energy crops.
- 2. Refinement and implementation of sustainable regional feedstock production practice.
- 3. Seamless feedstock logistics.
- 4. Scalable, sustainable conversion technologies that can accept a diverse range of feedstocks.
- 5. Regional marketing and distribution systems.
- 6. Regional sustainability analyses, procedures of policy analysis and community engagement, data collection and management, and tools to support decision-making, system-development, and transitional science; initial data collection should include limited-resource bio-energy producer and consumer concerns.
- 7. A workforce well-educated and prepared through formal and informal education from secondary through post-secondary to adult level with the capacity to fill the cross-disciplinary needs of the biofuels industry.
- 8. Build capacity in minority-serving institutions for research, education, and outreach in sustainable bio-energy.

In FY 2010, NIFA solicited for the establishment of three Regional Bioenergy CAPs that focus on dedicated energy crops including energy cane, perennial grasses, sorghum, woody biomass, and oil crops (oilseeds and algae). These sustainable crops serve as feedstocks for the production of advanced non-ethanol, infrastructure-compatible fuels and biobased products through a systems-oriented approach that links feedstock development, production, logistics, conversion and markets. NIFA supports programs that are trans-disciplinary and integrate genetic crop development; sustainable agronomic and silvicultural practices; pest and beneficial species management; coordinated energy-efficient logistics; flexible and scalable sustainable conversion and refining technologies; effective marketing and distribution systems; provide sustainable ecosystem services and rural community prosperity. In FY 2012, NIFA will support one additional Regional Bioenergy CAP that focuses on the production and delivery of Regionally Sustainable Biomass Feedstocks. While the focus will be on feedstocks,

competitive proposals will present their feedstock development and production concepts in the context of a complete regional supply chain.

The FY 2010 Request for Applications received useful stakeholder input which helped to identify the specific areas of research for FY 2012. These topics increase NIFA's pursuit of sustainability by focusing on the interplay between policy, **planning and implementation**, the environment, and bioenergy and protecting and providing habitats for wildlife and beneficial insects. Each topic has strong ties to the environment, economic efficiency, and rural community life. The topics are important to achieving National goals and can span borders creating the potential of international collaboration and learning.

Comment: We added planning and implementation as important areas of inquiry. These currently go unaddressed in the solicitation, but we would recommend their inclusion and see a number of opportunities for research in these areas.

Comment: Here is a great place to introduce the capacity-building suggestions made previously.

5. Development and Sustainable Production of Regionally-appropriate Biomass Feedstocks

Program Area Priority – Applicants must address the following:

• Present a coordinated plan for developing a regional approach for feedstock development, production, and delivery to ensure the sustainable production of biomass to be used for conversion to advanced liquid transportation fuels, and if appropriate, biopower and biobased products. These systems should have net positive social, environmental, and rural economic impacts and be specifically targeted to an industrial, **cooperative, or government** partner or platform. It is expected that the Regional Feedstock CAP will network with and leverage existing efforts within USDA; university research, education, and extension **faculty and resources;** other federal agencies; and the private sector by taking multidisciplinary and transdisciplinary approaches.

Comment: The word "network" isn't very descriptive. We would suggest substituting "partner" or "collaborate".

Other Program Area Requirements:

• Detail Removed

Comment: Has the program defined what they mean by "sustainable"? How will the program be able to evaluate sustainable production and delivery systems? How will the program insure sustainability?

- This program is focusing on the development of sustainable production and delivery systems around five groups of dedicated energy feedstocks:
 Energycane, perennial grasses, sorghum, woody biomass, and oilseed crops. For this solicitation, projects targeting algae are not eligible given that recently awarded grants from the Department of Energy has strongly supported algae. Certain specific woody biomass feedstocks are also not eligible given that recent awards from NIFA have strongly supported work in this area, including; western species of Abies, Alnus, Larix, Picea, Populus, Pseudotsuga, and Tsuga. The regional CAP should focus on one or more feedstocks as regionally appropriate. These systems should focus on producing the feedstock in areas with high net primary production; where inputs, such as water and fertilizer, are at their minimum; and where land is available that will not displace existing productive agricultural sectors or harm existing rural economics or environmental conditions. Applicants can determine what area comprises a region.
- Applicants **must** to consider developing approaches, practices, and technologies that allow small and medium-size landowners **and limited-resource farmers** to participate and contribute to the regional feedstock system.
- Transdisciplinary studies that **include** social, behavioral, and biological/chemical/physical sciences into comprehensive study designs at an accelerated rate are highly desired.
- Education activities should:
 - develop human capital relevant to program goals
 - **educate** students for Associate, Baccalaureate, Master's or Doctoral degrees; and/or prepare K-12 teachers and higher education faculty
 - synthesize and incorporate a wide range of the latest relevant research results for outreach materials
 - lead to measurable, documented changes in learning, actions, or conditions in an identified audience or stakeholder group
- Extension activities should:
 - conduct programs and activities that deliver science-based knowledge and informal educational programs to people, enabling them to make informed decisions

Comment: Informed decisions about what?

- include program delivery that may range from community-based to national and from face-to-face to electronic or combinations thereof
- \circ $\,$ synthesize and incorporate a wide range of the latest relevant research results
- lead to measurable, documented changes in learning, actions, or conditions in an identified audience or stakeholder group

• engage limited-resource populations.

- The Regional CAP supported under this RFA must direct integrated research, education, and/or extension activities to the biomass supply chain segments where USDA has a lead national role. Feedstock conversion research is being supported by the Department of Energy and not requested in this NIFA AFRI priority area. However, applicants must document partnerships with an end-user who anticipates a sustainable supply of feedstock to ensure that feedstock development and production are well-aligned with appropriate conversion technologies. The following descriptions highlight aspects of the biomass supply chain segments that applicants must address:
 - 1) *Feedstock Development*: Optimize yields and allow for reduced inputs.
 - Maximize the range of feedstock phenotypes, through advanced genomics, breeding, and systems integration.
 - Increase the geographic range where dedicated feedstocks may be grown with high yields and low inputs.
 - Maximize year-around photosynthetic efficiency and net carbon fixation.
 - Minimize water usage and nutrient, pesticide, and herbicide inputs through genetic improvement.
 - 2) *Sustainable Feedstock Production Systems*: Optimize yields with minimal environmental impact.
 - Identify management practices that minimize water usage, and nutrient, pesticide, and herbicide inputs.
 - Evaluate (from field-to-watershed scales) impacts of bioenergy feedstock production on food, feed, or fiber production, and identify strategies to minimize adverse impacts.
 - Optimize agronomics, cropping systems, and silviculture.
 - 3) *Feedstock Logistics*: Develop equipment with the scale and efficiency required for sustainable biomass production.
 - Harvest and collection Operations to acquire biomass from the point of origin and move it to a storage or queuing location. Examples include cutting, harvesting, collecting, hauling, and often some form of densification, such as baling or bundling.
 - Storage Operations essential for holding biomass material in a stable form until preprocessing or transport to the processing facility. Storage could be at locations near the harvesting areas, at the industrial facility, or both.
 - Preprocessing Processes that physically, chemically, or biologically transform biomass into a state more suitable for transport or for product conversion. Examples include densifying, thermochemical processing, grinding, drying, chemically treating, ensiling, fractionating, and blending.
 - Transportation Movement of biomass through the logistics system from harvest and collection to the processing facility. Biomass transport options are generally constrained to existing transportation

infrastructure, such as truck, rail, barge, or pipeline. Develop new transportation technology, **transport models and modes**, including improved containers and lighter vehicles to reduce truck traffic and transportation costs, reduce impact on roads and bridges, and reduce undesirable social impacts, such as, for example, bankruptcy and small business foreclosure, loss of productive or legacy land, etc..

- Health and Safety issues as they pertain to new systems integration and equipment.
- 4) *System Performance Metrics, Data Collection, Modeling, Analysis, and Decision Tools*: Generate social, environmental, and economic metrics and data to evaluate the sustainability as well as production performance of a regional system.
 - Develop region and feedstock specific data management plans for Sustainability Performance Metrics and Data Acquisition methods.
 - Validate region and feedstock specific sustainability performance metrics.
 - Use existing and initial data to determine if performance metrics are valid and support sustainability performance objectives.
 - Data Collection and Management
 - Environmental Impact Evaluation
 - o Soil Quality
 - Greenhouse gas emissions and carbon sequestration
 - Pollinators, Wildlife, and Habitat
 - Land-use Change
 - Water quality and availability
 - Economic Impact Studies
 - Socioeconomic Impacts
 - Develop decision-making tools

Sustainable Bioenergy Research

These Program Areas support research with high relevance to the development of sustainable regional systems for the production of bioenergy and biobased products. In order to attain the greatest benefit from biomass-based energy, the nation must consider the many environmental, social and economic benefits and trade-offs associated with decisions and policies regarding the where, when, how and who of national and regional biofuels development. USDA is dedicated to developing our Nation's biomass based energy resources in a socially, economically, and environmentally sustainable manner. Applicants must address one of the priority areas listed below. These Program Areas are dynamic and interdisciplinary, spanning ecological, biogeochemical, and social science inquires. Consequently, applications focused on one Program Area may logically incorporate concepts or elements from other Program Areas listed. For example, applications for Program Area A6122 that address land use impacts of agricultural, biofuels, or other policies may also include aspects of Program Areas A6125, which focuses on the environmental impacts of land

use changes resulting from feedstock production. Applicants must indicate in their Letters of Intent the one Program Area that is the primary focus of their proposal.

6. Policy Options for and Impacts on Regional Biofuels Production Systems

• This priority seeks research findings that evaluate and develop policy options for achieving sustainable regional biofuels/bioenergy production and commercialization. Proposals should address a diverse range of agricultural, biofuels, or environmental policy options and opportunities (*e.g.*, standards, mandates, subsidies, tax credits, trade, and agricultural assistance programs) that may impact economic, environmental, social, and other prospects. Proposals may include the compatibility and challenges between Federal and state policies. Proposals may also address the indirect consequences of changes in agricultural markets and production decisions that policies may have.

Other Program Area Requirements:

- Detail Removed
- **7.** Impacts of Regional Bioenergy Feedstock Production Systems on Wildlife and Pollinators

Program Area Priorities – Applicants must address the following:

• This priority seeks proposals that focus on issues such as fragmentation of habitat, edge-effects, migratory and breeding patterns, predator-prey interactions, and other wildlife issues impacted by biomass development. The potential for land-use change with respect to the production of feedstocks for biofuels and bioenergy will have an unknown effect on sustainable wildlife habitat and pollinator species. Research should focus on the development of best-management practices to minimize adverse effects on wildlife and pollinators.

Other Program Area Requirements:

- Detail Removed
- 8. Socioeconomic Impacts of Biofuels on Rural Communities

Program Area Priorities – Applicants must address the following:

• This priority seeks research findings that enhance scientific knowledge of socioeconomic behaviors, potential direct and indirect impacts, and implications of sustainable regional production of biofuels and biobased products. Proposals should address the nexus of social, economic, legal, or institutional factors; production or markets constraints and vulnerabilities at different scales; or

temporal dynamics leading to long-term sustainable biofuels production and commercialization. Examples include assessing technology adoption; social acceptability; income and welfare effects; implications for small-scale and minority producers; rural economic diversification and development; public health, employment and human capital issues; the role of agricultural cooperatives; risks and uncertainties management; the linkage among food, feed, fiber, and biofuels production; or the U.S. role in global food and feed markets.

Other Program Area Requirements:

- Detail Removed
- **9.** Environmental Implications of Direct and Indirect Land Use Change

Program Area Priorities – Applicants must address the following:

• This priority seeks research to enhance understanding of the environmental implications of direct or indirect land use change as a result of biofuels feedstock production. The overall goal is to maximize the benefits of biofuel and feedstock production while minimizing potential negative environmental consequences of biofuels-induced land use change. This includes potential risks to ecosystem services; issues of water availability; issues of soil, water and air quality; and indirect land use change with potential cascading environmental effects.

Other Program Area Requirements:

• Detail Removed

FY 2011 Foundational Programs (AFRI)

General Observations and Reflections

What does "foundational" mean? Each of these research areas has essential practical application, which suggests that integration of education and extension scholarship is warranted. But these foundational programs appear to focus on research exclusively. Why?

Applicants should be required to discuss the human dimensions of their proposed projects. What is the social, economic, and environmental relevance of their research and intended results? What, for example, are the implications of their research and intended results for human health, consumers, community development, capacity-building, and the three facets of sustainability—social, economic, and environmental?

Specific suggestions are presented below **in bold**:

Plants Health and Production and Plant Products

Consider a research priority to examine the adoption and diffusion process for technologies and innovative practices. What are the human, social, cultural, and economic factors that impede or facilitate and enhance adoption and diffusion of the technologies and/or innovative practices proposed by the research?

Animal Health and Production and Animal Products

Consider research priorities that focus on the implications of animal health, production and products on domestic and foreign markets and trade. These would include such things as:

- Producing to consumer specifications; eg., the impact of size and/or composition of animal produced and processed in response to consumer needs or preferences for optimal market appeal.
- The implications of specified products on export markets and/or marketability.
- The effects of research results on commodity markets and feeding operations.

Food Safety, Nutrition, and Health

Consider research priorities that examine:

- Cultural factors influencing food choices
- Consumer choices to maximize health outcomes from good nutrition
- Complexities of the hunger/obesity paradox
- Body image effect on eating behaviors
- Impact of mass media on nutritional/eating behavior

- Models to achieve an abundant supply of safe, nutritious, appealing food
- Enhancing economic value

Renewable Energy, Natural Resources, and Environment

Consider research priorities that examine the effects of renewable energy from agriculture or agricultural lands on agricultural production systems, farming and ranching operations, and rural communities.

Agricultural Systems and Technology

Consider research priorities that examine:

- Adoption and diffusion issues.
- Workforce implications of the research and intended results.
- Risk assessment from a consumer perspective.
- Behavioral assessments of the consequences of change in agricultural systems and technology.

Agricultural and Rural Communities

This solicitation is much too broad. It reads like a catch-all for the human and social dimensions neglected in other RFA program solicitations. It appears that everything "social" has just been an add-on, but this does not seem "foundational" and we would encourage more critical thinking in this area. Furthermore, the solicitation appears to be discipline-oriented, rather than issue-driven as it should be.

We believe that Community Development should be separated out, as should Markets and Trade. These are quite disparate areas of science and need to be stand-alone programs.

With the creation of these as separate stand-alone programs, we would also recommend that NIFA consider infusing priorities related to agricultural markets and trade and rural communities throughout the foundational programs as suggested above. For example, consideration of globalization and markets and trade should be included with plant and animal production, processing, and product categories above. Research on adoption and diffusion should be a part of any program that proposed technology development. This done, the Agricultural and Rural Communities programs can focus on critical areas of concern, including:

- Sustainable agriculture and its implications for communities.
- The impact of federal and state policies on agriculture and rural communities.
- Economic development policies and practices.
- Finance and taxation issues as they related to food and agriculture.
- The implications of demographic shifts and diversity for agriculture, rural communities, and food security.
- Immigration and the agricultural workforce.
- Rural communities and capacity-building for business development, job creation, health care, schools and education, youth development, etc.
- Community and regional innovation, workforce development, human capital challenges, poverty, income and inequality, broadband expansion, agri-tourism, STEM/STEAM, and rural livelihoods.
- Transportation decisions and their implications for agricultural and rural communities.

Members of the ESCOP Social Science Subcommittee sincerely appreciate this opportunity to provide feedback on AFRI solicitations. We stand ready to assist NIFA as the agency strives to promote better understanding of coupled natural and human systems and to advance science along the human and social dimensions of food, agriculture, natural resources and the environment, and agricultural and rural communities. We hope you will call on us if you have any questions as you proceed.

END

AFRI STAKEHOLDER FEEDBACK (abstract) – the full report is available @ http://escop.ncsu.edu/Viewcommittees.cfm?comid=23 Results of an AFRI Gap Analysis conducted by the ESCOP Social Science Subcommittee on February 21-22, 2012.

In response to NIFA's call for stakeholder feedback to the Agriculture and Food Research Initiative (AFRI), the ESCOP Social Science Subcommittee (SSSc) conducted a gap analysis of recent AFRI RFA's to identify ways these could solicit more robust contributions from social scientists. Suggestions are provided to help AFRI envision the signature and foundational programs in ways that better address the human and social dimensions of the grand challenges and foundational research that shape AFRI priorities. The purpose of the ESCOP SSSc is to "Recommend specific actions to help the Land-Grant system address high priority research and education issues leading to outcomes that deal with social issues in a significant, measurable way and that will generate sustained financial support."

The SSSc reviewed the science priorities of available 2012 RFAs, including Food Safety, Agricultural and Natural Resources Science for Climate Variability and Change, Food Security, and Sustainable Bioenergy, as well as the 2011 RFA for foundational programs, including Plant Health and Production and Plant Products; Animal Health and Production and Animal Products; Food Safety, Nutrition, and Health; Renewable Energy, Natural Resources, and Environment; Agricultural Systems and Technology; and, Agriculture and Rural Communities. The comments and suggestions are offered as a means to continually improve the science enterprise and to assist NIFA to remain nimble in response to dramatic changes in food, agriculture, natural resources, and the environment, and the coupled natural and human systems we are all trying to better understand.

Most RFAs are quite prescriptive, requesting an assumed solution to a problem rather than eliciting projects that propose a new way to solve the problem or that represent an array of potential solutions. Moreover, the assumed solutions solicited by the RFAs are almost always of a technological nature, which do not derive from an understanding of social systems and human behavior. If the human needs are assumed, they are implicit, not explicit, as though all RFA developers agree on the problem. The outcome of science application may be a product OR a process. Examples of some vexing paradoxes that require research on the human and social dimensions rather than technological fixes include: food processers and preparers frequently neglect even basic food safety practices; farmers do not automatically switch production to a carbon sequestering cultivar; consumers often do not select the healthiest foods on the grocery shelf; and, increasing the food supply does not ensure food security or feed the hungry.

We would recommend that NIFA create some mechanism to provide a summary of the human and social dimensions solicited by the aggregate of NIFA RFAs. We believe this would facilitate more robust contributions from social scientists in the competitive process and, ultimately, to the outcomes of AFRI investments. RFA developers need to integrate the social sciences in the framing of the issue, rather than bringing them in at the end to evaluate behavioral change. Ask "How does this RFA address the human condition?" by making the answer explicit in the solicitation and in the proposed projects. Inclusion of a social impact assessment requirement for AFRI-funded projects would go a long way to strengthening the human and social dimensions of AFRI investments and solving human problems.

The RFAs frequently rely on social science buzzwords without defining them. For example, what is meant by cost-benefit analysis or social, economic, and environmental sustainability? What are the components? What are the benchmarks? Costs to whom? Benefits for whom? How will we know when we've achieved sustainability? Without defining and providing benchmarks, how can we evaluate whether a proposed project is designed to achieve it? This repetition of buzzwords gives the impression that RFA developers don't understand the incredible potential of social science research or the nuanced approaches that each science can contribute. The social sciences can do so much more than cost/benefit analysis! If behavior change is an end goal, it is essential to understand the drivers of human decision-making, adoption and diffusion, and action to change conditions. Where do the RFAs (and the proposed projects they solicit) consider producer or consumer adoption? What cultural elements contribute to variability in acceptance, response, choice, etc.? What are the barriers that thwart and enhancers that facilitate changes in human behaviors, policies and institutions, and social systems?

RFA developers need to consider a number of questions, including: Who are the intended users of AFRI-developed technologies? Who will adopt this technology? Is this a farmer decision, consumer decision, voter decision, manufacturer decision? Whose behavior needs/is going to change? Who will implement this change? And what are the implications of these changes for individuals, communities, institutions, governments, and social systems? Involving social scientists during all phases of the development and reviewing process will ensure a more comprehensive and realistic solution.

ESCOP Social Sciences Subcommittee Membership Status as of April 2012 (three-year renewable terms)

Discipline	Northeast	North Central	South	West	1890 ARD	At Large
Ag	Rama Radhakrishna ('13)	Beth Forbes (`11)	Dwayne Cartmell (`12)	David Doerfert (`11)	vacant	Tracy Irani (`12)
Communication	Penn State	Purdue	Oklahoma State	Texas Tech		Univ. of Florida
Ag Economics	Stephan Goetz (`11)	Scott Loveridge (`13)	Chuck Moss (`11)	Bruce Weber ('10)	Ntam Baharanyi (`11)	Matt Fannin (`11)
	NERDC, Penn State	NCRDC Michigan State	University of Florida	Oregon State	Tuskegee University	Louisiana State
Ag Education	Travis Park (`10)	Mike Retallick ('13)	Jack Elliot (`13)	James Connors (`13)	John Ricketts (`11)	Bobby Torres (`11)
	Cornell	Iowa State University	Texas A&M	University of Idaho	Tennessee State	Univ. of Arizona
Human Sciences	Daniel Perkins (`11)	Soyeon Shim (`13)	Marshall Stewart (`11)	Jeff McCubbin (`13)	Nina Lyon Bennett (`12)	June Henton (`11)
	Penn State	U. of Wisconsin, Madison	North Carolina State	Colorado State	U. Maryland Eastern Shore	Auburn
Rural Sociology	Carolyn Sachs (`10)	vacant	Bo Beaulieu (`13)	Don Albrecht (`11)	Dreamal Worthen (`11)	vacant
	Penn State		SRDC, Mississippi State	WRDC, Utah State	Florida A&M	

Subcommittee Chair: Jack Elliot (through 2013 meeting)

Subcommittee Secretary and Chair-Elect: Bobby Torres (secretary through 2013 meeting, chair through 2015 meeting) Liaison to the ESCOP Science & Technology Committee: Travis Park

USDA NIFA Liaisons: Pat Hipple, Siva Sureshwaran

ESCOP Liaison: Dan Rossi, Northeastern Regional Association of Experiment Station Directors, Rutgers University ESCOP Science & Technology Committee Chair: Bill Ravlin, The Ohio State University

ARD Representative: Ntam Baharanyi, Tuskegee University and Alton Thompson, Provost, Delaware State University

Ex-Officio (non-voting)Members:

Regional Rural Development Centers: Scott Loveridge, Bo Beaulieu, Stephan Goetz, and Don Albrecht Neil Conklin, Farm Foundation Chuck Fluharty, Rural Policy Research Institute (RUPRI) Board on Human Sciences Liaisons: Soyeon Shim, University of Arizona; June Henton (alternate), Auburn University Howard Silver and Gina Drioane, Consortium of Social Science Associations Tamara Wagester, The Council on Food, Agricultural and Resource Economics (C-FARE) R. Thomas (Tom) Van Arsdall, National Coalition for Food and Agricultural Research (National C-FAR

http://escop.ncsu.edu/Viewcommittees.cfm?comid=23



DIVISION DIRECTOR

United States National Institute Department of of Food Agriculture and Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE NATIONAL INSTITUTE OF FOOD AND AGRICULTURE





United States National Institute Department of of Food Agriculture and Agriculture

e www.nifa.usda.gov @USDA_NIFA

FACTSHEET

BACKGROUND

HE NATIONAL INSTITUTE OF FOOD AND AGRICULTURE

(NIFA) addresses many challenges facing the nation through exemplary agricultural science. NIFA works with the best and brightest scientists at universities and colleges throughout the United States and around the world to find innovative solutions to issues related to agriculture, food, the environment, and communities. With a timely, integrated approach and collaboration with other federal science agencies, NIFA also serves as a vital contributor to federal science policy decision-making.

NIFA

INTEGRATED APPROACH TO SCIENCE

AGRICULTURAL SCIENCE AT NIFA integrates research, education, and Extension to ensure that groundbreaking research discoveries go beyond the laboratory and make their way into the classroom and to communities where people can put the knowledge into practice and improve their lives.

RESEARCH provides answers to complex issues facing our nation and the world.

EDUCATION strengthens schools and universities to train the next generation of scientists, educators, producers, and citizens.

EXTENSION takes knowledge gained through research and education to the people who need it most.

PRIORITY SCIENCE AREAS

FOOD SECURITY AND HUNGER

NIFA supports science to boost domestic agricultural production, improve capacity to meet the growing global food demand, and foster innovation in fighting hunger and food insecurity in vulnerable populations.

CLIMATE CHANGE

NIFA-funded projects help producers adapt to changing weather patterns and sustain economic vitality while also reducing greenhouse gas emissions and increasing carbon sequestration in agricultural and forest production systems.

SUSTAINABLE ENERGY

NIFA contributes to the President's goal of energy independence with a portfolio of grant programs to develop optimum biomass, forests, and crops for bioenergy production; and produce value-added, bio-based industrial products.

CHILDHOOD OBESITY

NIFA-supported programs ensure that nutritious foods are affordable and available and that individuals and families are able to make informed, sciencebased decisions about their health and well-being.

FOOD SAFETY

NIFA food safety programs work to provide a safer food supply and reduce the incidence of foodborne illness by addressing the causes of microbial contamination and antimicrobial resistance, educating consumer and food safety professionals, and developing enhanced food processing technologies.

LEADERSHIP

Sonny Ramaswamy, Director

EMPLOYEES

Approximately 350

STRUCTURE

INSTITUTE OF FOOD PRODUCTION AND SUSTAINABILITY

 Enhancing food security through productive and sustainable agricultural systems

INSTITUTE OF BIOENERGY, CLIMATE, AND ENVIRONMENT

- Ensuring energy independence through clean, biobased energy systems
- Ensuring sustainable and adaptive agroecosystems in response to variable climates

INSTITUTE OF FOOD SAFETY AND NUTRITION

- Ensuring a safe food supply
- Improving citizens' health through nutrition
- Reducing childhood obesity
- Improving food quality

INSTITUTE OF YOUTH, FAMILY, AND COMMUNITY

- Enabling vibrant and resilient communities
- Preparing the next generation of scientists
- Enhancing science capacity in minority-serving institutions
- Enhancing youth and family development

CENTER FOR INTERNATIONAL PROGRAMS

- Enhancing the global awareness of American students, faculty, and staff
- Sharing benefits of international science through research and Extension

BUDGET

Total FY12	\$1,358,887,000
Research and Education	
Extension	
Integrated	
Mandatory	

PARTNER LAND-GRANT INSTITUTIONS

Total	109
1862 Land-Grant Universities	
1890 Land-Grant Universities	18
1994 Land-Grant Universities	



National Institute of Food and Agriculture Reorganization

ESCOP Social Science Subcommittee Feb. 19-20, 2013

Pat Hipple, NPL USDA, NIFA, IYFC, DFCS





Overview

- Reorganization Background
 - Danforth Study
 - Create 21
 - **REE Mission Area Reorganization**
- Food, Conservation, and Energy Act of 2008
- From CSREES to NIFA
- 5 Grand Societal Challenges
- NIFA Organizational Structure



INVESTING IN SCIENCE | SECURING OUR FUTURE

Reorganization Background

- Danforth Study
 - Initiated by Congress
 - Focus: NRI & Competitive Research
- Create 21
 - Initiated by Land-grant Institutions
 - Focus: Formula Funds & Federal Leadership
- REE Mission Area Reorganization
 - Initiated by Under Secretary
 - Focus: Program Coordination & Resource Utilization



INVESTING IN SCIENCE | SECURING OUR FUTURE

Food, Conservation, and Energy Act 2008 "Farm Bill"

- Required Secretary of Agriculture to establish NIFA
- Farm Bill and Guiding Principles called for Integration across Programs, Functions, Funding Authorities, and Funding Mechanisms
- NIFA established October 2009



INVESTING IN SCIENCE | SECURING OUR FUTURE

From CSREES to NIFA

- Optimize organizational structure to effectively serve stakeholders
- Enhance quality, relevancy, and performance of programs
- NIFA organizational structure announced
 October 2010



INVESTING IN SCIENCE | SECURING OUR FUTURE

NIFA will enhance and elevate the stature of food and agricultural sciences and ultimately grow support for research, education, and Extension



INVESTING IN SCIENCE | SECURING OUR FUTURE

NIFA Mission Statement

Leading Food and Agricultural Sciences to Create a Better Future for the Nation and the World



INVESTING IN SCIENCE | SECURING OUR FUTURE

Refocusing NIFA Science

- NIFA investments will focus on 5 grand societal challenges:
 - Climate change
 - > Bioenergy
 - Food safety
 - Nutrition and childhood obesity
 - Global food security



NIFA Organizational Structure











INVESTING IN SCIENCE | SECURING OUR FUTURE

Administration and Functions of Institutes in NIFA

- Institutes to be led by principal scientists + assistant directors with experience in USDA administration and policies,
- Will look to examples of best practices for operations of the institutes, and
- Will seek advice and input from external groups of stakeholders and expert scientists.



Division Director B. Rein

National Institute of Food and Agriculture www.nifa.usda.gov











INSTITUTE OF FOOD PRODUCTION AND SUSTAINABILITY

Enhancing global food security through productive and sustainable agricultural systems







INSTITUTE OF BIOENERGY, CLIMATE, AND ENVIRONMENT

NIFA

Ensuring energy independence through clean, bio-based systems Ensuring sustainable and adaptive agro-ecosystems in response to climate change









INSTITUTE OF FOOD SAFETY AND NUTRITION

Ensuring a safe food supply Improving citizens' health through nutrition Reducing childhood obesity Improving food quality







NIFA

INSTITUTE OF YOUTH, FAMILY, AND COMMUNITY

Enabling vibrant and resilient communities Preparing the next generation of scientists Enhancing science capacity in minority-serving institutions Enhancing youth and family development









CENTER FOR INTERNATIONAL PROGRAMS

Leveraging the knowledge and commitment of U.S. talent to enhance the lives of those in developing countries











INVESTING IN SCIENCE | SECURING OUR FUTURE

NIFA's Next Steps

- Establish Principal Scientist positions for each of the new Institutes
- Ensure that educational functions of NIFA are effectively integrated across the agency
- Ensure that NIFA is recognized as a globally engaged science agency
- Establish a Human Capital Development Task Force for NIFA
- Establish a NIFA 'Best Place to Work Initiative'



INVESTING IN SCIENCE | SECURING OUR FUTURE

NIFA's Next Steps cont.

- Establish a Science Leadership Council
- Establish Mission Critical Chartered Teams
- Establish a Competitive Programs Task Force
- Establish an Infrastructure and Capacity Programs Task Force
- Establish a Science Policy Task Force

INVESTING IN SCIENCE | SECURING OUR FUTURE



NATIONAL INSTITUTE OF FOOD AND AGRICULTURE | U.S. DEPARTMENT OF AGRICULTURE | WWW.NIFA.USDA.GOV

An Orientation to the ESCOP Social Science Subcommittee

APLU http://www.aplu.org/

The Association of Public and Land-grant Universities (A·P·L·U) is a research and advocacy organization of public research universities, land-grant institutions, and state university systems with member campuses in all 50 states, U.S. territories and the District of Columbia. The association is governed by a Chair and a Board of Directors elected from the member universities and university systems. President Peter McPherson directs a staff of about 45 at the national office in Washington, D.C.

The association's membership includes 217 members, consisting of state universities, land-grant universities, state-university systems and related organizations. The total includes 74 U.S. land-grant institutions, of which 18 are the historically black institutions. In addition, A+P+L+U represents the interests of the nation's 33 American Indian land-grant colleges through the membership of the American Indian Higher Education Consortium (AIHEC). A+P+L+U institutions enroll more than 3.5 million undergraduate students and 1.1 million graduate students, employ more than 645,000 faculty members, and conduct nearly two-thirds of all federally-funded academic research, totaling more than \$34 billion annually.

With roots going back to 1887, $A \cdot P \cdot L \cdot U$ is the nation's oldest higher education association. In 1963, the American Association of Land-Grant Colleges and Universities merged with the National Association of State Universities to form the National Association of State Universities and Land-Grant Colleges. On March 30, 2009, the association adopted the name Association of Public and Land-grant Universities, or $A \cdot P \cdot L \cdot U$ (the name of each letter is pronounced).

 $A \cdot P \cdot L \cdot U$ currently has six commissions that focus on vital issues in higher education. Among these are the: Commission on Access, Diversity and Excellence; Advisory Committee on Technology; **Commission on Food, Environment, and Renewable Resources**; Commission on Innovation, Competitiveness, and Economic Prosperity; Commission on International Programs; and Commission on Urban Initiatives. Commissions may be broken down into boards and task forces that drill farther down into the issues. Commission members are appointed by the presidents and chancellors of $A \cdot P \cdot L \cdot U$'s member institutions.

Commission on Food, Environment, and Renewable Resources

CFERR https://www.aplu.org/sslpage.aspx?pid=262

The Commission on Food, Environment, and Renewable Resources focuses on cross-cutting issues related to agriculture, forestry, human sciences, natural resources, ecological sciences, oceans and atmosphere, and veterinary medicine in the functional areas of research, extension,

and academic programs. Current high priority areas include: technologies to defend against bioterrorism and agroterrorism; food and its relationship to health, the environment and globalization; the quality and health of the environment; the scientific workforce; expanding partnerships with the U.S. Geological Survey, the Environmental Protection Agency, and the National Oceanic and Atmospheric Administration; sustainable natural-resource management; water quality and quantity; global change; agriculture and marine biotechnology; food safety and quality; sustainable human development, and international trade and development. The commission seeks to formulate and implement an integrated federal-relations program and formulate Congressional budget recommendations in these high-priority areas of national concern, as well as to forge partnerships with government agencies whose mission areas are congruent with the commission's activities.

The CFERR is home to five boards: Board on Agriculture Assembly, Board on Human Sciences, Board on Natural Resources, Board on Oceans & Atmosphere, and Board on Veterinary Medicine.

ESCOP http://escop.ncsu.edu/index.cfm

The Experiment Station Committee on Organization and Policy (ESCOP) is the executive or operating body of the Experiment Station Section (ESS), Board on Agriculture Assembly (BAA) - APLU, and handles continuing business, organization, and policy issues on behalf of the state agricultural experiment station directors. Full ESCOP meetings are usually scheduled in February or March (in Washington, DC) and in July or August.

Officers and Committees http://escop.ncsu.edu/Viewcommittees.cfm

- <u>The ESCOP Committee</u> (E-1)
- Budget and Legislative Committee (EC-1)
- <u>Communication and Marketing Committee</u> (EC-2)
- Executive Committee (EC-3)
- Science and Technology Committee (EC-4)
- <u>Chair's Advisory Committee</u> (S-2)
- Nominations Subcommittee (S-8)
- <u>Resolutions Subcommittee</u> (S-9)
- Oversight Committee for NIMSS (S-12)
- NRSP Review Committee (S-13)
- <u>Social Sciences</u> (T-5)
- National Multistate Coordinating Committee (CC-5)
- National Plant Germplasm Coordinating Committee (0-1)
Science and Technology Committee

http://escop.ncsu.edu/ViewCommittees.cfm?comid=5

The ESCOP Science and Technology Committee is charged with promoting and enhancing science and technology in the Land-grant university system. The Committee will assist ESCOP to identify future directions and anticipate and respond to research needs and opportunities for funding. It will assist in linking science and technology programs to multistate and national research initiatives. It will recommend how ESCOP will respond to reports, recommendations and planning documents from the national science community. It will provide guidance to ESCOP strategic planning and priority setting.

Social Sciences Subcommittee http://escop.ncsu.edu/ViewCommittees.cfm?comid=23

The purpose of the ESCOP SSSC is to: **"Recommend specific actions to help the Land-Grant system address high priority research and education issues leading to outcomes that deal with social issues in a significant, measurable way and that will generate sustained financial support.**" The SSSC answers to the ESCOP Science and Technology Committee. The SSSC membership is comprised representatives of the five traditional social science disciplines within Land-grant Colleges of Agriculture in each of the four regions, Northeast, North Central, South, and West. The disciplines include: Agricultural Communications, Agricultural Economics, Agricultural Education, Human Sciences (including Family and Consumer Sciences), and Rural Sociology. Each discipline is also represented by the 1890 institutions, as well as by at-large members. A number of Ad Hoc and Ex Officio organizations relevant to the social sciences comprise non-voting members of the SSSC, including: the four Regional Rural Development Centers; the Farm Foundation; the Rural Policy Research Institute (RUPRI); the Board on Human Sciences; the Consortium of Social Science Associations; the Council on Food, Agricultural and Resource Economics (C-FARE); and the National Coalition for Food and Agricultural Research (National C-FAR).

The 2013 NIFA Liaisons to the ESCOP SSSC are Pat Hipple and Siva Sureshwaran.

Today's Climate, =Change?

February 19, 2013

Jim Richards

New??? 113th Congress

- Senate: Democratic Controlled
- House: Republican Controlled
- Executive: Democratic Controlled

Election Results - House



Election Results - Senate



113th Congress Issues

- Immediate are the BIG 3
 - Debt Ceiling—mid-May—New House Republican Proposal to link
 Congressional Pay to passage of Budget
 - Proposal was passed by the House and Senate
 - Automatic Sequestration—delayed to March 1st from Jan. 2 by fiscal cliff deal (candy then and now medicine)
 - Continuing Resolution Expires March 27th

Additional Congressional Issues

- Administration interested in addressing:
 - Immigration reform
 - Gun Control
 - Gay Rights
 - Climate Change

All are VERY contentious issues with the ability to gridlock

Budget Timetable

- First Monday in February---President submits his budget to the Congress.
- April 15th---House and Senate compete consideration of the Congressional Budget Resolution.
- May 15th---Appropriations bills may be considered in the House.
- **May-July**---House and Senate Appropriations committees work on appropriations bill setting spending levels for the various Federal agencies.
- June---Federal Departments and Agencies begin developing the NEXT year's Federal budget.
- October 1st---Fiscal Year begins.

APPROPRIATIONS PROCESS

Attachment 1 PRESIDENT'S BUDGET 1st Monday in February HOUSE APPROPRIATIONS COMMITTEE SENATE APPROPRIATIONS COMMITTEE Jurisdiction: Annual appropriations bills including supplementals and rescissions HOUSE BUDGET COMMITTEE SENATE BUDGET COMMITTEE 12 SUBCOMMITTEES 12 SUBCOMMITTEES Jurisdiction: Concurrent Budget Resolution Hearings Hearings Hearings Hearings Committee Markup Committee Markup House Passed Resolution Senate Passed Resolution 302(b) Allocation 302(b) Allocation Conference Subcommittee Markup Subcommittee Markup May 15th DISCRETIONARY SPENDING CAPS 302(a) ALLOCATION Full Committee Markup Full Committee Markup House Rules Committee Senate Floor House Floor Refer to Senate Request Conference Appoint Conferees Agree to Conference Conference: Report back to House and Senate on disposition of amendments Instruct Conferees Appoint Conferees House and Senate Passed Conference Report Sent to President for signature: October 1st

A Yawning Gap Between Federal Spending and Tax Revenues

Taxing and Spending as Percentages of GDP



	Analysis
	Analysis
•	Fiscal cliff deal focused on individual tax policy and effectively held flat federal revenue
•	Many Republicans consider sequestration the only way to force spending cuts; Obama wants to delay sequester with a
	combination of spending cuts and tax increases

Deficit Expected to Dip But Remain High In Next Decade



Analysis

- The CBO projects that the FY 2013 budget deficit will be smaller than deficits registered in past four years assuming continuation of current laws governing taxes and spending
- Beginning in FY 2016, the CBO estimates that budget deficits will increase due to rising health care costs, interest payments on federal debt and an increase in federal subsidies for health insurance

Key Terms



Measures meant to reduce federal spending; primarily consists of **deficit reduction sequester**, mandating automatic, across-the-board spending cuts for federally funded programs in order to meet national budget goals, and **discretionary caps**, limiting future federal spending

Mandated sequestration starting Jan. 2, 2013 if Congress could not reduce deficit by \$1.2T-\$1.5T over a 10-year period

Mandates modified sequestration starting March 1, 2013 if Congress cannot negotiate a way to avoid it

Sequestration and Spending Caps

MARCH 1 SEQUESTER

- Fiscal cliff deal reduced to \$85.3B and delayed to 3/1
- Cut to each defense and nondefense account reduced to \$42.7 from \$54.7 billion
- Defense: to 7.3% from 9.4%
- Nondefense: to 5.3% 5.9% from 8.2%
- Defense may have new \$12 billion cut on 3/27

REVISED SPENDING CAPS

<u>FY</u>	<u>Cap</u>	<u>Change %</u>
2012	1 0 2 0	1.0
2012	1.028	1.8
2013	1.043	1.8
2014	1.058	1.8
2015	1.086	1.9
2016	1.107	1.9
2017	1.131	2.2
2018	1.156	2.2
2019	1.182	2.2
2020	1.208	2.2
2021	1.234	2.2

A Science Roadmap for Food and Agriculture

Prepared by the

Association of Public and Land-grant Universities (A+P+L+U)

Experiment Station Committee on Organization and Policy (ESCOP)

Task Force on Building a Saime Roadmap for Food and Agriculture

Bill Ravlin and Dan Rossi ESCOP Social Science Subcommittee Washington, DC February 19, 2013

November 2010

http://www.nera.umd.edu/ escopscienceroadmapnov172010.pdf

Goals

- Major directions for agricultural science 5-10 yrs.
- Define **needs** and set **priorities**.
- **Direction to decision makers** for planning and investing resources.
- **Support advocates** of the food and agricultural research and education system.
- **Support marketing** of the SAES system.
- Facilitate building partnerships for a stronger coalition to solve problems.



Using the Roadmap

- Influence <u>research agendas (e.g.</u>, USDA, EPA, NIH).
- Create an environment for faculty will use to think of <u>potential research opportunities</u>.
- Help <u>form teams</u> to facilitate discussion around broad societal needs and problems.
- Stimulate <u>ongoing discussion</u> in these seven challenge areas.
- <u>"Raw data" for marketing tools</u> that highlight and communicate what we do to diverse audiences.

The Roadmap Process

- Identify Challenge Areas & Priorities
 O Delphi survey (Thanks Travis!)
 - \circ ~ 250 Scientists and administrators
 - o13 challenges
 - Cross-walk with other
 - organizations
 - o7 grand challenges



The Roadmap Process

- Identify How Science Can Contribute
 - o Issues, capacity, priorities
 - 080 scientists White papers
 - •Peer review
 - Base document preparedPeer review



Grand Challenges – We must

- 1. Enhance the <u>sustainability</u>, <u>competitiveness</u>, <u>and</u> <u>profitability</u> of U.S. food and agricultural systems.
- 2. Adapt to and <u>mitigate the impacts of climate change</u> on food, feed, fiber, and fuel systems in the United States.
- 3. Support <u>energy security</u> and the development of the bioeconomy from renewable natural resources in the United States.
- 4. Play a global leadership role to ensure a <u>safe, secure, and abundant</u> <u>food supply</u> for the United States and the world.



Grand Challenges – We must

- 5. Improve <u>human health, nutrition, and wellness</u> of the U.S. population.
- 6. Heighten <u>environmental stewardship</u> through the development of sustainable management practices.
- 7. Strengthen <u>individual</u>, <u>family</u>, <u>and community development</u> <u>and resilience</u>.





Science Roadmap for Food and Agriculture

• Current document

- Seven Grand Challenges
- 35 objectives
- Distributed and available electronically

• Needs

- More accessible to primary audiences (legislators, sponsors, stakeholders)
- Common language
- Quickly understand direction and focus
- Prioritized objectives (linked to original 7/35)



Science Roadmap for Food and Agriculture

• Final products

- Original Roadmap
- Synthesis paper shorter and more accessible
- Brochure or card that can be easily carried and disseminated
- Web sites

A STATE	A Science Roadmap for Food and Agriculture
	Papamid yak Association of Public and Land-grant Universities (A.P.I.U.) Reperiment Station grantzation and Policy (ESCOP) Wate Yana Balang d
	November 2010

Science Roadmap for Food and Agriculture

- Synthesis paper takes 7 challenges and 35 objectives to 12 prioritized objectives as a result of system-wide survey and creates 3 overarching focus areas
- Overarching areas
 - Food Security and Human Health
 - Economic Growth and Job Creation
 - Sustainable Environment and Natural Resources
- National and global focus and real and political imperatives associated with these areas

<section-header><section-header><text><text><text><text><text>

Grand Challenges Revisited

FOOD - ENERGY - ENVIRONMENT



RESILIENCE - SUSTAINABILITY

The social sciences overlay each of the grand challenges

- How do all of the Challenges interact and affect one another esp. as they relate to social science?
- How can the social sciences impact technology development?
- How can the social sciences impact commercialization (i.e., bring technology and products to market and create jobs)?
- What are the elements of a "social life cycle analysis" (i.e., social impacts) associated with the Grand Challenges?
- How is social science impact defined relative to the Roadmap?
- Is there the appetite to transition a larger part of the social science portfolio to augment the technical/biological aspects of challenges/themes?

Active System Engagement

- Databases
- Review panels
- Responding to stakeholder input opportunities
- Review the USDA and ESCOP Grand Challenges for ways to fit into all of the areas
- Active role to engage existing and newly forming teams
- Active role in forming new teams
- Actively engage APLU structure
- Impact statements that relate social science that affect rural AND urban. What's the return on investment?

USDA Strategic & Action Plans

Goal 1. Local and Global Food Supply and Security

- Subgoal 1A. Crop and Animal Production
- Subgoal 1B. Crop and Animal Health
- Subgoal 1C. Crop and Animal Genetics, Genomics, Genetic Resources, and Biotechnology

Subgoal 1D. Consumer and Industry Outreach, Policy, Markets, and Trade

Goal 2. Responding to Climate and Energy Needs

Subgoal 2A. Responding to Climate Variability Subgoal 2B. Bioenergy/Biofuels and Biobased Products

Goal 3. Sustainable Use of Natural Resources Subgoal 3A. Water Availability: Quality and Quantity Subgoal 3B. Landscape-Scale Conservation and Management

Goal 4. Nutrition and Childhood Obesity

Goal 5. Food Safety

Goal 6. Education and Science Literacy

Goal 7. Rural Prosperity/Rural-Urban Interdependence

Association of Public & Land-grant Universities



Impact



North Central Extension Community Development Programs, 2011: Over \$180M of Impacts and 16,090 Jobs Created or Saved

Executive Summary

Operating as a team, state Extension leaders from the twelve North Central 1862 land grant universities developed common indicators for reporting the impacts of community development educational programs. Each partner university selected a subset of the indicators for reporting. The following table presents the most commonly used indicators: Thus, the impacts of our educational programs reported here, while impressive, are conservative estimates.

North Central States 2011 Impact Indicators		
Number of participants reporting new leadership roles and opportunities up de to i	Tota	1 States Reporting
Number of community or organizational plans developed	8,330	9
Number of businesses and in internal, policies, plans adopted or implemented	2,005	9
Number of jobs created	1,780	11
Number of jobs retained	604	11
Dollar value of programs and a title	8,512	8
Dollar value of grants and receivities initiated/completed	7,578	9
grams and resources leveraged/generated by community	\$50,584,275	7
- Sy communities	\$64,765,267	6
		10

Societal LCA (Subject Editor: David Hunkeler)

Methodologies for Social Life Cycle Assessment*

Andreas Jørgensen^{1**}, Agathe Le Bocq², Liudmila Nazarkina³ and Michael Hauschild¹

¹Department of Manufacturing Engineering and Management, Technical University of Denmark, Produktionstorvet 424, 2800 Kgs. Lyngby, Denmark

² EDF, Research & Development, Energy Efficiency and Industrial Processes (EPI), Avenue des Renardières, Ecuelles, 77818 Moret Sur Loing Cedex, France

³EDF, Generation Division, 1 Place Pleyel, 93282 Saint-Denis Cedex, France (current address: WorleyParsons Komex, 3-8 Redcliffe Parade West, Bristol BS1 6SP, UK

****** Corresponding author (aj@ipl.dtu.dk)

DOI: http://dx.doi.org/10.1065/lca2007.11.367

Please cite this paper as: Jørgensen A, Le Bocq A, Nazarkina L, Hauschild M (2008): Methodologies for Social Life Cycle Assessment. Int J LCA 13 (2) 96–103

Abstract

Goal, Scope and Background. In recent years several different approaches towards Social Life Cycle Assessment (SLCA) have been developed. The purpose of this review is to compare these approaches in order to highlight methodological differences and general shortcomings. SLCA has several similarities with other social assessment tools, although, in order to limit the expanse of the review, only claims to address social impacts from an LCA-like framework are considered.

Main Features. The review is to a large extent based on conference proceedings and reports, which are not all easily accessible, since very little has been published on SLCA in the open literature. The review follows the methodological steps of the environmental LCA (ELCA) known from the ISO 14044 standard.

Results. The review reveals a broad variety in how the approaches address the steps of the ELCA methodology, particularly in the choice and formulation of indicators. The indicators address a wide variety of issues; some approaches focus on impacts created in the very close proximity of the processes included in the product system, whereas others focus on the more remote societal consequences. Only very little focus has been given to the use stage in the product life cycle.

Another very important difference among the proposals is their position towards the use of generic data. Several of the proposals argue that social impacts are connected to the conduct of the company leading to the conclusion that each individual company in the product chain has to be assessed, whereas others claim that generic data can give a sufficiently accurate picture of the associated social impacts.

Discussion. The SLCA approaches show that the perception of social impacts is very variable. An assessment focusing on social impacts created in the close proximity of the processes included in the product system will not necessarily point in the same direction as an assessment that focuses on the more societal consequences. This points toward the need to agree on the most relevant impacts to include in the SLCA in order to include the bulk of the situation.

Regarding the use of generic data as a basis for the assessment, this obviously has an advantage over using site specific data in relation to practicality, although many authors behind the SLCA approaches claim that reasonable accuracy can only be gained through the use of site specific data. However, in this context, it is important to remember that the quality of site specific data is very dependent on the auditing approach and, therefore, not necessarily of high accuracy, and that generic data might be designed to take into account the location, sector, size and maybe ownership of a company and thereby in some cases give a reasonable impression of the social impacts that can be expected from the company performing the assessed process.

Conclusions. This review gives an overview of the present development of SLCA by presenting the existing approaches to SLCA and discussing how they address the methodological aspects in the ISO standardised ELCA framework. The authors found a multitude of different approaches with regard to nearly all steps in the SLCA methodology, thus reflecting that this is a very new and immature field of LCA.

Recommendations and Perspectives. SLCA is in an early stage of development where consensus building still has a long way. Nevertheless, some agreement regarding which impacts are most relevant to include in the SLCA in order to cover the field sufficiently seems paramount if the SLCA is to gain any weight as a decision support tool. Furthermore, some assessment of the difference between site specific and generic data could give valuable perspectives on whether a reasonable accuracy can be gained from using generic data or whether the use of site specific data is mandatory and, if so, where it is most important.

Keywords: Environmental life cycle assessment (ELCA); generic data; indicators; product life cycle; review; site-specific data; social life cycle assessment (SLCA)

Introduction

The debate on sustainable development has spurred initiatives on methods for assessing environmental, social and economic impacts. In relation to this development, there has been an increasing interest for the inclusion of social aspects into the environmental life cycle assessment of products and systems in recent years. This task has been commenced in the development of the so-called Social Life Cycle Assessment (SLCA). Experience with SLCA is growing and is be-

ESS-Submission Editor: Dr. David Hunkeler (david.hunkeler@aquaplustech.ch)

ing developed to include a multitude of impacts, ranging from direct impacts on workers to broader societal consequences. Decision-makers from several different areas have found interest in SLCA, such as decision-makers on investment (Methot 2005), design (Schmidt et al. 2004, Gauthier 2005), industrial management (Cañeque 2002, Schmidt et al. 2004, Drever et al. 2006, Nazarkina and Le Bocg 2006), consumers (Spillemaeckers et al. 2004) and public decision making (Hunkeler 2006). Also, a number of methodologies have been created without a specified target group of users (Barthel et al. 2005, Flysjö 2006, Manhart and Grießhammer 2006, Norris 2006, Weidema 2006). Furthermore, SLCA-like Internet databases are under development, having the goal to make data broadly and easily accessible to a wide range of users (Earthster 2007). Because of the limited, available descriptions, this initiative will not be discussed any further.

In this review we try to draw a picture of the present landscape of SLCA by analysing the existing methodology and proposals for SLCA based on the sources mentioned above. Especially the report made by Nazarkina and Le Bocq (2006), which was already a review and analysis of SLCA methodologies, has served as a basis for this article.

The review is based on a thorough literature survey including journal papers and, in particular, less easily accessible sources like conference proceedings and reports, as very little has been published until now in peer-reviewed journals.

The review attempts to highlight the general points of agreement and disagreement among the authors and tries to give a specific focus on the methodological shortcomings, thereby giving a picture of the degree of maturity in the already available proposals.

The presentation and discussion of the methodologies follows the general methodological framework of the SLCA as proposed by the UNEP-SETAC Life Cycle Initiative Cross cutting taskforce 3 on integration of social aspects in LCA, similar to the framework for Environmental LCA (ELCA) laid out by ISO 14040, namely: Goal definition; scope definition; inventory analysis; and impact assessment (Grießhammer et al. 2006). The interpretation phase will not be discussed here.

SLCA is developing in a scientific field with many parallels to methodology discussions in Cost Benefit Analysis (CBA), Social Impact Assessment (SIA), social accounting and others. It was chosen in the review only to include methodology proposals that claim to assess social impacts based on an LCA-like framework. A consequence of this approach is the omission of methodology proposals with no claimed connection to LCA methodology, even though they may have some relevance to the overall goals of SLCA.

1 Goal definition of an SLCA study

In spite of their short history, SLCA-approaches have already been developed to support several different goals. As in ELCA, two main classes of goals can be identified. One is product, process or company comparison, herein also labelling and social responsible investments, as exemplified by Schmidt et al. (2004), Spillemaeckers et al. (2004), Méthot (2005). The other class is identification of product or process improvement potentials (Flysjö 2006, Gauthier 2005, Dreyer et al. 2006, Manhart and Grießhammer 2006). These classes of goals should be seen as complementary. Different goals have implications for the methodological possibilities and limitations, which will be discussed in the following. Still, several of the approaches do not specify one specific goal, such as Barthel et al.(2005), Norris (2006) and Weidema (2006).

2 Scope definition of an SLCA study

The objective of the scope definition is to identify and to define the object of the study and to delimit the assessment. In this section, the origin of social impacts, allocation, system boundary setting and social indicators will be discussed.

2.1 The origin of social impacts

Product systems or service systems are often composed of many processes. In ELCA it is generally accepted that the environmental impacts arise because of the nature of these processes. In other words, there is a causal link between process and environmental impact. The environmental assessment, thus, is based on an aggregated inventory of input and output for processes that are needed to provide the function defined in the functional unit.

Regarding SLCA, on the other hand, it has been discussed whether this is a valid approach. Dreyer et al. (2006) and Spillemaeckers et al. (2004), for example, argue that most social impacts have no relation to the processes themselves, but rather to the conduct of the companies performing the processes. The causal link is therefore not from process to social impact, but from conduct of the company to the social impact. They argue therefore that the SLCA inventory analysis should be focused on the companies involved in the product system. Schmidt et al. (2004), on the other hand, maintain that the focus on the process is the basis for the assessment as used in the ELCA.

2.2 Allocation

The discipline of allocation in ELCA deals with the division of impacts between the product system under study and one or more other product systems with which it interacts. Following this definition, allocation in SLCA has been addressed in relation to the above question of the origin of impacts. The problem that arises with regard to the approach presented by Spillemaeckers et al. (2006) and Dreyer et al. (2006) is how much of the company's total social impacts should be allocated to the process included in the assessed product or service.

Dreyer et al. (2006) propose that a share of the total amount of impacts created by the company involved in the product system should be allocated to the assessed product or service, and that the share should be determined by the weight that the company is given in the product's or service's total product chain. The share factor or allocation principle could be based on value creation, number of labour hours spent or the like. A rather different approach towards allocation is taken in the socio-labelling initiative presented by Spillemaeckers et al. (2004). In this approach, each company included in the assessment has to comply with the standard set by the label. If the standard is met, the label can be awarded. As it is the whole company that is assessed, no allocation needs to be made, regardless of the fact that some of the company's processes might not be involved in the life cycle of the assessed product or service.

2.3 System boundaries

With the goal to support management decisions, the approaches presented by Méthot (2005) and Dreyer et al. (2006) narrow their focus to those parts of the life cycle that the company performing the assessment can influence directly. The application of the SLCA thereby justifies that only the company and its closest suppliers and distributors are assessed. Schmidt et al. (2004), on the other hand, focus on product comparison, and, since relevant impacts can be located in all parts of the chain, a full life cycle assessment is necessary.

As in ELCA, cut-off criteria are used in SLCA to set boundaries. In the Sustainable Development label (Spillemaekers et al. 2004), the cut-off criteria depend on the expert judgement. Another more formalised approach proposed by Barthel et al. (2005) is to use the ISO 14044 (2006) definition of cut-off criteria in LCA, substituting the words 'environmental significance' with 'social significance'. The ISO 14044 definition, if a process contributes more than a certain defined amount to a given quality, implies that the process has to be included.

In line with this statement, Weidema (2005) advocates the need to apply the ISO 14044 framework also in boundary setting in SLCA, implying that the exclusion of life cycle stages, processes, inputs or outputs is only permitted if it does not significantly change the overall conclusions of the study.

2.4 Social indicators

In Table 1 and 2, the different SLCA approaches are characterised according to the impact categories they include, stating the number and type of indicators for each impact category. The indicator type refers to whether it is quantitative or qualitative/descriptive. Quantitative indicators can be based on measurements in physical units, semi-quantitative scores, or yes/no scores.

Some SLCA approaches use midpoint indicators, others use endpoint indicators. This difference refers to the location of the indicators in the impact pathway. For example, job creation is normally not considered a goal in itself but, through contributing to the family income and subsequent poverty reduction, it may improve the family's health conditions, which may be considered as an end goal. In this example, the job creation could thus be considered a midpoint indicator, and the health condition as the endpoint indicator. The two types of indicators are in principle linked by a so-called impact pathway describing the cause-effect relationship beIn the midpoint-based approaches, there is a great variety of issues being included. Because of the limited scope of this article, it has been necessary to create some generalised impact categories inspired from the Global Reporting Initiative (2007), thereby reducing the original complexity somewhat. Because of the close relation between several of the impact categories, and due to the sometimes superficial description of the indicators in the documentation, the categorisation of the indicators may be debatable in some cases. For a more complete picture, the reader is thus referred to the original sources.

Furthermore, in several of the midpoint-based approaches, the indicators are not shown. In these cases, the type and number of indicators included on the impact categories have been deduced from statements about what is considered in the SLCA approach.

Table 1 shows the highest frequency for indicators concerning discrimination and physical working conditions. Depending on the scope of the SLCA, the inclusion of the impact categories concerning other human rights, society and labour practices, and decent work conditions, appears to be the next priority.

As pointed out by Nazarkina and Le Bocq (2006), indicators are generally defined at the level of the organisation and not at the level of the individual. For example, the individual conflicts between manager and employees are generally not considered.

It is also noticeable that the impact categories which only allow negative scores are predominant in the mid-point based approaches. In relation to forced labour, for example, it would not be possible to obtain a 'good score', but merely to vary from OK (no forced labour) to poorer.

Only two SLCA approaches have been identified using endpoint indicators (see Table 2), and these are rather different, so it is difficult to point out any trends.

As has been mentioned, some of the approaches use midpoint and some endpoint indicators. Which type of indicator to use is an ongoing discussion in the field of ELCA, although it may yet become even more relevant in SLCA. Endpoint indicators have the advantage that they can reflect the potential damage or benefit to the valued item, known as the Area of Protection of the LCA (see below for further explanation), having the advantage, in theory, that no subjective weighting is needed. However, connecting the stressors that create the impacts and the Areas of Protection requires that the impact pathway is established. It has to be quantifiable and stable. Weidema (2006) states that these impact pathways can be established to an acceptable level of accuracy. Because midpoint indicators are closer to the stressors and also more understandable for decision makers, Dreyer and Flysjö state that these are to be preferred (Grießhammer et al. 2006).

Table 1: Impact categories and indicators at midpoint level

Impact categories	Number of indicators, quantitative/descriptive (q/d):											
	Barthel et al.	Cañeque	Dreyer et al. ¹	Flysjö ²	Gauthier	Hunkeler	Manhart & Grieβhammer	Méthot ³	Nazarkina & Le Bocq ⁴	Schmidt et al.	Spillemaeckers ⁵	Included in approaches
Human rights												
Non-discrimination, including indicators on diversity, such as composition of employees on all levels according to gender, age group, disabled, part-time workers and other measures of diversity	2,q	10,q	1,q	3,q	1,d		1,d	?,q	4,q	5,q	2,q	10
Freedom of association and collective bargaining	2,q		1,q	1,d			1,d	?,q	1,q	1,q	8,q	8
Child labour, including hazardous child labour	2,q		1,q	1,d			1,d		1,q	1,q	3,q	7
Forced and compulsory labour	1,q		1,q	1,d			1,d		1,q	1,q	3,q	7
Labour practices and decent work conditions												
Wages, including equal remuneration on diverse groups, regular payment, length and seasonality of work and minimum wages	1,q	3,q		6,q 1,d			2,d	?,q	4,q	1,q	5,q	8
Benefits, including family support for basic commodities and workforce facilities				1,d		1,q	1,d		6,q	4,q		5
Physical working conditions, including rates of injury and fatalities, nuisances, basal facilities and distance to workplace	2,q	2,q	1,q	2,q 3,d	1,d		1,d	?,q	4,q	6,q	9,q	10
Psychological and organisational working conditions, such as maximum work hours, harassments, vertical, two-way communication channels, health and safety committee, job satisfaction, and worker contracts				1,d	1,d		2,d		10,q	1,q	8,q	6
Training and education of employees		2,q		2,d	1,d		1,d	?,q	6,q	1,q	2,q	8
Society												
Corruption, including incidents/press reports concerning fraud, corruption and illegal price-fixing, and violation of property rights.					1,d		2,d		2,q	1,q		4
Development support and positive actions towards society, including job creation, support of local suppliers, general support of developing countries, investments in research and development, infrastructure, and local community education programmes	6,q			1,q			12,d	?,q	12,q	8,q	5,q	7
Local community acceptance, such as complaints from society, and presence of communication channels					1,d			?,q	4,q	1,q	5,q	5
Ensuring of commitment to sustainability issues from and towards business partners							2,d				6,q	2
Product responsibility												
Integration of costumer health and safety concerns in product, such as content of contaminants/nutrients, other threats/benefits to human health (including special groups) due to product use, and complaint handling system				2,q	1,d					5,d	1,q	4
Information about product to users, such as labelling, information about ingredients, origin, use, potential dangers, and side effects.										1,q 2,d	2,q	2
Marketing communications, such as ethical guidelines for advertisements										1,d		1

Table 2: Impact categories and indicators at endpoint level

Impact categories	Number of indicators, quantitative/descriptive (q/d)						
	Norris	Weidema ⁶					
Mortality	1,q	?					
Morbidity	1,q	?					
Autonomy		15?,q					
Safety, security and tranquillity		6?,q					
Unequal opportunities		?					
Participation and influence		?					

The numbers, d, and q in Table 1 and 2 refer to the number of indicators included on the given impact category, and whether the indicators are descriptive (qualitative) or quantitative

¹ Dreyer et al. (2006) include both some universal indicators and some site-specific indicators that are defined locally. Only the former, which all address human rights of the workers are included in the table. Several of these, however, do also address impact categories included under the 'labour practices and decent work conditions' category.

² Flysjö (2006) includes some economic indicators not included in the table. These are: Production costs, values added and government subsidies.

- ³ The SLCA-FIDD tool (Méthot 2005) is based on a questionnaire comprising more than 200 questions. The questionnaire is confidential and it is therefore difficult to state the exact number of indicators for each impact category included.
- ⁴ The list of indicators is a summary based on many of the other SLCA approaches.
- ⁵ Spillemaeckers et al. (2004) also include several indicators concerning environmental, overall management issues, such as compliance with legislation, that are not included in the table.
- ⁶ Only examples of indicators are given in Weidema, 2006, hence the question marks.

Regarding impacts on the consumer in the use stage, very few impact categories are suggested. This may be due to the fact, as Drever et al. (2006) states, that the potential social impacts in the use stage are as different and variable as the products themselves. Flysjö (2006) uses the content of Omega 3 fatty acids in the salmon to illustrate one positive impact that the product might impose on the user. Grießhammer et al. (2006) agrees that the use stage is very difficult to assess and emphasizes the importance of the definition of the functional unit in this context. The function of the product or service should be defined in detail, both in quantity and quality in order to show qualities as time requirement, convenience and prestige. A quite parallel proposal is made by Drever et al. (2006) who suggest to including impact categories for the use stage on the basis of established product categories. Moreover, Grießhammer et al. (2006) mention, to the extent possible, that impact categories on the use stage should be chosen in accordance with internationally recognised texts on consumer impacts.

2.4.1 Area of protection

The creation of indicators implies a notion of some underlying themes of importance or, in this case, something that needs to be protected, consequently denoted as Areas of Protection (AoP). In ELCA there are four of these AoP, namely human health, natural environment, natural resources, and man-made environment (Udo de Haes et al. 2002).

However, several authors argue, when it comes to SLCA, that these AoPs do not suffice. Dreyer et al. (2006) have a lengthy discussion of the areas of protection considered in SLCA and the suitability of the traditional AoPs from ELCA to the impact assessment in SLCA. They propose a new area of protection: 'Human dignity and well being' to supplement the 'Human health' AoP addressed in ELCA. Weidema (2006) also discusses AoPs and concludes quite comparably to include not only human health but also its well-being.

2.4.2 Formulation of indicators

In the formulation of indicators for the categories of social impact, two important distinctions between the different methodologies become apparent. The first relates both whether the indicators are formulated in quantitative, semi-quantitative or qualitative terms. The second distinction concerns whether the indicator measures the impact directly or whether indirect indication or proxy measurements are applied.

When formulating quantitative indicators, it is assumed that the phenomenon to be measured can be directly quantified allowing for the application of units in time, cases or the like. Barthel et al. (2005), for example, propose using two indicators for measuring the impact category 'health and safety'. Both are based on statistical sources, one on the incidence of lethal injuries and one on the non-lethal injuries, implying a formulation of the indicator as being the number of lethal or non-lethal injuries, which allows for measurements in the metric 'cases per process'.

A scoring system, on the other hand, is often applied if the phenomena to be measured are too complex to measure and express in simple physical units. The scoring system typically presents ratings on semi-quantitative scales, for example ratings from good to bad, often expressed in corresponding numbers. An example could be the indicators used to measure the performance on 'occupational health and safety' in the approach presented by Spillemaeckers et al. (2004). They also use statistical sources on the frequency of accidents as in the above example, but include indicators on the presence of health and safety training of employees, presence of a health and safety committee, presence of a formal policy on health and safety, and several other indicators that are translated into numbers through the use of scoring systems.

The use of qualitative indicators does not set any restrictions on the types of information to include in the assessment and, thus, they can be used in a more exploratory manner than both the quantitative and semi-quantitative indicators. Gauthier (2005), for example, formulates in relation to the impact category 'quality, health and safety at work' that the product should meet the various quality or health and safety criteria in all stages of its life cycle. This very open formulation, however, should be seen in conjunction with the goal of her approach. Gauthier proposes a flexible assessment framework somewhat parallel to the semi-quantitative LCIA approach of the MECO matrix in ELCA (Wenzel et al. 1997) with the overall goal of highlighting potential problems in the product chain. Thereby, the need for a quantitative assessment becomes less essential.

Quantitative indicators are primarily used by Cañeque (2002), Barthel et al. (2005), Hunkeler (2006), Norris (2006), Schmidt et al. (2004), Weidema (2006), and Nazarkina and Le Bocq (2006), whereas Dreyer et al. (2006), Spillemaeckers et al. (2004) and Méthot (2005) make use of semi-quantitative indicators. Gauthier (2005) and Manhart and Grießhammer (2006) mainly use qualitative indicators as visible in Table 1 and 2.

The other distinction relates to whether indicators are designed to measure the phenomena directly, or indirectly or by proxy. Two examples will be given below.

According to Dreyer (2006), it is well known among companies which have experience with registration of working accidents, for example, that the registered number of accidents cannot always be correlated with the quality of work environment in the company. The problem of using the number of reported working accidents as an indicator is that it is strongly influenced by how well reporting of working accidents is managed. A low number of reported incidents may thus reflect both a very efficient management practice and a very poor management where incidents are simply not reported. For work environment as well as for other areas where use of reported impacts is questionable, Dreyer (2006) therefore introduces the idea of assessing the management effort rather than the reported impacts. The indicator measurement thereby becomes an assessment of the will and ability of the company to avoid negative impacts (hence of the risk that impacts will occur) and not an assessment of the reported impacts themselves. This aspect is not dealt with explicitly in other SLCA proposals; however, the indicators used in the approach presented by Spillemaeckers et al. (2004), to some extent include an assessment of both

reported incidents of social impacts and the quality of the management system.

Another and very different example of measurement by proxy is given by Weidema who suggests a method of reverse compilation from available data sources. Reverse compilation could be used in relation to child labour, for example: Regional or national statistics on child labour are very scarce but, assuming that the children are either in school or working during day hours, a rough proxy indicator measurement of the total extent of child labour in the region can be made on the basis of statistics on education and demography (Nazarkina and Le Bocq. 2006).

3 Inventory Analysis

The objective of the inventory is to collect relevant information, identified during the scope definition. However, the type of information to gather is a source of disagreement among the SLCA proposals.

Apart from the creation of common impact categories and indicators, one of the most challenging aspects regarding SLCA seems to be the data collection. In ELCA, generic data on the relevant input and output has been created for a large number of processes but, according to Drever et al. (2006) and Spillemaeckers et al. (2004), among others, several difficulties may arise using the same approach in SLCA. As previously mentioned, they see impacts as a result of the conduct of the company rather than because of the nature of the individual process. Accordingly, two companies producing exactly the same products (and possibly with the same environmental impacts as evaluated in an ELCA) can have completely different social impacts. Thus, they advocate that social impacts have to do with the behaviour of the company towards its stakeholders (as opposed to the industrial process in ELCA), making use of generic process data irrelevant or at best very difficult to apply. Dreyer et al. (2006) and Spillemaeckers et al. (2004) see the management of a company as a very local phenomenon, making the data collection a question of collecting site specific data as opposed to the generally accepted approach of using more generic process data in the ELCA. However, collecting site specific data from the whole product chain is obviously a very demanding task and, as discussed in the paragraph on the setting of system boundaries, several approaches have been taken to delimit the product chain in order to restrict the needs for data collection. Accordingly, Spillemaeckers et al. (2004) suggest using a screening based on literature, Internet and various databases in order to locate focus areas along the product chain, and thereby delimit the on-site data collection. Hereby, they are also advocated for the use of generic data, although only in situations where the probability of large negative social impacts are small.

Regarding the site specific data collection, few have described the process in detail. However, Spillemaeckers et al. (2004) give some overall guidelines on monitoring approaches.

Even though Weidema (2006), Schmidt et al. (2004), and Manhart and Grießhammer (2006) acknowledge that site specific data in general will lead to more accurate assessments, they still argue that using generic data from statistical databases (national, regional and global) can give a rough estimate on several social impacts. Also Barthel et al. (2004) propose the use of generic data from country and industry specific databases.

A third approach in relation to data collection is presented by Norris (2006) and Hunkeler (2006). The basic idea behind these two approaches is to use only a single impact category as a basis for the social assessment with a link to some broadly accessible generic data used as an indicator. Taking Norris (2006) as an example, he estimates mortality and morbidity impacts based on the assessed product or service production's contribution to increased GDP. The estimation is based on a statistical correlation between GNP rise and the mean life expectancy, which shows a very high positive correlation for countries with small GNP and a much smaller positive correlation for high income countries. Norris emphasises that estimations will be on the average, and that local conditions are likely to distort the picture.

The administrative advantage of using generic data is indisputable, as the assessment can be performed as a desktop study, giving a faster and less expensive assessment approach. Following these observations, Norris' (2006) and Hunkeler's (2006) proposals of including only a single indicator, for which data is easily obtainable, seems tempting. However, the comprehensiveness of both approaches is questionable and thereby their usability as a decision support. As an example, Norris' approach would always point towards the conclusion that products should be produced in the poorest possible country. Furthermore, the question of whether the accuracy of generic data is acceptable remains: Acknowledging that social impacts emerge primarily from the conduct of the specific company, how well can estimations based on generic databases resemble the assumed high accuracy of the site-specific data collection? Here, it should be noted that generic data could be made national or even sector specific as required, for example by Hunkeler (2006), instead of striving towards regionally or globally applicable data as in the ELCA.

4 Impact Assessment

The impact assessment is the phase of the ELCA where the inventory information is translated into impacts. The phase contains the classification, characterisation, and normalisation and valuation of impacts.

4.1 Classification

In ELCA, classification is normally performed by assigning inventory results to impact categories (ISO 14044). However, in the UNEP-SETAC Cross-cutting taskforce, a discussion has arisen concerning whether to follow the approach known from ELCA or to classify according to the impacted stakeholders (Grießhammer et al. 2006). For both classification approaches it is crucial to be as complete as possible, keeping in mind the goal of the study, as excluded stakeholders or impact categories will not give weight to the final results. It should be noted that the two approaches are not mutually incompatible.
For classification according to stakeholder groups the UNEP-SETAC taskforce on SLCA has agreed on a minimal list of stakeholders, including: Workforce (workers/employees); local community; consumers (related only to the use stage); and society (national and/or global) (Grießhammer et al. 2006). Schmidt et al. (2004) also propose the above mentioned, but furthermore includes business partners and future generations.

As discussed earlier and illustrated in Table 1 and 2, there is not an agreed list of impact categories, neither for midpoint approaches, nor for endpoint approaches.

4.2 Characterisation

The purpose of characterisation in ELCA, according to ISO 14044 (2006), is to aggregate the inventory results within the same impact category. This involves conversion of inventory data to a common metric.

As mentioned earlier, Weidema (2006) uses endpoint indicators, implying that he models inventory data to endpoint through impact pathways, based on the general idea to calculate all impacts as a reduction in the average well-being, denoted Quality Adjusted Life Years (QALYs). Each indicator has a severity, or impact factor, and an average duration. By summing the multiplications of incidence, severity and duration of each indicator, the total reduction in well-being can be calculated and expressed in years.

Two other approaches are presented by Barthel et al. (2005) and Schmidt et al. (2004). Barthel has three impact categories comprising 16 indicators. The indicators in each impact category have the same unit (e.g. seconds/functional unit) allowing for a simple summation of indicator scores resulting in a total measure for each impact category. Hereby, it is implicitly stated that the impact factor of each indicator is 1.

The approach of Schmidt et al. (2004) builds on the same principles, although a more detailed description is still under development.

Spillemaeckers et al. (2004) consider several of the impact categories as being complex phenomena, implying that up to eight indicators are needed to reasonably express its qualities. Each indicator is generally given the same impact factor, yet some are graduated in importance by classifying their compliance as either mandatory, in order to get the label, or voluntary. A very similar approach is taken by Dreyer (2006), however, whether or not Dreyer performs a characterisation is a matter of definition. Dreyer's indicators are based on many 'measures', i.e. questions to which the company should comply to get a good score. These measures could equally well be defined as indicators, implying that a characterisation is made.

Hunkeler's (2006) approach to characterisation is a bit different from other SLCA approaches. Hunkeler relates one indicator, the number of working hours along the production chain, to several impact categories, by assuming that the salary earned from the working hours is spent on improving the four impact categories: housing, health care, education and necessities (stressing that more impact categories should be added). Hunkeler's categorisation factors are estimated from the means of the average national costs of the commodities mentioned, expressed in working hours. By applying these characterisation factors to the working hours, a product's aggregated contribution towards obtaining these commodities can be calculated. The repartition of working hours into impact categories may be chosen according to a model of society. For example, an egalitarian society would give the same importance and then the same factor to every impact category.

Except for the approach presented by Weidema (2006) and Norris (2006), the whole concept of characterisation becomes somewhat different in SLCA than in ELCA, partly reflecting that the inventory analysis of many approaches collects information about impacts or behaviour predisposing impacts rather than on the kind of fundamental behaviour which would parallel the physical flows which are inventoried in ELCA. To give an example in ELCA, a CFC11 emission does not only contribute to the impact category ozone depletion, but also to global warming. In SLCA, a quantification of an indicator representing child labour impacts would not be relevant as a measure of discrimination impact or other social impacts. There is presently no consensus regarding these cause-effect relationships, and the characterisation approaches seem more oriented towards simplification of inventory results than towards a characterisation in line with the ELCA methodology.

4.3 Normalisation and valuation

Very little work has been done on these elements of the SLCA. Grießhammer et al. (2006), Schmidt et al. (2004) and Weidema (2006) discuss the issue of normalisation, and Schmidt et al. (2004) also gives a discussion on valuation. The general trend is that normalisation and valuation in SLCA are suggested to be performed like in ELCA.

5 Conclusions

The review has given an overview of the present development of SLCA by presenting the existing approaches to SLCA and discussing how they address the methodological aspects in the ISO standardised ELCA framework.

The review found a multitude of different approaches with regards to nearly all steps in the SLCA methodology, reflecting that this is a very new and immature field of LCA.

We are still in a situation where a number of fundamental issues have not been agreed on and resolved. One fundamental issue seems to be which impact categories to include in the assessment and how to measure these. Some degree of consensus regarding this point seems paramount if the SLCA is to gain any weight as a decision support tool.

One problem in this regard is that the perception of social impacts is very variable. This point can be illustrated by comparing the midpoint-based approaches and, for example, the approach presented by Norris (2006). In the midpoint-based approaches, it was illustrated that the impact categories included are closely related to the direct impact on workers and society. The very different approach presented by Norris (2006), on the other hand, showed how social impacts can also be assessed from a much more macroeconomic perspective. Finally, as pointed out by Nazarkina and Le Bocq (2006), indicators are generally defined at the organisational level and not the individual. The area of social impacts is thus very wide. If the SLCA is to give an adequate assessment of the social area, this width must either be accounted for, or some agreement upon the most important impacts to include in the SLCA must be reached.

Another problem is that the question of how to measure the social impacts is equally an area for disagreement. Barthel et al. (2005), for example, use direct quantitative measurements, whereas Dreyer (2006) advocates the need for proxy measurements using scorecards for semi-quantitative measurements.

The degree of complexity needed for measuring these social impacts is another fundamental issue. Some approaches advocate a detailed and site specific investigation, whereas others claim that statistical sources suffice. This divergence of view again is linked to the other very important discussion of data collection: Is generic data sufficiently accurate for the assessment or must site specific investigations be employed? From a pragmatic viewpoint, a minimum criterion for the quality of the input data must be that the value of the assessment as decision support should be better than no assessment at all. If this minimum can only be reached by using site specific data, the burden of assessing even a relatively simple product can become immense and easily lead to the need for drastically narrowing the boundaries of the assessment.

In this context, it is also important to remember that the quality of site specific data is very dependent on the auditing approach and therefore not necessarily of high accuracy, and that generic data might be designed to take into account the location, sector, size and maybe ownership of a company and thereby in some cases give a reasonable impression of the social impacts that can be expected from the company performing the assessed process.

The application-dependency of the methodology seems important to address here. Differences in approaches may be explained by differences in their intended use. Thus, when addressing width, depth, and information needs in the SLCA, it is important to remember that these must be balanced according to the relevance for its users.

To sum up, it is visible that SLCA is in the stage of development where different approaches emerge, hypotheses are tested and discussed (e.g. in the UNEP-SETAC task force on Social impacts in LCA). This stage comes before the stage of consensus creation and harmonisation, and this is visible in the diversity of the approaches included in the review.

Acknowledgements We would like to thank Pierre Mazeau from EDF, France, for stimulating discussions on social indicators, Catherine Benoît and Jean-Pierre Revéret from CIRAIG, Canada, and Louise Dreyer from Hartmann, Denmark, for helpful comments.

References

- Barthel L, Wolf MA, Eyerer P (2005): Methodology of Life Cycle Sustainability for Sustainability Assessments. Presentation on the 11th Annual International Sustainable Development Research Conference (AISDRC), 6th–8th of June 2005, Helsinki, Finland
- Cañeque FC (2002): Evaluación de la situación laboral de empresas: El Análisis del Ciclo Vida como herramienta para el Desarollo Sostenible. Departamento de Economia i Organisación de Empresas, Universitat de Barcelona, Barcelona, Spain
- Dreyer L, Hauschild M, Schierbeck J (2006): A Framework for Social Life Cycle Impact Assessment. Int J LCA 11 (2) 88–97

Dreyer L (2006): Interpretation of the Fundamental ILO Conventions into Business Context – Background for development of indicators for Social LCA. Department of Manufacturing Engineering and Management, Technical University of Denmark, Lyngby, Denmark

- Earthster (2007): <www.earthster.org>
- European Commission (2001): Promoting a European framework for corporate social responsibility – Green paper, Luxembourg : Office for Official Publications of the European Communities
- Flysjö A (2006): Indicators as a Complement to Life Cycle Assessment A Case Study of Salmon. Presentation held 17th of June 2006 in Lausanne
- Gauthier C (2005): Measuring Corporate Social and Environmental Performance: The Extended Life-Cycle Assessment. J Bus Ethics 59 (1-2) 199-206
- Grießhammer R, Benoît C, Dreyer LC, Flysjö A, Manhart A, Mazijn B, Méthot A, Weidema BP (2006): Feasibility Study: Integration of social aspects into LCA. Discussion paper from UNEP-SETAC Task Force Integration of Social Aspects in LCA meetings in Bologna (January 2005), Lille (May 2005) and Brussels (November 2005). Freiburg, Germany
- Global Reporting Initiative (2007): <www.grig3.org/guidelines.html>
- Hunkeler D (2006): Societal LCA Methodology and Case Study. Int J LCA 11 (6) 371–382
- ISO 14044:2006 (2006): Environmental management Life cycle assessment – Requirements and guidelines. International Standard Organisation, Geneva, Switzerland
- Manhart A, Grießhammer R (2006): Social impacts of the production of notebook PCs – Contribution to the development of a Product Sustainability Assessment (PROSA). Öko-Institut e.V., Freiburg, Germany
- Méthot A (2005): FIDD: A green and socially responsible venture capital fund. Presentation on the Life Cycle Approaches for Green Investment – 26th LCA Swiss Discussion Forum, 2005, Lausanne, Switzerland
- Nazarkina L, Le Bocq A (2006): Social aspects of Sustainability assessment: Feasibility of Social Life Cycle Assessment (S-LCA). EDF 2006, Moretsur-Loing, France
- Norris GR (2006): Social Impacts in Product Life Cycles Towards Life Cycle Attribute Assessment. Int J LCA 11 (1) (Special Issue) 97–104
- Schmidt I, Meurer M, Saling P, Kicherer A, Reuter W, Gensch C (2004): SEEbalance – Managing Sustainability of Products and Processes with the Socio-Eco-Efficiency Analysis by BASF. Greener Management International (45) 79–94
- Spillemaeckers S, Vanhoutte G, Taverniers L, Lavrysen L, van Braeckel D, Mazijn B, Rivera JD (2004): Integrated Product Assessment – The Development of the Label 'Sustainable Development' for Products Ecological, Social and Economical Aspects of Integrated Product Policy. Belgian Science Policy, Belgium
- Udo de Haes AH, Finnveden G, Goedkoop M, Hauschild M, Hertwich EG, Hofstetter P, Jolliet O, Klöpffer W, Krewitt W, Lindeijer E, Müller-Wenk R, Olsen SI, Pennington DW, Potting J, Steen B (2002): Life-Cycle Impact Assessment: Striving towards Best Practice. Society of Environmental Toxicology and Chemistry (SETAC), Pensacola FL, USA
- UNEP (2005): UNEP/SETAC Life Cycle Initiative: Life Cycle Approaches: From analysis to practice
- Weidema BP (2006): The integration of Economic and Social Aspects in Life Cycle Impact Assessment. Int J LCA 11 (1) (Special Issue) 89–96
- Weidema BP (2005): ISO 14044 also Applies to Social LCA. Int J LCA 10 (6) 381–381
- Wenzel H, Hauschild M, Alting L (1997): Environmental assessment of products. Vol. 1 – Methodology, tools and case studies in product development. First edition. Chapman & Hall, United Kingdom, Kluwer Academic Publishers, Hingham, MA, USA

Received: June 14th, 2007 Accepted: November 5th, 2007 OnlineFirst: December 7th, 2007

ESCOP Social Sciences Subcommittee Membership Status as of January 2013 (three-year renewable terms)

Discipline	Northeast	North Central	South	West	1890 ARD	At Large
Ag Communication	Rama Radhakrishna ('13)	Beth Forbes (`11)	Dwayne Cartmell (`12)	David Doerfert (`11)	Adell Brown ('13)	Tracy Irani (`12)
	Penn State	Purdue	Oklahoma State	Texas Tech	Southern University	Univ. of Florida
Ag Economics	Stephan Goetz (`11)	Scott Loveridge (`13)	Chuck Moss (`11)	Bruce Weber ('10)	Ntam Baharanyi (`11)	Matt Fannin (`11)
	NERDC, Penn State	NCRDC Michigan State	University of Florida	Oregon State	Tuskegee University	Louisiana State
Ag Education	Travis Park (`11)	Mike Retallick ('13)	Jack Elliot (`13)	James Connors (`13)	John Ricketts (`11)	Bobby Torres (`11)
	Cornell	Iowa State University	Texas A&M	University of Idaho	Tennessee State	Univ. of Arizona
Human Sciences	Daniel Perkins (`11)	Soyeon Shim (`13)	Marshall Stewart (`11)	Jeff McCubbin ('13)	Nina Lyon Bennett (`12)	June Henton (`11)
	Penn State	U. of Wisconsin,	North Carolina State	Colorado State	U. Maryland Eastern	Auburn
		Madison			Shore	
Rural Sociology	Carolyn Sachs (`11)	Linda Lobao ('13)	Bo Beaulieu (`13)	Don Albrecht (`11)	Dreamal Worthen (`11)	
	Penn State	Ohio State	SRDC, Mississippi St.	WRDC, Utah State	Florida A&M	

Subcommittee Chair: Jack Elliot (through 2013 meeting)

Subcommittee Secretary and Chair-Elect: Bobby Torres (secretary through 2013 meeting, chair through 2015 meeting) Liaison to the ESCOP Science & Technology Committee: Travis Park

USDA NIFA Liaisons: Pat Hipple, Siva Sureshwaran

ESCOP Liaison: Dan Rossi, Northeastern Regional Association of Experiment Station Directors, Rutgers University

ESCOP Science & Technology Committee Chair: Bill Ravlin, The Ohio State University

ARD Representative: Ntam Baharanyi, Tuskegee University and Alton Thompson, Provost, Delaware State University

Ex-Officio (non-voting)Members:

Regional Rural Development Centers: Scott Loveridge, Bo Beaulieu, Stephan Goetz, and Don Albrecht

Neil Conklin, Farm Foundation

Chuck Fluharty, Rural Policy Research Institute (RUPRI)

Board on Human Sciences Liaisons: Soyeon Shim, University of Arizona; June Henton (alternate), Auburn University

Howard Silver, Consortium of Social Science Associations

Tamara Wagester, The Council on Food, Agricultural and Resource Economics (C-FARE)

R. Thomas (Tom) Van Arsdall, National Coalition for Food and Agricultural Research (National C-FAR)

Don Albrecht, Director

Western Rural Development Center Utah State University 4880 Old Main Hill Logan, UT 84322-4880 435-797-9732 don.albrecht@usu.edu

Ntam Baharanyi, Professor

Agricultural and Resource Economics Cooperative Extension Program Morrison-Mayberry Hall Tuskegee University Tuskegee, AL 36088 334-724-4840 baharany@mytu.tuskegee.edu

Bo Beaulieu, Director

Southern Rural Development Center Box 9656 190 Bost Extension Bldg. Mississippi State, MS 39762 662-325-3207 Ijb@srdc.msstate.edu

Nina Lyon Bennett, PhD

Chair Department of Human Ecology University of Maryland Eastern Shore Princess Anne, MD 21853 410-651-6056 410-651-6285 (fax) nlbennett@umes.edu

Adell Brown Jr., Vice Chancellor for Research

Southern University Ag Center Ashford O. Williams Hall P.O. Box 10010 Baton Rouge, LA 70813 225-771-2242 Adell_brown@suagcenter.com

Dwayne Cartmell, Professor

Dept. of Agricultural Education, Communications, & Leadership Oklahoma State University 448 Agricultural Hall Stillwater, OK 74078 405-744-0461 dwayne.cartmell@okstate.edu

James Connors, Department Head

Agricultural Education and 4H Youth Development University of Idaho 875 Perimeter Drive, MS 2040 Moscow, ID 83844-2040 208-885-6358 jconnors@uidaho.edu

Neil Conklin, President

Farm Foundation 1301 West 22nd St. Suite 615 Oak Brook, IL 60523-2197 630- 571-9393 neil@farmfoundation.org

David Doerfert, Associate Chair and Professor

Dept. of Agricultural Education and Communications Texas Tech University MS 42131 Lubbock, TX 79409 806-742-2816 david.doerfert@ttu.edu

Jack Elliot, Head

Dept. of Agricultural Leadership, Education, & Communications Texas A&M University 250 AGLS, TAMU 2116 College Station, Texas 77843-2116 979-845-6944 jelliot@tamu.edu

Matt Fannin, Associate Professor

Dept. of Agricultural Economics and Agribusiness Louisiana State University 130 Martin D. Woodin Hall Baton Rouge, LA 70803 225-578-0346 mfannin@agcenter.lsu.edu

Chuck Fluharty, President and CEO

Rural Policy Research Institute 214 Middlebush Hall University of Missouri-Columbia Columbia, MO 65211 573-882-0316 cfluharty@rupri.org

Page | 2

Beth Forbes, Head

Department of Agricultural Communications Purdue University 615 W. State St. West Lafayette, IN 47907 765-494-8403 forbes@purdue.edu

Stephan Goetz, Director

Northeast Regional Center for Rural Development The Pennsylvania State University 7 Armsby Bldg. University Park, PA 16802-5602 814-863-4656 sgoetz@psu.edu

June Henton, Dean

College of Human Sciences Auburn University 210 Spindle Hall Auburn, AL 36849 334-844-3790 hentoju@auburn.edu

Pat Hipple, National Program Leader

Division of Family and Consumer Sciences National Institute of Food and Agriculture/USDA 4429 Waterfront Centre 800 9th St., SW Washington, DC 20024 202- 401-2185 phipple@nifa.usda.gov

Tracy Irani, Professor

Development Director, Center for Public Issues Education in Agriculture and Natural Resources Co-Director Scientific Thinking Educational Partnership (STEP) AEC Department 220 Rolfs Hall University of Florida GNV, FL 32611 352-273-2588 irani@ufl.edu

Linda Lobao

Professor, Rural Sociology, Sociology, and Geography School of Environment and Natural Resources 2021 Coffey Rd. The Ohio State University Columbus OH 43210 Phone 614-292-6394 Iobao.1@osu.edu

Scott Loveridge, PhD

Director, North Central Regional Center for Rural Development Professor, Dept. of Ag., Food, and Resource Economics Michigan State University 66 Agriculture Hall East Lansing, MI 48824 <u>Ioverid2@msu.edu</u>

Jeff McCubbin, Dean

College of Applied Sciences Colorado State University 1501 Campus Delivery Fort Collins, CO 80523-1501 970-491-5841 jeff.mccubbin@colostate.edu

Chuck Moss, Professor

Food and Resource Economics Department University of Florida 1155 McCarty Hall Gainesville, FL 32611-0240 352-392-1845 x404 cbmoss@ufl.edu

Travis Park, Associate Professor

Department of Horticulture Cornell University 110 Plant Science Building Ithaca, NY 14853 607-255-8122 tdp9@cornell.edu

Daniel Perkins, Professor

Professor of Family and Youth Resiliency and Policy / Department of Agricultural and Extension Education/Courtesy Appointment with Human Development and Family Studies The Pennsylvania State University 107 Ferguson Bldg. University Park, PA 16802 814-865-6988 dfp102@psu.edu

Rama Radhakrishna, Professor

Agricultural and Extension Education Department of Agricultural Economics, Sociology, and Education Penn State 102 Ferguson Building University Park, PA 16802 814-863-7420 brr100@psu.edu

Bill Ravlin, Associate Director

Ohio Agricultural Research and Development Center 209 Research Services Bldg. Wooster, OH 44691 330-263-3705 ravlin.1@osu.edu

Michael S. Retallick

Associate Professor Agricultural Education and Studies Iowa State University 206 Curtiss Hall Ames, IA 50011-1050 Voice: 515.294.4810 Fax: 515.294.0530 msr@iastate.edu

John Ricketts, Associate Professor

Agricultural & Extension Education Tennessee State University 203 Lawson Hall, 3500 John A. Merritt Blvd. Nashville, TN 37209 615-963-7620 jricket1@tnstate.edu

Dan Rossi, Executive Director

Northeastern Association of State AES Directors Rutgers University 59 Dudley Rd. New Brunswick, NJ 08901 732-932-9375 X337 rossi@njaes.rutgers.edu

Carolyn Sachs, Professor of Rural Sociology &

Head Women's Studies Department The Pennsylvania State University 111C Armsby Bldg. University Park, PA 16802 814-865-3746 csachs@psu.edu

Soyeon Shim, Dean

School of Human Ecology University of Wisconsin-Madison 2135 Nancy Nicholas Hall 1300 Linden Dr. Madison, WI 53706 Voice 608-262-4847 soyeon.shim@sohe.wisc.edu jaander8@wisc.edu

Howard J. Silver, Executive Director

Consortium of Social Science Associations 1701 K Street, N.W.; Suite 1150 Washington, DC 20006 202-842-3525 silverhj@cossa.org

Marshall Stewart, Jr., Head

Dept. of 4-H Youth Development North Carolina State University 512 Brickhaven Dr., Box 7606 Raleigh, NC 27695 919-515-1681 marshall_stewart@ncsu.edu

Siva Sureshwaran, National Program Leader

Division of Agricultural Systems, Institute of Food Production and Sustainability National Institute of Food and Agriculture/USDA 3240 Waterfront Centre 800 9th St., SW Washington, DC 20024 202-720-7536 ssureshwaran@nifa.usda.gov

Alton Thompson, Provost and Vice President

for Academic Affairs Delaware State University 1200 N. PuPont Highway Dover, DE 19901 303-857-6100 Fax 303-857-7410 athompson@desu.edu

Bobby Torres, Head

Dept. of Agricultural Education University of Arizona 205 Saguaro Bldg. Tucson, AZ 85721 520-621-7173 rtorres@cals.arizona.edu

R. Thomas (Tom) Van Arsdall, National C-FAR

Executive Director Van Arsdall & Associates Inc. National Coalition for Food and Agricultural Research (703) 509-4746 tom@vanarsdall.com

Tamara Wagester, Executive Director

The Council on Food, Agricultural and Resource Economics 900 Second Street, NE Suite 205 Washington, DC 20002 202-408-8522 tamarawagester@cfare.org

Bruce Weber, Director

Rural Studies Program Dept. of Agricultural and Resource Economics 213 Ballard Extension Hall Oregon State University Corvallis OR 97331-3601 541-737-1432 bruce.weber@oregonstate.edu

Dreamal Worthen, Associate Professor

College of Engineering Sciences, Technology and Agriculture Florida A&M University 116 B. Perry-Paige Bldg. Tallahassee, Florida 32307 850-599-3400 dreamal.worthen@famu.edu diw116@hotmail.com