

UC DAVIS

AGRICULTURAL SUSTAINABILITY INSTITUTE

College of Agricultural and Environmental Sciences



**UNIVERSITY OF CALIFORNIA DAVIS
AGRICULTURAL SUSTAINABILITY INSTITUTE
(ASI)**

STRATEGIC SNAPSHOT AT NOVEMBER 2013

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With contributions from many ASI staff members

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OUR INSTITUTE AT A GLANCE

Update: November 2013

Our mission is to ensure access to healthy food and to promote the vitality of agriculture today and for future generations. We do this through integrative research, education, communication and early action on big, emerging issues.

Our vision for the Agricultural Sustainability Institute. ASI will be a:

- ◆ **Convenor:** engaging diverse perspectives
- ◆ **Clearinghouse:** synthesizing, translating and communicating useful information
- ◆ **Think tank:** being the thought leader for interdisciplinary research
- ◆ **Pioneer:** taking early action on major issues
- ◆ **Incubator:** nurturing the next generation of agricultural leaders
- ◆ **Action tank:** linking science with action for sustainable solutions

Thematic areas

Agriculture, Resources, & the Environment: integration of agricultural systems at the farm/ranch and landscape levels.

Food & Society: integration of the food system, linking production, distribution and consumption.

Education & Leadership: integrated programs for sustainability education and leadership - kindergarten through post-graduate, including a **new undergraduate major in Sustainable Agriculture and Food Systems** and support for the **MS in International Agricultural Development** and the **PhD in Agroecology** at UC Davis.

Sustainability Benchmarks: a crosscutting activity to produce scientifically-validated frameworks of issues and indicators to benchmark trends in sustainability of agriculture and the food system.

Farmworker and Rural Community Wellbeing: a crosscutting activity to address salient issues affecting wellbeing of farmworkers, food system workers, and rural communities through research, education and extension.

Programs and facilities

UC statewide Sustainable Agriculture Research & Education Program (UC SAREP)

Russell Ranch Sustainable Agriculture Facility at UC Davis

Student Farm at UC Davis

Inter-institutional Network for Food, Agriculture & Sustainability (INFAS), national network hosted by ASI

Team and associates

- ◆ Director of ASI and SAREP: Tom Tomich (since January 2007)
- ◆ ASI Deputy Director: Ermias Kebreab (starting January 2014)
- ◆ Russell Ranch Sustainable Agriculture Facility Director: Kate Scow (since January 2008)
- ◆ Student Farm Director: Mark Van Horn (since February 1987)
- ◆ SAREP Deputy Director: Gail Feenstra (starting January 2014)
- ◆ 27 other full and part-time staff of various programs and projects, including 2 postdoctoral fellows
- ◆ 4 graduate student researchers, 1 teaching assistant, and 22 undergraduate student assistants
- ◆ 9 ASI-affiliated professorships in agroecology, sustainability science, sustainability and society, economics of sustainability, plant disease management/soil microbiology, soil science, pollination ecology, invertebrate community ecology, and sustainable animal systems.
- ◆ 12 ASI fellows, including faculty from the College of Engineering and the School of Education, as well as the College of Agricultural and Environmental Sciences at UC Davis.
- ◆ A further 150 UC Davis faculty self-identified as strongly interested in sustainable agriculture.
- ◆ A distinguished advisory board of 26 leaders, representing diverse stakeholder interests.
- ◆ UC Davis CA&ES Dean's Office support in fundraising, events, administration, IT.
- ◆ An expanding network of partners, including UC Cooperative Extension specialists and farm advisors, and other partners in various sectors.

Current annual budget: over \$3 million; campaign underway to increase to \$6 million.

DIRECTOR'S MESSAGE

To: ASI External Advisory Board members, our guests, staff, and affiliated faculty

From: Tom Tomich, Director, ASI & SAREP

Date: 15 November 2013

Re: **External Advisory Board Meeting next Thursday, 21 November, Irvine, CA**

I am very grateful to board member AG Kawamura and Orange County Cooperative Extension Director Darren Haver for hosting the first ASI external advisory board meeting south of the Tehachapi Mountains. In addition to board members and staff, we are taking this opportunity to involve a number of guests to expand our networks, particularly in Southern California. As described in the attached agenda, we hope each of you will join us for dinner on Wednesday evening. The main part of the meeting begins Thursday morning, with a series of 5-minute "Ignite" talks (for examples on a host of non-ASI topics: <http://igniteshow.com/>). We hope these will indeed ignite spirited discussion of some of the most exciting elements of ongoing work at ASI. The purpose of this Ignite workshop format is to stimulate critical feedback on our main messages as well as providing clear, concise updates for meeting participants. Following lunch, we will travel together by bus to nearby agricultural sites. In addition to providing enlightening field experiences at the UC South Coast Research and Education Center and Irvine's Great Park, our field journey is intended to create opportunities for us to engage in creative, free-ranging discussions. We will harvest the resulting fresh insights and practical strategies in a closing session at the Great Park's Farm and Food Lab at the end of the day.

Please note: to maximize the "Ignite" experience, we will not have conventional update presentations. Instead, to prepare for our time together, I would ask that you please review the following three things before we gather in Irvine:

- 1) **Consider the "New and Noteworthy" items on pages 5-7** of this year's Strategic Snapshot, which chronicle ASI's most outstanding accomplishments of the past year. These highlights are clustered around our Ignite themes and are intended to provide background and examples relevant to each of those Ignite talks.
- 2) **Please take some time to review the report of the first-ever Faculty Review of ASI by the College of Agricultural & Environmental Sciences at UC Davis.** The review committee's report, along with ASI comments and responses (circulated to many of you earlier today), can be found **on pages 8-13** of this year's Strategic Snapshot. I believe this review is a milestone in the development of ASI, with strong endorsements for our ongoing work and insightful recommendations from our CA&ES faculty colleagues. I am eager for each of you to read why the review committee concluded that "...the ASI mission is critical to the future of agriculture and that the current leaders and staff are providing excellent services to our missions of research, extension and teaching, doing so far beyond the call of duty."

3) Particularly if you are new to the ASI board, **you also may wish to skim the balance of this year's Strategic Snapshot**, the annual update of our strategic plan. For your convenience, new sections beyond page 14 are highlighted in *blue* or *green* italics. (The appendices to the Strategic Snapshot can be accessed at: <http://asi.ucdavis.edu/about/advisory-board/Board-meetings/2013-external-advisory-board-meeting>).

Although we will be minimizing formal presentations, we of course invite your questions and comments on any (and all) of the material covered in this year's Strategic Snapshot. Furthermore, you may well have questions on at least two of the topics we considered last year. As we discussed in Lodi, the transition in leadership of the College of Agricultural and Environmental Sciences at UC Davis has major implications for ASI and a new dean has not yet been named at this writing. We are however very grateful to our many ASI board members and other friends of ASI who served on the stakeholder advisory committee for the dean search, including the co-chairs of that committee, Karen Ross and Howard Shapiro, who each serve on our ASI board.

Chancellor Katehi's concept of a World Food Center also was a topic of great interest in Lodi because of the possible implications for ASI's strategies generally and, in particular, for our fundraising prospects. As we agreed last year, ASI has embraced this concept as a positive opportunity and I am pleased to serve on the Chancellor's World Food Center advisory committee. Roger Beachy recently was named as founding director of the World Food Center. Roger and I have spoken at length and I look forward to opportunities to collaborate with him when he takes on his leadership position in January 2014.

Fundraising, of course, always has been a central topic of our annual meetings. After many years of rapid growth for ASI, our projections indicate the possibility that this year could be the first in which ASI's overall budget plateaus or even declines. Sharpening our efforts to communicate our passion for ASI and our excitement about prospects for sustainable agriculture is one way to re-accelerate our fundraising, hence one rationale for the design of this meeting. We also will take this opportunity to launch the brand new ASI fundraising case statement at the board meeting.

I am pleased to report that we are significantly increasing human resources in fundraising to build on existing relationships and to pursue new opportunities. As of September 2013, our proposal coordinator Courtney Riggle increased her time on this key task from 1/2-time to 3/4-time. And in addition to the efforts of Melissa Haworth, our Director of Major Gifts, the CA&ES dean's office is recruiting a new development officer, who will devote a majority of their time to ASI as a priority opportunity for CA&ES fundraising. Overall, we will be significantly increasing our fundraising efforts, with a particular emphasis on our prospects to build ASI endowments.

With my very best wishes for safe travels to Irvine, I look forward to seeing each of you at our meeting in the coming week!

**“New and Noteworthy”
(November 2012 through October 2013)**

Irrigation and Nutrient Management

Work began on the first UC SAREP Solution Center, an online and in-person platform to share information about sustainable farming practices. Our initial solution center focuses on irrigation and nutrient management to mitigate and adapt to climate change. The project will develop over the next three years, based on a stakeholder process and web development in 2013.

Six of the eight chapters of our California Nitrogen Assessment, which provides the scientific and practical foundations for our first Solution Center, either are under scientific review or have completed that step. The remaining two chapters (the final chapter on policy and the introduction) are on track for review in December. This will be followed by an extensive stakeholder review and engagement process in the first half of 2014. The assessment manuscript is under consideration for publication by the University of California Press. The first of two UC Press reviewers wrote “This publication ... will provide comprehensive understanding of nitrogen issues in California that can be put to use in setting informed policies regarding one of the most important environmental issues of the world.” (The second review is pending.)

ASI staff and affiliated faculty are serving on a California Department of Food and Agriculture Task Force to design a Nitrogen Tracking and Reporting System to protect groundwater from nitrate pollution.

Farmworkers and Food System Workers

A heat assessment tool funded through a SAREP grant to the California Institute for Rural Studies (CIRS) was published in Spanish this year. Targeted at those who work outside during the summer months, it allows them to determine the level of risk they may experience and steps to reduce that risk. The tool is available in both English and Spanish at the CIRS web-site.

SAREP is launching a farmworker activity study funded by the California Department of Pesticide Regulation to assess pesticide exposure.

SAREP’s farmworker needs assessment and database of researchers working on farmworkers’ issues will be available on line soon. As a next step, discussion is underway on possible collaboration with Harvard University on the study of agricultural extension systems and farmworkers.

Value-based Supply Chains

SAREP held two Farmer Wholesale Tours bringing small-scale and ethnic farmers to wholesale markets, food hubs, distributor/processors, restaurants and grocery stores. The tours received a great deal of media coverage and rave reviews from participants: “You are providing a wonderful service to us all” wrote one participant.

In June, SAREP staff, with support from Student Farm colleagues, organized a one-day Farm to School Forum attended by almost 100 people at the Mondavi Institute for Wine and Food Sciences. This was the culmination of a three-year California Department of Food and Agriculture grant to enhance farm to school efforts in three school districts -- Winters, Oakland and Redding -- through professional development and measuring impacts on children’s food choices, preferences, and consumption.

Sustainable Sourcing of Global Agricultural Raw Materials

The Sustainable Sourcing Project achieved the full set of planned milestones of its first stage, which ended in September, including successful “proof of concept” testing of algorithms to focus the number of indicators needed to cover comprehensive sets of sustainability issues. Several prototype tools are available for exploration, including the Corporate Communications of Sustainable Sourcing Database, a catalog of public communications about sustainable sourcing from the world’s largest food manufacturing corporations. All prototype tools are on the project website: <http://sustainablesourcing.ucdavis.edu>.

The project hosted an intense, high-level stakeholder meeting in Washington, D.C., last December, convening 18 leaders representing global food manufacturing, finance, commodity trading, farming and ranching, environmental and social advocacy, and other policy-shapers in the global food system. They tested the usefulness of the project approach and used it to explore sustainability strategies, information needs, and possibilities for “uncommon” collaborations.

In August, the project hosted a two-day meeting in Asilomar for a diverse group of computer science and information technology-focused professionals. The meeting generated big ideas on how the project can be developed as an interactive web-based “semantic wiki” platform to inform sourcing of agricultural raw materials, drawing on the project’s database linking 44 integrated sustainability issues, more than 300 component issues, and over 2000 associated indicators.

Experiential and Connected Learning

Students volunteering and interning at our Student Farm increased 150% over the past five years.

The School Gardening Program held its first webinar for trainers of Garden Enhanced Nutrition Education.

The Ecological Garden hosted 1,600 children and 250 chaperoning adults from 60 classrooms around the region.

There now are 81 students in the Sustainable Agriculture & Food Systems (SA&FS) major, compared to 30 in Fall 2012 and 10 in Fall 2011. SA&FS students completed more than 100 internships across the US and in 9 other countries, including Jamaica, Ecuador, China, and Costa Rica. Many students intern on farms in Northern California and at government agencies in Sacramento.

Fundraising and Related Highlights

Commitments so far from the TomKat Charitable Trust, Gaia Fund, Columbia Foundation, and the UC Davis Plant Sciences Department to endow an Agroecology Professorship total \$550,000. December 2014 is the deadline to reach our \$1 million goal.

Our Adopt-an-Acre program exceeded the \$25,000 threshold necessary to create the Russell Ranch Sustainable Agriculture Facility Endowment.

Since 2008, ASI has secured more than \$1 million in funding for the SA&FS major.

The J.G. Boswell Company purchased a state-of-the-art planter for the Russell Ranch Sustainable Agriculture Facility, which makes possible many more crops and rotations in the new science plan.

Russell Ranch staff eliminated the facility's operating deficit this year through greater efficiency, increased revenues from crop sales, and by marketing their land management services to other units at UC Davis.

CA&ES Faculty Review of the Agricultural Sustainability Institute
(*ASI comments and replies inserted in blue italics.*)

To: Interim Dean Mary Delany
From: Agricultural Sustainability Institute Review Committee
Date: September 17, 2013 [*ASI comments: November 14, 2013*]
Re: Review of Agricultural Sustainability Institute

ASI has a broad mandate to address sustainable agriculture. The committee commends the leadership, affiliated faculty and staff for their remarkable efforts. Sustainability is a key if not the central issue facing agriculture and it should become a theme across the college. The limited amount of research funding focused on sustainable agriculture and resource conservation makes the mission difficult however, and the College should advocate externally for more support in this area. *ASI comment: We are very grateful to the review committee chair, Professor Andrew Waterhouse, and to each of the members of his committee for their hard work, constructive approach, and especially for the very useful comments presented in this report.*

Viewed broadly, the Student Farm is the teaching component of ASI, RR [*the Russell Ranch Sustainable Agriculture Facility*] the research component and SAREP, extension and outreach. The integration and leadership afforded by ASI has strengthened all the units and we would encourage more integration, for instance considering SAREP the extension component of RR, or looking into using RR for some teaching functions. *ASI comment: We generally agree with this broad characterization, while noting that each unit of ASI has roles in research, education, and extension and outreach. Having noted that, we certainly agree that there are important opportunities for further integration; for example, in further development of SAREP as the extension/outreach partner for RR. The planned co-location of some RR staff with SAREP program staff in the Robbins Annex in the campus center will provide greater opportunities for these links.*

The RR is dedicated to addressing the key issues of sustainable farming. Because CAES allocates significant resources to the operation of Russell Ranch (RR) each year, the committee has asked many questions about the RR experiments. We do not question the need for a facility like RR. However, we conclude that ASI needs to have an on-going evaluation of how to best use the RR to advance the ASI agenda, how best to manage the facility, and how to engage more campus faculty in investigating the critical issues of sustainable agriculture. Much of the currently available funds are consumed by two essentially twenty-year-old experimental programs, and it is not clear to us whether these experiments are an opportunity, or a burden and an impediment to developing other programs that might be of greater value. While we note that the two experiments have been changed somewhat recently, we believe that there is little evidence that the two programs have led the way for California, the U.S. and the world to be more sustainable. The 100 year experiment, which is partly on irrigated/high-input versus rain-fed/low input wheat production has resulted in relatively few publications on sustainability – the last major publication specifically on this experiment apparently was in 2004. (Denison, R.F., D.C. Bryant, and T.E. Kearny. 2004. Crop yields over the first nine years of LTRAS, a long-term comparison of field crop systems in a Mediterranean climate. *Field Crops Research* 86:267-277). The relocated SAFS project, largely a comparison of yields and inputs of organic versus a

conventional and “low-input” farming system has generated more publications, but may be somewhat dated in concept. Consequently, the committee recommends a thorough on-going evaluation of all the data and re-evaluation of the best use of RR for the purpose of both studying and implementing sustainable agriculture. It seems unlikely that the current structure will be able to provide the research data necessary to facilitate ASI’s goals of expanding its knowledge base for farmers. Various options should be considered with the goal of maximizing the value of the ranch’s output for the benefit of both the College of Agriculture and the citizens of California. *ASI comment: We respectfully disagree with some of the specific points in this paragraph, specifically regarding publication output. However, we entirely agree with the overall point that long-term experiments must be adapted dynamically and that high-impact publications deserve particular attention. This is the purpose of the new science plan (now available on-line (<http://russellranch.ucdavis.edu/files/Final%20New%20Science%20Plan%2010-13.pdf>) for the Century Experiment (the successor to the old LTRAS/SAFS designs). In the last year (after finalization of the New Science Plan), there has been a substantial increase in faculty interest from UC Davis, as well as from Michigan State, the Jet Propulsion Laboratory, and UC Santa Cruz, resulting in 8 proposals led by associated faculty members and 4 led by Professor Kate Scow. Subject to availability of funding, we would plan to commission an external review of the facility after the new science plan is fully implemented and has operated for at least two years. We also fully agree that engaging more faculty, as well as students and farmers, is appropriate, particularly with the new science plan in place. Professor Kate Scow has served double duty for ASI as both ASI deputy director and RR director since January 2008—all on a voluntary basis above and beyond her duties as a faculty member. Her service during the past 6 years in this dual role has been outstanding. However, ASI’s growth and RR program development each have reached a point where this dual service arrangement no longer is optimal. From January 2014, Professor Ermias Kebreab graciously has agreed to serve as ASI deputy director and we are pleased that Professor Kate Scow now will be able to focus her superb scientific leadership on RR. In his capacity as an ASI faculty fellow, Professor Neal Van Alfen has agreed to work with Professor Scow on further development of RR science programs, broadening engagement with CA&ES faculty at RR, and on endowment activities such as our “Adopt-an-Acre” program.*

To succeed in making sustainable agriculture a major theme in CAES, more faculty should become involved in these issues and increasing faculty use must be carefully considered in the evaluation of RR. It is our observation that successful projects at UCD greatly benefit from faculty sponsor/s with a vested interest in the funding, execution and publication of the project—RR experiments needs such involvement. The ASI has already worked on increasing faculty participation, but more should be done to welcome and facilitate faculty research in order to expand those who are studying questions of sustainable farming. The need to expand faculty use should also be considered in evaluating the most effective management structure for the operation of RR. The UC Sierra Foothills Research and Extension Center, for example, seems to work well with a superintendent who is engaged in experiments at his site, in close touch with PI’s when issues come up. *ASI comment: We are grateful for the endorsement of our efforts to make RR a more welcoming venue for faculty (and student) research and appreciate the review committee’s recognition of our progress in building faculty involvement in RR and use of the RR online database. As mentioned in the previous comment, we are focusing and expanding RR leadership efforts to engage CA&ES faculty. In the past year, 67 faculty, extension specialists,*

and farm advisors have visited RR and/or had meetings with our staff about research opportunities and several have written proposals or are considering doing so. Our superintendent Israel Herrera is actively involved in research design and sampling, and collaborates directly with researchers to support their activities at RR (similar to UC Sierra Foothills); we feel his expertise and experience is a unique asset of RR. It also is worth noting that, thanks in large part to leadership from Professor Scow, RR also is hosting projects from Stanford University and research projects are in development with the Lawrence Berkeley National Laboratory and the Lawrence Livermore National Laboratory.

New statistical methods might greatly enhance the usable information that can be extracted from past data, and a committed faculty member focused on Systems Agriculture would be a key to full utilization of past data and optimizing future experiments. *ASI comment: We are pleased that the committee endorses the efforts we've been making to expand our repertoire of statistical approaches for analyzing RR data. We are optimistic that the current Plant Sciences search for a faculty member in agroecology will bring a new colleague who will engage in research at RR and contribute new methods and novel perspectives. Moreover, we are excited by the prospects for innovative use of the unique RR datasets by researchers at UC Davis as well as across the planet, since these data now are available freely on the RR webpages of the ASI website. RR research staff now need to work with ASI communications staff to ensure that we have means to document international uptake of these data and to document resulting scientific publications.*

There are many questions to address in sustainable agriculture, and many of those can and should be studied by individual investigators or small teams, at RR or elsewhere. The Institute has the mandate, capacity and resources to address larger questions that involved integrated approaches to sustainable agriculture. With its current resources, ASI is in a good position to focus its attention on those larger, systems-based integrative studies that require multiple investigators and disciplines. *ASI comment: We agree and thank the committee for calling out this important scientific role for ASI. We feel that the emphasis on energy/climate, water, and soil in the new science plan for the Century Experiment at RR exemplifies the larger, integrative topics that must be our priority. It also is noteworthy that campus investments in upgrading water wells at RR and collaboration among faculty, students, and staff to install new irrigation technologies and sensors at RR have substantially increased RR capacity to address these challenges, which are so important for California and our planet in the 21st Century.*

While SAREP is not a part of our formal charge, its integration into ASI makes it difficult to ignore. Current activity in support of building large integrated research teams to study sustainable agriculture issues is very commendable. These efforts are the most direct means to include faculty in the ASI, and the team members should be further integrated into ASI (see below). So, these efforts should be expanded. In addition, SAREP should be the State leader in the extension and outreach of sustainable agriculture research and resource conservation. One avenue to that is via tighter collaboration with ANR, to reach farm advisors and other stakeholders statewide. The ASI should be seen as the resource for such information by those partners. *ASI comment: We are grateful that the committee included SAREP in its review and strongly agree that SAREP's reorientation over the past 6-7 years has put our ANR statewide program on a promising trajectory. We also feel that the new SAREP Solution Center for Water and Nutrient Management, which is a direct outgrowth of our California Nitrogen Assessment,*

holds much promise as a vehicle for meaningful, solution-driven collaboration with farm advisors, other ANR colleagues, California farmers, and other stakeholders. The modular Solution Center approach, which we have developed with guidance and support from faculty, farm advisors, staff, and ASI external advisory board members, can be replicated to address a wide range of sustainability issues spanning SAREP themes as funding sources are secured.

It is great to see that the Student Farm has become wildly successful with growing student interest in sustainable farming. College support for teaching is allocated on a 3-year schedule, but exceptions can be made in unusual situations such as the explosive growth in the Sustainable Agriculture major. A plan to manage that growth should be developed and a staffing plan to manage that number of students at the Student Farms should be discussed with the Dean's office. The success of the Student Farm as an example of a sustainable operating farm could be a message in extension and outreach. *ASI comment: It is deeply gratifying to receive this strong recognition and praise for our Student Farm at UC Davis and more broadly for ASI activities in education and leadership. Mark Van Horn currently serves as both Student Farm director and academic coordinator of ASI's education and leadership theme. With the rapid growth in student involvement at the Student Farm and the similarly rapid growth in the Sustainable Agriculture and Food Systems major, as well as the launch of our Inter-institutional Network on Food, Agriculture and Sustainability (INFAS) in the past two years, we feel it is an appropriate time to elevate the visibility of our education and leadership theme within ASI and to articulate this cluster of activities in relation to the core experiential learning activities of our Student Farm. The review committee's suggestion that ASI develop a staffing plan to manage growth across these programs is well-taken and very timely. Director Van Horn will work with Student Farm staff and faculty colleagues to develop a broad proposal for staffing for consideration by the CA&ES dean's office. This will include staffing to meet the rapidly expanding needs in three inter-related and mutually-reinforcing sets of activities: staffing for experiential learning and practical demonstrations at the Student Farm, staffing for ASI's education and leadership theme, and faculty appointments to maintain educational quality within the Sustainable Agriculture and Food Systems major. We will work with the SA&FS committee-in-charge, the home department (Human Ecology), and the dean's office to ensure sufficient support for teaching within the major during this period of rapid enrollment growth.*

ASI has a well-organized external advisory group and their involvement has brought many benefits to the institute. At this point the ASI should focus on increasing faculty involvement. While this can be somewhat tricky, with an appropriate mission and appointment by the Dean, an advisory committee could support the ASI on all facets, including RR, the Student Farm and to some extent, SAREP. This committee could both advise the director and advocate for the institute. The members of this committee should include those heavily involved in ASI activities which may not necessarily be the faculty designated as the Sustainable Ag faculty presently, but most likely identified via involvement in ASI related research. There are different models of faculty involvement on institute/center boards on campus that can be considered. For instance the Robert Mondavi Institute has an advisory board with faculty and external representatives. *ASI comment: We strongly agree with the review committee's conclusion that the distinguished members of ASI's external advisory board have provided invaluable service to ASI and continue to be indispensable to ASI's further development. From the outset in 2007, the ASI strategic plan envisioned the eventual need for an ASI faculty advisory committee, and we agree that this*

is an opportune time to create this important academic counterpart to the external advisory board. As mentioned above, Professor Ermias Kebreab will be taking on the role of ASI deputy director in January 2014. Director Tomich will work with Professor Kebreab, in his capacity as ASI deputy director, and other ASI leaders to consider organizational models and options, with a plan to create an ASI faculty advisory committee by November 2014. Among other benefits, we share the review committee's view that expanding faculty involvement is one (of several) important roles for the ASI faculty advisory committee.

To address the various financial needs, some general principles should be considered. Operational support should come from the state driven budget and from stable endowment income. Experiments should be supported by grants, perhaps with incentives to use ASI facilities. Major equipment and substantial facility upgrades should be supported by gifts and grants. All such ASI needs should be tabulated and discussed with the appropriate development officer/s to ensure that they are aware of the needs and uses of such gifts. Given time and energy, a campaign could be considered. The Student Farm should maintain contact with alumni in order to ask for their support when they become successful sustainable practitioners. *ASI comment: The review committee's clear statement of financial principles is useful as we endeavor to build a diverse portfolio of funding that suits ASI's many specific functions. Indeed, we believe these principles fully align with ASI's current fundraising strategy and, in particular, point to the need to redouble our efforts to reach our \$50 million target in ASI's endowment campaign. ASI currently benefits from approximately 0.3 FTE from a CA&ES development officer. In response to our long list of prospects and positive results generated so far, the CA&ES dean's office is recruiting an additional development officer, who will devote a majority of their attention to ASI development prospects. In addition to this gratifying recognition of ASI as a priority opportunity for CA&ES fundraising, ASI units and programs increasingly are viewed as campus-wide assets, which has opened opportunities to gain attention from "central" campus development. This is an important development over the past 12 months, since success in the ASI endowment campaign will require more than one gift of \$10 million or more.*

The committee feels that the ASI mission is critical to the future of agriculture and that the current leaders and staff are providing excellent services to our missions of research, extension and teaching, doing so far beyond the call of duty. On behalf of the College, we thank them for this effort. With strongly engaged external constituency, the ASI now needs to broaden its impact within the College by involving more faculty. The challenges faced by ASI are driven by limited resources, expanding interest and a desire to serve broadly. At this point, the ASI should focus its efforts and plan for ways to expand its reach. *ASI comment: In closing, we wish to reiterate our gratitude to the review committee for this thoughtful report and the useful and timely suggestions it conveys. We agree that now is the time for ASI to expand engagement with faculty and we see clear benefits of pursuing that recommendation. Indeed, the great value the review committee has placed on our efforts so far is a reason for optimism that ASI can rapidly expand faculty involvement. And, as we strive to maintain a dynamic balance between growing resources (human, financial, and institutional) and exploding interest in our work, we feel there are good reasons for optimism that ASI can continue to grow and develop to full realization of its ambitious mission in sustainable agriculture and food systems for California and the world.*

ASI Review Committee, September 17, 2013

Lynn Epstein
Plant Pathology

James Oltjen
Animal Science

Ron Tjeerdema
Environmental Toxicology

Wes Wallender
Land, Air and Water Resources

Andrew Waterhouse, Chair
Viticulture and Enology

I – STRATEGIC FRAMEWORK

What distinguishes ASI?

The units of ASI are held together and distinguished by a shared mission, vision, values and operational principles and a passion for excellence in sustainability science that can transform California agriculture and fully realize California's potential for global leadership in research, education, and action for agricultural sustainability. These strategic elements were developed collaboratively by ASI staff with input from advisory board members and other stakeholders. We welcome additional comments and suggestions at any time.

*Status: Changes and additions appear in **blue italics** below. The vision for ASI developed at the inaugural external advisory board meeting in December 2008 now reflects five years of refinements. As was initiated in 2012, this year's snapshot includes greater detail on milestones attained in the past year and updates workplans for the coming year in Part IV, "Themes, Milestones, Initiatives, and Current Workplans."*

1. **Our mission** is to ensure access to healthy food and to promote the vitality of agriculture today and for future generations. We do this through integrative research, education, communication and early action on big, emerging issues.

2. **Our vision for food and agriculture:**

- ◆ A food and agricultural system that is innovative, adaptive and profitable;
- ◆ promotes prosperity and equity for people working in agriculture and the food system and for their communities;
- ◆ provides healthy food for everyone;
- ◆ improves the environment and human health;
- ◆ builds awareness and understanding of the food system; and
- ◆ engages public participation in policy decisions affecting food and agriculture.

3. **Our vision for ASI:**

- ◆ **Convenor:** bringing diverse perspectives together
- ◆ **Clearinghouse:** synthesizing, translating, and communicating useful information
- ◆ **Think tank:** being the thought leader for interdisciplinary research
- ◆ **Action tank:** linking science with action for sustainable solutions
- ◆ **Pioneer:** taking early action on major issues
- ◆ **Incubator:** nurturing the next generation of agricultural leaders

4. Geographic scope of ASI:

- ◆ **California:** our primary mandate is to serve our home state, which is recognized widely as one of the largest and most dynamic agricultural sectors on the planet. The UC SAREP statewide program is an important mechanism for statewide impact through partnerships with UC Cooperative Extension specialists and county-based farm advisors, among others.
- ◆ **United States:** to realize ASI's potential for national impact, we host the Inter-institutional Network for Food & Agricultural Sustainability (INFAS), which was launched in 2010.
- ◆ **International:** we envision a gradual increase in international activities as appropriate opportunities arise, emphasizing academic exchange and scientific networking. In addition to international exchanges and global networks, our two regional priorities are linkages with programs in the Mediterranean, arid, and semi-arid agro-climatic zones (e.g., Australia, Chile, Egypt, Italy, South Africa, Spain, and the International Centre for Agricultural Research in Dry Areas) and with sub-Saharan Africa. (At this time, we do not anticipate creating capacity for international project implementation; instead ASI will collaborate with the CA&ES International Agricultural Programs Office at UC Davis.)

5. Our core values: creativity, inclusiveness, integrity, partnership

6. Our operational principles

Practicing sustainability: we strive to enact sustainability principles and practices in our own activities.

- ◆ **“Walking the talk”:** we work to use sustainable practices in our own operations and actively strive to embody our core values: creativity, inclusiveness, integrity, partnership.
- ◆ **Community:** we embrace and enact the UC Davis Principles of Community in our daily work.
- ◆ **Respect for all:** we affirm the inherent dignity in all people and endeavor to relate to all with respect, fairness and justice.

Legitimacy: we set our priorities and design our programs in response to concerns and aspirations of stakeholders representing the diversity of California

- ◆ **Spanning boundaries:** we serve the entire state, and all segments of agriculture and the food system.
- ◆ **Science in the public interest:** we are committed to transparency in governance and priority setting; to open access to results and information; and to accountability to stakeholders.
- ◆ **Historical awareness:** we recognize the University's historic, current, and potential future roles in shaping agricultural and food systems and their effects on

environment and society. We strive to make informed and responsible decisions regarding research, teaching and outreach based on this knowledge.

- ◆ **Seeking consensus, while respecting differences:** our activities employ a common set of ground rules, including respect for different viewpoints.

Usefulness: responsiveness to stakeholders' needs – the broad interests of society as well as needs of specific groups – is key to the relevance of our initiatives and provides the necessary focus on real issues and opportunities.

- ◆ **Communication for impact:** we ensure that input from stakeholders consistently is sought and used effectively and that our products are translated to reach key audiences in forms they can use.
- ◆ **Integration of knowledge:** we actively seek and recognize the value of knowledge embodied in experience on farms and ranches, in communities, in industry, and in policy arenas.
- ◆ **Commitment to experiential learning:** we recognize the value of learning-by-doing and actively seek to integrate practical opportunities in our educational programs, training, and outreach activities.
- ◆ **Creating and sustaining a learning organization:** feedback, monitoring, evaluation, and impact assessment will be embedded in overall design of our activities.

Credibility: we hold ourselves to the highest standards of professional integrity and scientific rigor.

- ◆ **Forward-looking agenda:** we will create and sustain mechanisms to identify and assess emerging opportunities and threats, based on scientific analyses and stakeholder input and informed by global trends.
- ◆ **Broad scope, with multidisciplinary balance:** we integrate economic, environmental, and social dimensions of sustainability.
- ◆ **Scientific integration and synthesis:** our activities span big, inter-linked issues and multiple scales – ranging from molecular to global; past, present, future.
- ◆ **Open inquiry:** we promote critical analysis to challenge 'conventional wisdom' and to expand our understanding of technical, institutional, and policy options using the best natural and social science methods available.

II - INSTITUTIONAL ASSETS

ASI's foundations

II.1. Land Grant Heritage

The College of Agricultural and Environmental Sciences (CA&ES) at UC Davis has a 100 year history of serving agriculture and addressing environmental concerns in California and around the world. In 2006, CA&ES established ASI to focus research, teaching and outreach on the challenges facing agriculture in the coming century. ASI provides a hub that links initiatives and education in sustainable agriculture and food systems across CA&ES departments and divisions, across the University of California, and with other partners across our state, nation, and planet. Issues facing the land grant system in the US include needs to (1) develop and expand research programs and academic curricula to reflect a contemporary view of agriculture and food systems, (2) remove barriers to interdisciplinary research, teaching, and extension, and (3) engage a wide variety of stakeholders to assess their needs and develop priorities to design useful programs and create effective means of communication. The Inter-institutional Network for Food and Agricultural Sustainability (INFAS), which is hosted by ASI and was endowed by the W.K. Kellogg Foundation in 2010, is designed to address a number of issues facing the land grant system and had its inaugural meeting at UC Davis on 11 November 2010.

II.2. Programs and Facilities

(See Appendix 1 for ASI organization chart and Appendix 2 for one-page descriptions of each unit or program.)

Sustainable Agriculture Research and Education Program (SAREP) – a statewide program of the University of California Division of Agriculture and Natural Resources with capabilities in grant administration, knowledge management, communication and outreach.

SAREP grants program was re-launched with an RFP issued in fall 2010. In 2011, 14 SAREP projects were funded totaling \$150,000. They include 1 research grant (farmworkers), 5 planning grants, 5 education and outreach grants and 3 graduate student awards.

The UC Division of Agriculture and Natural Resources (DANR) sponsored a 5-year external review for SAREP in 2009. Key documentation is included in Appendix 12. Major points from that review include:

- ♦ **Structure:** ANR endorsed the consolidated ASI/SAREP strategic plan and external advisory board, as long as “the distinct mission and objectives of SAREP are delineated” in ASI strategic plans and annual SAREP work plans.
- ♦ **Governance:** recommended expanding the external advisory board, in particular to include UCCE representatives. (This has been implemented.)
- ♦ **Scope:** recommended expanding SAREP’s geographic coverage,

- stakeholder engagement, and commodity coverage.
- ◆ **Collaborations:** Recommended expanding engagement with UC ANR programs, workgroups, AES scientists, UCCE specialists, and county-based advisors.
 - ◆ **Science-based approach and communications:** SAREP should be the premier source and statewide dissemination focus for ... unbiased, balanced, science-based information on sustainable agriculture.
 - ◆ **SAREP grants program:** ANR recognizes the importance of the grants program in “impacting a greater range of programs”, “leveraging additional funds,” and “stimulating thinking”; the grants program “must be accountable in terms of reporting and communications.”

Based on its external review of SAREP, DANR renewed commitment to SAREP. Taken together, these DANR recommendations are in accord with our own strategic planning and programming objectives for SAREP as a key unit of ASI.

Subsequent to the SAREP external review, DANR has gone through its own strategic review and reorganization and has launched five new strategic initiatives. SAREP and ASI have deepened involvement with two of these DANR strategic initiatives: “Sustainable Food Systems” and “Healthy Families and Communities”.

Legacy of SAREP’s Biologically Integrated Farming Systems (BIFS) program--

BIFS projects typically included on-farm demonstrations, a collaborative model of outreach and extension to share technical information, and an organized program of monitoring key biological and economic variables to inform on-farm decision making. Between 1995 and 2002, SAREP funded ten multi-year projects in nine different farming systems--apple, citrus, dairy, prune (dried plum), rice, strawberry, tomato & cotton, walnut and winegrape -- through a competitive grants process. These projects were part of a larger set of initiatives including Biologically Integrated Orchard Systems (BIOS) projects coordinated by the Community Alliance with Family Farmers (CAFF) and the California Department of Pesticide Regulation’s Pest Management Alliance grants. Between 2002 and 2009, SAREP partnered with key UCCE advisors and specialists to acquire funding for two additional BIFS projects addressing fresh grape and lettuce farming systems. SAREP also led a workgroup to strengthen networking between UC researchers and extension staff with stakeholders beyond the UC system working on projects to encourage adoption of integrated farming systems.

BIFS projects demonstrated that when participating growers had evidence that yields and profits could be maintained with more environmentally-sound farming practices, they often adopted these practices on most of their acreage. Many non-participating growers were exposed to innovative practices through project outreach activities. There were many encouraging outcomes that emerged as a result of our BIFS projects. A few examples include:

- The West Side BIFS project (tomato & cotton) was instrumental in initiating a growing interest in conservation tillage among California growers.

- The Lodi-Woodbridge Winegrape project supported a regional sustainable winegrape growing program that eventually led to a certified eco-label for wines.
- Collaborations initiated by the Rice BIFS project led to a grower advisory group to guide much-needed research on alternative weed management systems.
- The publication of Agroecology in Action: Extending Alternative Agriculture through Social Networks by Keith D. Warner in 2007 used several BIFS projects as case studies to illustrate the value of learning sustainable farming practices through collaborative sharing of knowledge.

SAREP Solution Centers: Looking ahead to the next generation of BIFS. SAREP’s leadership and collaboration in BIFS projects showed that growers can be willing partners in developing a more sustainable food and agriculture system. As ASI and SAREP agendas shift in response to stakeholder priorities and other developments, such as newer emphases on research and outreach at landscape level issues (in our Agriculture, Resources and Environment theme) and the community level (in our Food and Society theme) our work nevertheless must remain linked with (and grounded in) practical “grass-roots” experience exemplified by BIFS. Thus, SAREP’s legacy of experience with collaborative innovation processes through BIFS that are designed, led and implemented by groups of farmers is an important component of ASI’s institutional repertoire that compliments researcher-designed and implemented experiments at the Russell Ranch Sustainable Agriculture Facility and student-led initiatives at the Student Farm at UC Davis. *Status: the first SAREP Solution Center for water and nutrient management was launched in 2013 with a portion of funding from a USDA NIFA AFRI grant received by ASI affiliated faculty member Will Horwath.*

Russell Ranch Sustainable Agriculture Facility – Russell Ranch Sustainable Agriculture Facility – a 300-acre facility that houses the Long-term Research on Agricultural Systems (LTRAS) and Sustainable Agriculture and Farming Systems (SAFS) projects (our “Century Experiment”); the only long-term research facility for research on sustainability in irrigated agriculture in a Mediterranean climatic zone and one of the few facilities of its kind anywhere. Funding has been below sustainable levels for years. ASI Deputy Director Kate Scow has successfully led development of a new scientific plan for the Century Experiment, which focuses on the question: “Can we increase sustainability as we increase food production?” Key priorities in Russell Ranch planning include:

Integrative research at Russell Ranch:

- Diversify farming systems at Russell Ranch (i.e. perennials, market vegetables, mixed crop-animal systems, biofuels)
- Introduce more flexibility into the design of the systems to stay relevant and realistic
- Enhance capacity and promote research projects to address California’s pressing concerns: competition for water, water use efficiency, climate change, habitat preservation, energy efficiency, air and water pollution
- Create a network connecting university research to landscape scale on-farm research (possibly building on SAREP’s Biologically Integrated Farming Systems experience).

- Increase data collection from research projects at Russell Ranch; increase real time wireless data collection; make all data publically available and interactive.
- Facilitate and increase linkages with international interests in Mediterranean agriculture and sustainable development in general (Russell International)

Education at Russell Ranch:

- Create a “living laboratory” around Russell Ranch with facilities to support in-field teaching and student research
- Strengthen connections to other ASI programs and local community (i.e. Student Farm and SAREP)
- Encourage experiential education through class field trips, undergraduate internships and grants for graduate student research

Russell Ranch communication as a two-way flow:

- Create two-way channels of communication both to deliver and listen to science from users and practitioners, policy makers, extension specialists, NGOs
- Engage public on climate change and role of agriculture, resource conservation, food safety and security by hosting field days and hands-on workshops.

Status: Russell Ranch staff eliminated the facility’s operating deficit in 2013 through greater efficiency, increased revenues from crop sales, and by marketing their land management services to other units at UC Davis.

Student Farm – provides undergraduate and graduate students with experiential learning including sustainable production practices, applied research and outreach; includes Children’s Garden Program for K-12 students and teachers. The Student Farm continues to thrive, but additional funding is needed to realize significant upside potential.

In response to increasing student participation in Student Farm activities and higher levels of knowledge, skills and interests on the part of many of these students, the Student Farm launched a program planning and development project in early 2011. Student Farm staff have begun to implement changes in response to this input. These changes focus on: improving communication within the SF programs and activities; clarifying student roles, opportunities and requirements; and, strengthening the student community, particularly the ties between different Student Farm programs. Within the Student Farm’s program planning and development process, emphasis has been placed on developing and refining several student leadership positions and pathways.

More broadly, ASI-affiliated faculty and staff also are collaborating with interested students, faculty, staff and administrators to develop academic programs for a campus ‘sustainable living and learning community’ in the Student Farm neighborhood. ASI-affiliated faculty and Student Farm staff helped develop the program vision for the

campus Sustainable Living and Learning Community and develop on- and off-campus partnerships to support the creation of a renewed residential learning community adjacent to, and collaborating with, the Student Farm.

Other collaborations with diverse campus partners:

- Partnerships with campus Dining Services have been strengthened through joint educational efforts linking all phases of the campus food system and increased sales and marketing of Student Farm and Russell Ranch products.
- The Student Farm is collaborating with the innovative D-Lab at UC Davis on project-based learning opportunities where sustainable agriculture meets appropriate technology.

Collaborations with primary and secondary schools and regional food producers:

- Student Farm staff are leading a project with on- and off-campus partners that provides diverse learning experiences for traditionally underrepresented high school students that increases their awareness of, and interest in, college studies and careers in sustainable agriculture and related areas.
- Student Farm's School Gardening Program staff are collaborating with statewide partners on a new CDFA Specialty Crops program-funded project focused on training both educators and trainers of educators involved in developing and using school garden programs. These staff also are part of statewide team that provides training and support for school food service, nutrition, teachers, garden educators and farmers on using and promoting fresh fruit and vegetable consumption in schools.
- School Gardening Program staff continue to lead a collaborative Farm-to-School project focused on increasing procurement of regional produce, professional development, and assessing program effectiveness in three distinct northern California school districts.
- The Student Farm is contributing to the Center for Land Based Learning's beginning farmer program, helping identify needs and develop the curriculum.

Bachelor's degree in Sustainable Agriculture and Food Systems – ASI hosts a new interdisciplinary undergraduate major, bringing liberal arts and experiential education principles into undergraduate agricultural sustainability education; core courses are offered by ASI-affiliates; governed by a committee of department chairs. The Sustainable Agriculture and Food Systems (SA&FS) undergraduate Bachelor of Science degree received final approval in June 2011, accompanied by great interest from students, the media, and the general public. The major is governed by a council of nine CA&ES department chairs, who meet at least once per year. It is hosted by ASI, which also hosts the internship program that is integral to the major. The Community

Development Unit of the Department of Human Ecology provides the administrative home and the academic advisor. The master advisor and faculty advisors for each of three tracks are ASI-affiliated faculty.

PhD in Agroecology and other graduate courses – ASI will support rejuvenation of this established area of emphasis within the top-ranked Ecology Graduate Group. Efforts also are underway to design a new graduate seminar on food systems to be offered through the Community Development Graduate Group. Enrollments currently are low in the agroecology area of emphasis. There has been great growth in interest in food systems among Community Development masters students. Funding for graduate student fellowships can attract new, high-caliber students, who will contribute to ASI research and education activities. Preliminary inquiry in 2009 found that “agroecology” is studied in a range of graduate groups at UC Davis and is not confined to the Agroecology Area of Emphasis. Needs of the broader group include Web presence and activities (intellectual and social) to convene students and faculty, both of these needs can be addressed by ASI. This also suggests that the process to identify recipients for the annual Shapiro Family Award for Best Agroecology Dissertation also needs to reach out to students (and their advisors) beyond the Ecology Graduate Group. The inaugural Shapiro Family Award for best dissertation in agroecology (or a related field) was awarded in 2010.

International Agricultural Development Graduate Group – Over the years, a large number of students in International Agricultural Development have collaborated with ASI and its units in various capacities, for example, as graduate student researchers and teaching assistants. Now that ASI affiliated faculty member Kate Scow is chairing the IAD graduate group, it seems likely that these mutually beneficial interactions will expand.

UC Davis Students for Sustainable Agriculture (SSA) – a campus student group working to promote agricultural and food system sustainability in academic programs and campus operations; includes about 10 leading members and 320 members of the community through listserv. Although not officially part of ASI, SSA’s activities include working with the ASI director, the director of our Student Farm and other staff to provide input from student perspectives and to facilitate liaison with other students at UC Davis.

II.3. People (See Appendix 3 for ASI personnel list)

Twenty-nine staff (full- and part-time), including a five-person core support team serving ASI, SAREP and all affiliated facilities and programs. ASI typically employs 2-3 postdoctoral scholars, 5-12 graduate student researchers and 10-20 undergraduate assistants. *Status: As shown in Appendix 4, our staffing levels have remained relatively steady over the last three years, with about 25 staff FTE total.*

Nine ASI-affiliated professorships, including Kellogg Chair in Sustainable Food Systems (T Tomich), Boswell Chair in Sustainable Management of Soil Resources (W Horwath), and Sesnon Chair in Sustainable Animal Systems (E Kebreab, starting December 2009) and other affiliated faculty in agroecology (J Six), sustainability and society (R Galt), economics of sustainability (P Merel), plant disease management/soil microbiology (J Leveau), invertebrate community ecology (L Yang), and pollination ecology (N Williams).

Fellows of the Agricultural Sustainability Institute. *In addition to ASI-affiliated professorships, the designation “Fellow of the Agricultural Sustainability Institute” recognizes faculty who are significantly engaged in ASI activities and are chosen by the ASI Director based on suggestions from ASI staff. In appreciation to faculty members who have aided in ASI’s rapid growth and development over the past six years, the institute named ten “Fellows of the Agricultural Sustainability Institute” in January 2012: Heidi Ballard, Howard Ferris, Shermain Hardesty, Thomas Harter, Richard Howitt, Alissa Kendall, Frank Loge, Mark Lubell, Kate Scow and Sheri Zidenberg-Cherr. Fellows were identified based on service to ASI and contributions to ASI research, education and outreach. All new fellows made distinguished contributions in two or more of these categories. ASI anticipates announcing two new ASI fellows each year. Status: as planned, two new ASI Fellows were announced in 2013, Professor James Quinn (Environmental Science and Policy) and Professor Neal Van Alfen (Plant Pathology).*

II.4. Annual funding:

We estimate that the total core funding from CA&ES and ANR for the current fiscal year (2013/14) will be \$778,182, essentially unchanged from \$781,849 last year. Note: Because of the CA&ES Dean’s decision to allocate funds from the Bixby Endowment to the base budget for our Student Farm (see Section III.5 for further information), the level of CA&ES support is comparable with the previous years.

We project total annual funding for ASI will decrease to about \$2.7 million for 2013/14. This is nearly a 12% decrease compared to 2012/13, which was the first time ASI’s budget exceeded \$3 million, meaning that 2013/14 could be the first year that ASI’s budget has contracted. ASI’s budget includes core funding from CA&ES and DANR, endowment income, current use gifts, earned income from operations at the Student Farm and the Russell Ranch Sustainable Agriculture Facility, indirect overhead returns from CA&ES, and expenditures from grants. These budget figures do not include salaries of ASI affiliated faculty. Please see Section III.5 below and Appendix 5 for additional financial information.

III – STRATEGIES FOR ACTION

How ASI works

III.1. Priority Setting and Accountability

ASI is building institutional capacities to look ahead a decade or more to anticipate big issues and to develop and revise a dynamic agenda for sustainability science research, education, and action. By design, ASI's mission and vision for change are too broad to work on all elements at once. Thus, a strategic, proactive approach to priority setting is necessary to create themes and activities that are appropriately focused, that are feasible to pursue with available human, institutional and financial resources, that remain true to ASI values and operational principles, and that result in a cumulative process that enhances science-based understanding and action for sustainable agriculture and food systems. Mechanisms for accountability to ASI's stakeholders are fundamental to ensuring the legitimacy of ASI's evolving agenda and the usefulness of our products. ASI is working to establish and maintain a range of communication channels that will create meaningful roles for stakeholders in identifying sustainability challenges, shaping priorities, collaborating to find practical solutions, and providing feedback on our results.

Engagement with stakeholders

- **External Advisory Board.** The main purposes of our external advisory board are to advise the ASI director on strategic directions and priorities for action and to assist in identifying resources to accomplish our mission (see Appendix 9). The board also is expected to help ASI maintain and enhance communication channels with diverse stakeholder groups to ensure that ASI programs are directly addressing the needs of specific groups and society as a whole regarding sustainability of agriculture and food systems. To this end, ASI's external advisory board is structured to reflect a wide range of differing perspectives and is drawn from leaders in their respective fields, including farmers and ranchers; agricultural, environmental, and community organizations; food manufacturers and retailers; educators; policymakers; and the media. Student input is represented on this board as well as on internal advisory committees through "Students for Sustainable Agriculture," a campus based organization. This board also serves the functions of SAREP's Program Advisory Committee. Additional board members can be designated as needs and opportunities arise. Board meetings will be convened at least once a year, with other means (e.g., email, conference calls) used as needed to seek advice and input between meetings. A three-person subcommittee of the advisory board, including the board chair, has been established as an executive committee to provide more frequent strategic advice to the director, as needed. In line with suggestions at the inaugural Board meeting in 2008 and with a recommendation of the SAREP external review that year, two new advisory board members were recruited to better represent perspectives from UC Cooperative Extension.

Roles of board members. Roles of board members were outlined (Appendix 9) and finalized during the inaugural advisory board meeting in 2008. Ideas regarding the strategic roles of board members that were discussed include: (a) providing feedback, ideas and advice; (b) connecting ASI to new constituencies and resources; (c) staying aware of the difference between their roles as external advisory board members and, in several cases, their roles as ASI partners; and (d) bringing multiple perspectives. A gradual process of transitions began in 2011, with some new members joining and some founding external advisory board members completing their service each year. Departing board members will be designated “board emeriti” and we look forward to their continuing involvement with ASI.

- **Online surveys.** ASI used a Web-based survey initiative to provide for large-scale stakeholder input and to create a first-cut for identification of priority issues for sustainable agriculture and food systems in CA. Results of the 2008 online survey (Appendix 14) have informed development of our portfolio of initiatives.
- **Consultation.** Our communication strategy will enable us to take a more systematic approach to our ongoing process of consultation and engagement with stakeholders.

Scientific input to priority setting processes

- **Scientific assessment for priority setting.** Scientifically-validated indicators will be developed for use by many stakeholders to benchmark trends in sustainability in California’s agriculture and food system. These indicators will reveal where there has been progress toward sustainability and where there are problems; whether there are tradeoffs across sustainability objectives; which strategies and responses can be most effective in addressing problems and balancing tradeoffs; and where knowledge gaps matter most. Creation of the set of indicators also will create capacity to monitor changes, assess risks, and anticipate emerging sustainability challenges and opportunities. In addition to providing the scientific foundation for an operational definition of “sustainability” for California’s agriculture and food system, the sets of sustainability indicators will inform ASI priority setting and could contribute to development of agricultural sustainability standards and a long-term strategic vision for the future of California’s food system.
- **Monitoring, evaluation, and impact assessment.** To establish an adaptive, learning organization that can effectively incorporate lessons from experience, ASI needs to develop, implement, and institutionalize processes that monitor and evaluate the quantity and quality of our outputs and that assesses outcomes and impacts on our goals. Some relevant mechanisms are in place in SAREP, but much more needs to be done over the years ahead to create a learning organization. (Also see Section V below, Indicators of Success.)
- **International board of science advisors.** To ensure that ASI’s agenda is on the cutting edge of sustainability science, experts in this field have suggested that ASI

institutionalize periodic input to the director from a network of international scientific leaders. Thanks to the Packard Foundation, input of this type was obtained in development of the California Nitrogen Assessment; that experience proved very valuable. Using a somewhat different approach, *we created a technical advisory committee for the project on Sustainable Sourcing of Agricultural Raw Materials.*

III.2. Interdisciplinary, integrative activities

ASI will lead and manage interdisciplinary, integrative activities that cannot be undertaken effectively within academic departments. ASI will focus and integrate research, education, communication and engagement activities across its evolving agenda and update and adapt these activities as understanding develops in all dimensions of sustainability of agriculture and the food system—plant and animal science, environmental and natural resource stewardship, social and economic issues.

- **Research.** ASI assembles and coordinates interdisciplinary teams to design, seek funding, and implement major sustainability science projects, hosted and managed by ASI. These research projects have the primary goal of identifying scientific principles and practices that enhance sustainability of agriculture and the food system. Priorities include (a) identification of emerging, scientifically-valid innovations and help move them from the margins to the mainstream, (b) coordination and support for long-term research, and (c) knowledge management to ensure that research methods, protocols, and results are archived, synthesized and made available for use by other researchers. For details, see sections IV.1, IV.2, IV.4.
- **Education.** ASI supports programs to educate students of any age, professionals, and the public regarding science-based sustainability principles and practices, exposing them to a variety of ideas, practical experiences, and divergent viewpoints on questions that remain controversial. For details, see section IV.3.
- **Grantmaking.** SAREP grants are a top program responsibility and a key ingredient in building support for sustainable agriculture and food systems activities. SAREP will refocus its activities on grants for agricultural sustainability and food system research and education and on information dissemination. These grants may take a variety of forms, including (but not limited to) both competitive grants and targeted “academic venture capital” grants for new initiatives. For several years, lack of funds has precluded an effective grant program. As a result, current problems include both lack of sufficient size to attract attention and unreliability from year to year, which also affects the number and quality of potential grantees.

Fourteen SAREP projects were funded totaling \$150,000 in 2011. They include 1 research grant (farmworkers), 5 planning grants, 5 education and outreach grants and 3 graduate student awards.

- **Communication, translation and dissemination.** ASI will produce and disseminate science-based information that responds to stakeholders' needs and will improve sustainability of agriculture and the food system through uptake and use by a diverse clientele, including all segments of agriculture across a diversity of scales and systems, agricultural labor and rural communities, and bridging the rural-urban interface. Fenton Associates submitted their recommendations for ASI's communication strategy in February 2009. A new ASI/SAREP communication coordinator was recruited in 2011.
- **Distinguished speakers and seminar series.** Graduate students and faculty have expressed interest in a regular series sponsored by ASI, which could serve as a means to bring colleagues together for stimulating, rewarding, and enjoyable exchanges of ideas at the forefront of sustainability science. The series was inaugurated with a seminar by Professor Jules Pretty of the University of Essex, speaking on "Sustainability and the State of the World Food System" on 3 November 2010.
- **Meetings, conferences, symposia and other events.** ASI hosts a variety of scientific and social events, providing forums for stakeholder consultations, formation of collaborative partnerships, and implementation of research education and outreach activities. ASI events will provide a "safe space" to convene people with differing (even conflicting) views, unveil controversy, deepen understanding, and to build consensus for action or support public discussion where no consensus yet exists. ASI has institutionalized "working agreements" to ensure interactions are based on mutual respect.

III.3. Leadership, collaboration, and coordination

Internal accountability and coordination

Strategic planning, budgeting, and implementation of activities of ASI, SAREP and other ASI units are coordinated within an overall vision, mission, and strategies in order to enhance effectiveness of current programs and of new initiatives. Principles that guide these processes include subsidiarity (delegation to the level of most effective management and decision-making); transparency; and mutual accountability. Now that key recruitments are completed and our team is in place, we are planning training to create a "high performance team," including enhanced abilities to work effectively in distributed, multi-disciplinary, culturally-diverse teams; to build and maintain internal capacity to facilitate such teams; to leverage team members' creativity and problem solving capability; to relate effectively with diverse external partners; and to value the diverse contributions from various team members, units and partners.

- **Accountability to UC Davis College of Agriculture and Environmental Sciences (CA&ES) and UC Division of Agriculture and Natural Resources (ANR).** The ASI

director also serves as SAREP director and reports to the Dean of CA&ES and the Vice President of ANR. A memorandum of understanding between CA&ES and ANR (see Appendix 11) delegates management and administrative support of SAREP to CA&ES.

- **ASI/SAREP core support team.** All core support team positions serve ASI as a whole in order to achieve synergies in strategic planning, priority setting, stakeholder engagement and accountability; budgeting and financial controls; fundraising and proposal preparation, and grant management; communication and public awareness; and monitoring and evaluation.
- **Internal steering committee.** This group includes ASI unit heads and academic coordinators, members of the core support team, affiliated faculty, and student representatives. The committee exists to facilitate synergistic communication, cooperation and collaboration among ASI programs and projects. It focuses on the day-to-day operation and management of ASI and affiliated units. Meetings are open to all staff and agendas typically are distributed in advance. The committee meets as needed, typically about once every six weeks.

Collaboration and coordination with students, faculty and cooperative extension

ASI seeks to bring people together across all divisions of the College of Agricultural and Environmental Sciences at UC Davis, from other UC campuses, UC Cooperative Extension (UCCE), and with other partners across the State of California. These talented people do not need more meetings for meetings sake. As with any of our partners, we strive to respect their time and believe that people respond favorably to collaborative opportunities with clear purposes, real chances for useful results, and that are stimulating, rewarding, and enjoyable.

- **Recognition and awards for leadership and excellence in interdisciplinary, integrative science.** Professional recognition and rewards for interdisciplinary, integrative research, education, and engagement with stakeholders are inadequate in comparison to more conventional academic pursuits. ASI can help redress this imbalance by creating appropriate incentives (awards, prizes, other forms of recognition) for students, faculty, and UCCE colleagues who demonstrate particular leadership or promise of excellence. Mentoring of junior colleagues is another important area for greater attention. Currently, ASI administers two awards: the Eric Bradford-Charlie Rominger Sustainability Award for uncommon leadership in the field of sustainability and the Shapiro Family Award for Best Agroecology Dissertation, in recognition of research excellence.
- **Student Advisors.** The Students for Sustainable Agriculture (SSA) group, an informal group on the UC Davis campus, provides occasional input to the director regarding undergraduate and graduate student concerns and ideas related to ASI and the environmental, economic and social relevance in sustainability education programs. In

addition to SSA, there are college-based student groups throughout California and it is hoped that SSA can assist in engaging with other campuses. Opportunities for student engagement include student representation on ASI board and the internal steering committee, participation in search committees, and co-sponsoring of social events and speakers with Students for Sustainable Agriculture (SSA). *Status: SSA is not particularly active at this point. ASI currently relies on informal student leaders to assist in identifying students for various advisory functions, including graduate and undergraduate representatives on ASI's external advisory board and internal steering committee. With the launch of the Sustainable Agriculture and Food Systems major, undergraduate peer advisors (positions funded by ASI so far) provide an important and highly effective source of advice and input from students.*

- **Faculty leadership.** The deputy director for ASI is a CA&ES faculty member and advises the director on CA&ES linkages and issues, including involvement with the other ASI-affiliated faculty positions designated in CA&ES. The director is in frequent contact with counterparts at UCSC and has participated in events at UCB and UCR, but much more time will be required to develop full potential for faculty engagement to tap into talent across California. *Status: Professor Kate Scow has served double duty for ASI as both ASI deputy director and Russell Ranch Sustainable Agriculture Facility director since early 2008—all on a voluntary basis above and beyond her duties as a faculty member. Her service during the past 6 years in this dual role has been outstanding. However, ASI's growth and Russell Ranch program development each have reached a point where this dual service arrangement no longer is optimal. From January 2014, Professor Ermias Kebreab graciously has agreed to serve as ASI deputy director and we are pleased that Professor Kate Scow now will be able to focus her scientific leadership on RR. In his capacity as an ASI faculty fellow, Professor Neal Van Alfen has agreed to work with Professor Scow on further development of RR science programs, broadening engagement with CA&ES faculty at RR, and on endowment activities such as our "Adopt-an-Acre" program.*
- **Faculty engagement.** In a survey conducted some years ago, approximately 150 UC Davis faculty members identified themselves as strongly interested in sustainable agriculture. This likely understates interest on the Davis campus and does not include faculty on campuses elsewhere in California, including other UC campuses (especially UC Agricultural Experiment Station faculty at UC Berkeley and UC Riverside and also our colleagues at UC Santa Cruz); California State Universities, community colleges, and other institutions where collegial relationships exist, such as Stanford and Santa Clara. We have been experimenting with different approaches tied to specific opportunities (e.g., requests for proposals) and need to continue to develop our repertoire for engagement and follow up with colleagues on the UC Davis campus. Plans for a "Faculty and UCCE Advisory Committee" were considered as a general means of communication and coordination, but seemed to be unworkable (too many meetings, no pressing purpose) in 2007 when ASI was a smaller organization. *Status: In 2012, the first CA&ES faculty review of ASI suggested: "At this point the ASI should focus on increasing faculty involvement. While this can be somewhat tricky, with an appropriate mission and appointment by the Dean, an advisory*

committee could support the ASI on all facets, including RR, the Student Farm and to some extent, SAREP. This committee could both advise the director and advocate for the institute. The members of this committee should include those heavily involved in ASI activities which may not necessarily be the faculty designated as the Sustainable Ag faculty presently, but most likely identified via involvement in ASI related research. There are different models of faculty involvement on institute/center boards on campus that can be considered.” We agree that this is an opportune time to create this important academic counterpart to ASI’s external advisory board. As mentioned above, Professor Ermias Kebreab will be taking on the role of ASI deputy director in January 2014. Director Tomich will work with Professor Kebreab, in his capacity as ASI deputy director, and other ASI leaders to consider organizational models and options, with a plan to create an ASI faculty advisory committee by November 2014. Among other benefits, we share the review committee’s view that expanding faculty involvement is one (of several) important roles for the ASI faculty advisory committee.

- **Collaboration with UC DANR strategic initiatives, other statewide programs, and centers.** ASI has established relationships with faculty and UC statewide programs working on complementary issues (e.g., the DANR strategic initiatives on sustainable food systems, healthy families and healthy communities, and water as well as the Agricultural Issues Center and the Statewide Integrated Pest Management Program).
- **UC Cooperative Extension specialists and farm advisors.** SAREP has built working relationships with a number of UCCE specialists and county-based farm advisors (who in total comprise over 400 UC professionals across the state) through support for collaboration among county, regional and campus-based researchers. Competitive grants are one means to build collaborative links across organizational boundaries, but working groups, communities of practice, collaborative proposals and symposia are other means to that end. Through active participation in various ANR initiatives, workgroups, programs and events, we seek to broaden and strengthen relationships between ASI/SAREP and UCCE. Adding two UCCE professionals to the external advisory board also was a step toward greater statewide collaboration. In due course, it is anticipated that a new category of Agricultural Experiment Station Affiliates of ASI will be created, with the CA&ES Dean’s Office, and linked to the SAREP Solution Centers, recognizing UCCE specialists and advisors who contribute significantly to project design, development of science-based materials, and service as technical interpreters, resource people, and network facilitators.
- **Mechanisms for consultation and collaboration linking faculty, students and UCCE staff.** Regular interaction with numerous interested faculty and UCCE staff would be valuable to ASI as a means to communicate about activities, assess needs, collaborate in development of new initiatives, and reflect on results; such contact is essential to fulfill SAREP’s’ responsibilities. Particularly through with leadership from our two SAREP academic coordinators, we have been effective in bringing together faculty and UCCE staff for specific purposes (e.g., responding to funding opportunities). *Status: our new UC SAREP Solution Center for Water and Nutrient Management appears to hold promise as a vehicle for solution-driven, meaningful*

collaboration with farm advisors, other ANR colleagues, California farmers, and other stakeholders. The modular Solution Center approach, which we have developed with guidance and support from faculty, farm advisors, staff, and ASI External Advisory Board members, can be replicated to address a wide range of sustainability issues spanning SAREP themes as funding sources are secure.

III.4. Communication and engagement

- **Statewide communication and engagement.** Other partners in California (e.g., Roots of Change and many of the types of organizations represented on the ASI external advisory board) play complementary roles with UCCE in our efforts to assist California's policymakers and communities (both urban and rural) in understanding and implementing sustainable food and agricultural systems and sustainable resource management. Selecting, building and sustaining key relationships with this complex set of implementation partners and potential end users (see graphic in Appendix 6) require a thoughtful and well-targeted strategy for communication and engagement. A new ASI/SAREP communication coordinator was recruited in 2011. She is working to implement selected recommendations in the Fenton Associates report.
- **National and international leadership, networking and collaboration.** California's reputation for innovation and leadership in agriculture and the environment is recognized nationally and internationally. The State's reputation in these areas is linked with the University of California. Thus, ASI is positioned to build on this recognition over time for impact that extends beyond California.
- **Leadership of the new Inter-institutional Network for Food and Agricultural Sustainability (INFAS).** The INFAS network was endowed by the W.K. Kellogg Foundation with a \$1.5 million gift in 2010. ASI hosts and coordinates INFAS, which is a national network of more than 24 academic leaders in sustainable agriculture and food systems, including directors of counterpart centers and holders of endowed chairs at land grant universities and other academic institutions across the US. A national coordinator for INFAS was recruited in 2012 and is based with ASI. *Status: with unanimous support from members of the INFAS executive committee, the half-time national coordinator position was made permanent in 2013 and is funded from INFAS endowment income.*
- **Global connections.** The ASI Director and other UC faculty have extensive professional relationships internationally that will provide the basis for an envisioned international network of leaders in sustainable agriculture and food systems. ASI launched its first global project in 2011 with \$875,000 from Mars Inc. to develop a framework for indicators of environmental, social, and economic sustainability of crops and raw materials being sourced by global food companies. This project engaged representatives of multiple stakeholders in global supply chains of key crops and

livestock products and has coordinated closely with Mars' evolving sustainability initiative. *Status: The first phase of the Mars-funded project was completed successfully in 2013 and possibilities for a new round of funding are being explored with Mars Incorporated and a number of other companies. In the meantime, plans are moving forward to create a campus-level World Food Center in Davis. The implications of the proposed World Food Center for ASI's strategies and, in particular, fundraising prospects remain unclear. The ASI director serves on the Chancellor's World Food Center advisory committee. A director and associate director of the World Food Center were appointed in 2013, with the associate director already on board and the director joining in January 2014. Initial conversations with the World Food Center director have been encouraging.*

III.5. Fundraising

Fundraising will be a major preoccupation for the entire ASI team. Director of Major Gifts from the CA&ES Dean's office, our Communication Coordinator, Proposal Coordinator, and Budget and Finance Officer each play indispensable roles in providing support to the ASI Director, Deputy Director, Program Manager, Academic Coordinators, and faculty affiliates in these efforts. In addition to the team effort, implementation of our fundraising strategy must be supported by a compelling, socially relevant vision and mission, a results-oriented plan of activities, and an exciting strategy for communication, public awareness and engagement. Success also will depend crucially on active involvement and support from our advisory board members, UC leadership, and other friends and partners of ASI. *Status: ASI currently benefits from approximately 0.3 FTE of Melissa Horwath, CA&ES Director of Major Gifts. In response to our long list of prospects and positive results generated so far, the CA&ES dean's office is recruiting an additional development officer, who will devote a majority of their attention to ASI development prospects. In addition to this gratifying recognition of ASI as a priority opportunity for CA&ES fundraising, ASI units and programs increasingly are viewed as campus-wide assets, which has opened opportunities to gain attention from "central" campus development. This is an important development over the past 12 months, since success in the ASI endowment campaign will require more than one gift of \$10 million or more (see Appendix 35 for these projections).*

In broad terms, ASI's needs include reliable sources of funding to revitalize SAREP grants at levels of \$750,000 to \$1.5 million per year, and to fully-fund essential activities of the Student Farm, the Russell Ranch Sustainable Agriculture Facility, the new undergraduate major in Sustainable Agriculture and Food Systems, the Agroecology PhD, and to implement ASI's vision, mission and strategies, described above. ASI is included in the pop-up menu on the "gift button" on the UC Davis Website (<http://giving.ucdavis.edu/>), enabling donors to make electronic donations to ASI.

We are implementing a multi-year campaign to pursue three ambitious fundraising goals (listed below). *Status: Please see Appendix 5 for data on annual income since fiscal year 2007/08 and Appendix 33 for information on our grant proposal submissions. Public documentation of our multiple sources of funding is available on our ASI website at www.asi.ucdavis.edu/about/funding.*

Goal 1. \$50 million in ASI endowments and philanthropic gifts and to increase ASI's total budget to \$6 million per year. This would be more than a three-fold increase from under \$2 million in 2007/08. The total increase would comprise about \$2 million for research, \$1 million for education, \$750,000 for staffing and operations, and \$250,000 for facilities and equipment. ASI benefits greatly from the income and prestige associated with several endowments, including the Boswell, Kellogg, and Sesnon Endowed Chairs, and program endowments such as those from the Campbell Soup Company and the Van Vlierden Estate. In the medium term, ASI needs to replace a significant source of income from the Rosenberg Endowment (committed by CA&ES for 3 more years, at \$75,000 annually). Endowments are critical resources for building ASI programs. The reliability and flexibility of these significant flows of income is essential if ASI is to be proactive in setting the agenda for sustainability science and action rather than merely reacting to agendas set by others.

The ASI endowment campaign nests within the university wide Campaign for UC Davis. As with any ambitious fundraising campaign, success for ASI is contingent on at least one "mega" gift of \$10-20 million. In the near term, ASI needs to fundraise for endowments to replace the Provost's initiative funds at about \$40,000 annually, which is approximately equivalent to income from a \$1 million endowment. (We received our final allocation of the Provost's funds in 2010/2011.) Within the next five years, an additional \$1.7 million endowment will be needed to replace the Rosenberg endowment funding mentioned above. Appendix 34 shows the cumulative value of ASI's endowment gifts.

The importance of endowed funds has been made even clearer through the Student Farm. As of the 2011/12 fiscal year, the Student Farm's funding is coming from a portion of the annual payout of the Bixby Endowment. The Fred H. Bixby Estate established this endowment to support practical agriculture at UC Davis. Proceeds from the Bixby Endowment have been supporting UC Davis for many years. The annual payout of about \$198,000 allocated to the Student Farm roughly corresponds to \$4.4 million of the total endowment, which currently is valued at over \$10 million. Because of the stability of the endowed fund, the Student Farm was not subject to the budget cuts that affected other college programs and facilities. So, although this does not increase the level of Student Farm funding, the endowment allocation significantly reduces budgetary risk, increases predictability in program planning, and also signals an enduring commitment by CA&ES.

Plans, priorities and current status on ASI endowment efforts:

- Develop a **new ASI case statement**, which will help build relationships with new and existing donors who care about agricultural sustainability and help donors make gifts to ASI that are meaningful to them. These may include current gifts to scholarships, ASI programs, awards, faculty, or research as well as endowment gifts, which are our highest priority. *Status as of November 2013: the new case statement will be distributed at our board meeting on 21 November.*
- Conduct the first-ever **yearend appeal for ASI** in 2012. *Status: the yearend appeal had some success and will be repeated.*
- Grow the **Sustainable Agriculture and Food Systems Endowment** to support ASI in perpetuity. The Sustainable Agriculture and Food Systems Endowment is a general endowment fund to be used at the discretion of the ASI Director to support all aspects of the ASI program. *Status as of November 2013: the endowment has been created, though it remains just under \$25,000. Immediate goal: exceed \$25,000. Intermediate goal: identify and solicit several donors in the 5-6 figure range. Longer term goal: secure anchor gift of 8 figures.*
- Reach \$1 million goal for **Endowed Professorship of Agroecology**. Establishing an endowed professorship is one of the most valuable gifts one can give to higher education since an endowed professorship ensures continued academic excellence for generations to come. The prestige of an endowed professorship allows the university to attract and retain top faculty. The funds the endowment pays out in perpetuity provide the faculty holder independence in their research. Free from some of the constraints of funding agencies they would have more flexibility and freedom to pursue science in the public interest. The professorship holder would also have funding to train more students building the cadre of scientists working in agroecology. *Status as of November 2013: \$550,000 secured, comprising \$200,000 leadership gift from TomKat Charitable Trust, \$200,000 from the Plant Sciences Department at UC Davis, \$100,000 from Columbia Foundation, and \$50,000 from the Gaia Fund. With \$450,000 remaining, the fundraising deadline for this target is December 2014.*
- Establish an **endowment for the Russell Ranch Sustainable Agriculture Facility**. To launch the Russell Ranch Endowment Campaign, we are offering a limited opportunity to adopt an acre at Russell Ranch. Donors are invited to adopt one, or more, of the 72 one-acre plots of the Century Experiment. For \$10,000, your name (or a name you designate) will be associated with an acre in perpetuity. The first acre was adopted in 2012 by Del Monte Foods. *Status as of November 2013: three acres were adopted. With these, and an additional gift, gifts and pledges exceed the threshold (\$25,000) to endow the fund and allow it to begin accruing interest. Immediate goal: solicit at least 10 individuals/companies for Adopt-an-Acre. Longer term goal: have all 72 acres adopted.*

Goal 2. Secure two or more large program grants each year, totaling \$1 million or more. Criteria for allocation of ASI resources to development of grant proposals include: (a) a “champion” steps forward to lead development and writing of the proposal, (b) proposed project is interdisciplinary and will allow ASI to draw in faculty across departments, (c) fit with ASI’s thematic areas, (d) intellectual merit and potential contribution to ASI’s research, education and outreach programs, (e) potential for connections across the University of California and with other institutions, (f) potential for outreach and collaboration with external stakeholders, (g) significant funding amount, (h) acceptable requirements for matching funds, (i) likelihood of success, and (j) time and resources available to prepare a high-quality proposal. (These criteria are not prioritized.) We have an active and effective team, orchestrated by a half-time proposal coordinator, to support efforts by faculty and other partners to produce high-quality proposals for competitive extramural grants. Our half-time proposal coordinator began working in January 2010 and subsequent numbers show the renewed increase in ASI grant activity: 13 of 18 project grants were awarded in 2010/11, totaling \$1.36 million and of 19 proposals submitted in fiscal year 2011/12, 13 were successful and brought ASI almost \$ 1.7million in new funds. *Status: Of 25 proposals submitted in fiscal year 2012/13, sixteen were successful and brought ASI over \$ 1.1 million in new funds. Our unsuccessful proposals are generally higher-value, highly-competitive opportunities that require significant investment to prepare and also have high returns when they do come in. Per our stated goal from November 2011, we are becoming more aggressive in pursuing these higher-value grant opportunities, and the sum of 2013/14 proposal requests-to-date already more than doubles our total proposal requests for 2012/13—so far totaling more than \$8.5 million. Of this 2013/14 proposal sum, almost \$6 million is pending. As of September 2013, our proposal coordinator increased from 1/2-time to ¾-time, so there are good prospects for the pace to increase. Please see Appendix 33 for additional detail on our current funding proposal status and trends over time.*

Goal 3. Sustain UC support above \$750,000 per year. Despite continued cuts and uncertainty in the overall budget situation, leadership from the CA&ES Dean’s office and the UC DANR Vice President’s office has helped ASI maintain core funding. Continuing support signals strong commitment by CA&ES and ANR to our agricultural sustainability initiatives and, as such, these are powerful assets in our fundraising efforts in addition to being the foundation for the viability of ASI. However, the crisis in California State funding since 2008 has meant it was not possible to sustain UC support (from CA&ES and ANR) above \$1 million per year. SAREP’s base budget from UC DANR was cut 20% (approximately \$100,000) in fiscal year 2009/10 (proportional to the overall cut faced by DANR), but it is a pleasure to be able to report that ANR has been able to continue the same level of funding for SAREP in 2010/11 and there is reason for optimism that this funding may stabilize going forward. Although the Russell Ranch budget from CA&ES was cut 6% (about \$14,000) in the 2011/12 fiscal year (the same rate as all CA&ES departments), the Student Farm budget was spared these cuts because of the CA&ES Dean’s commitment of about \$198,000 from the annual payout of the Bixby Endowment to funding the base budget of the Student Farm (discussed above under Goal 1). Because of this mix of changes, it seemed appropriate to recast Goal 3 as “Sustain UC support above \$750,000 per year” (from the original \$1 million).

Status: Looking forward, there is some reason for optimism regarding state funding and it is possible to hope that worst UC budget cuts are behind us. We look forward to steady funding from CA&ES and the UC Division of Agriculture and Natural Resources.

IV – THEMES, MILESTONES, INITIATIVES, & CURRENT WORKPLANS

Next Steps for ASI work

Overall status: the current thematic structure and priorities for ASI initiatives is working well, though it will be some time before ASI has resources sufficient to pursue all proposed initiatives. **Blue text below indicates 2012/2013 milestones. Green text indicates 2013/14 workplans.**

IV.1. Agriculture, Resources and the Environment Theme, including SAREP and the Russell Ranch Sustainable Agriculture Facility

Progress on 2012/2013 milestones

*ASI staff, faculty, and an external collaborator published a paper “**Comparing environmental impacts of regional and national-scale food supply chains: A case study of processed tomatoes**” in the journal Food Policy.*

Two visiting PhD students, from Iran and Italy, conducted research on greenhouse gas emissions and sustainability indicators in rice production systems, and energy intensity in conventional and organic dairy production, respectively

*Scientific review of five metrics for the **Stewardship Index for Specialty Crops** completed.*

*Completed 7 out of 8 chapters of the **California Nitrogen Assessment (CNA) report**, with scientific review either underway or completed for all, and preparations for launching stakeholder review underway. Preliminary results of CNA presented at three regional, national, and international conferences.*

*Conducted informal stakeholder needs assessment, initiated design work, and identified an advisory committee for the **SAREP Solution Center for Nutrient and Irrigation Management**.*

*ASI and affiliated faculty participated on a **CDFA Task Force to recommend a Nitrogen Tracking and Reporting System** to protect groundwater quality from agricultural nitrogen pollution.*

Russell Ranch Sustainable Agriculture Facility

The Russell Ranch **New Science Plan is available** online (<http://asi.ucdavis.edu/rr/files/Final%20New%20Science%20Plan%2010-13.pdf>).

A new web-based platform for **public access to Russell Ranch's online database** now available, with capacity to download and upload data in a categorized web-page at (<http://asi.ucdavis.edu/rr/data>).

The **funding base for Russell Ranch has increased** due to more efficient management, increased crop sales and providing services for other agricultural research activities at UC Davis.

Russell Ranch introduced two new perennial systems into the Century Experiment plots: **integrating of alfalfa** into new rotation with annual crops to investigate impacts of reduced tillage and increasing carbon inputs, and establishment of **native grassland plots** as part of the new science plan.

Russell Ranch field day, "Harnessing Technology for Agriculture" on May 28th, brought together researchers, growers and other stakeholders with a total of 125 attendees.

Russell Ranch has completed processing and archiving 90% of the soil samples that constitute the **ten-year soil survey**, which consists of 3000 samples in 8 depth increments to 3 meters deep in the 72 plots of the Century Experiment. After archiving, the samples will be analyzed for microbial communities, soil nutrient and other elemental content, soil carbon and bulk density.

Visiting students from France, Netherlands, China and Pakistan have conducted research at Russell Ranch on, respectively:

- 1) Effect of biochar amendment on corn yield and quality and soil nutrient availability
- 2) Effect of biochar amendment on tomato yield and quality and soil nutrient availability
- 3) Effect of wet-dry cycles on nutrient dynamics, microbial communities, and availability of contaminants in soil amendments.
- 4) Growth response curves of corn grown under organic management

Research on biological soil additives in conventional tomatoes showed benefits of compost on soil fertility and reduced disease severity, but no impacts of mycorrhizal inoculants or biological products to stimulate microbial communities.

Addition of **biochar significantly increased yields** of compost- and mineral-fertilized corn compared to corn not amended with biochar in long term small plots dedicated to measure impacts of soil additives on soil, microbial communities and crops.

Working group of faculty and extension specialists was created to **focus on water use and irrigation management** and seek funding for Russell Ranch-based program: two proposals submitted.

Used **Russell Ranch dataset to evaluate Stewardship Index for Specialty Crops** (for processing tomatoes) to evaluate ecosystem services associated with different farming systems (food produced, water, energy, fertilizer and pesticides used, and soil carbon impacts)

Research collaboration with Jet Propulsion Laboratory (JPL) at NASA and Susan Ustin's laboratory is comparing remote sensing data (imaging spectroscopy) collected during multiple fly-overs of Russell Ranch with ground-based plant data measured on the plots.

Measurements of soil phosphorus and phosphatases in Century Experiment revealed **significantly higher soil phosphorus in all soil pools in organic** than any other systems as a result of long-term inputs of composted poultry manure. This increases risks of phosphorus loss via leaching and runoff (research of grad student from Stanford University)

Different **cover crops** planted at Russell Ranch showed marked **differences in their ability to capture soil nitrate** and reduce leaching in the Century Experiment and this will guide design of more nutrient-efficient rotations (research of UC Davis grad student).

Research and management of Russell Ranch large-scale wildflower plantings (now 3 years old) is now conducted in collaboration with Xerces Society (international non-profit organization).

2013/14 workplans

Energy and Climate Footprinting

- *Re-assess overall direction and priorities for future grant proposals and projects under this initiative*
- *Continue data collection, model-building, and outreach activities for project on life cycle assessment in perennial fruit and nut crops*
- *Continue to develop web and other communications products for this initiative*

Responding to Climate Change

- *Continue on Science/Technical Advisory Committee for the California Climate and Agriculture Network (CaICAN)*

Sustainable Management of Nutrients and Water in Agricultural Landscapes

- *Complete scientific review and stakeholder review of California Nitrogen Assessment report, and secure publishing contract*
- *Continue to develop outreach materials and activities for California Nitrogen Assessment*

- *Meet with advisory committee, launch online farmer discussion forums, and complete initial design of prototype website and database for the SAREP Solution Center for Nutrient and Irrigation Management*
- *Conduct preliminary outreach presentations about the Solution Center at grower and professional meetings*
- *Continue providing editorial advisory service for the California Agricultural Water Stewardship website*
- *Continue development of strategy for instrumentation of Century Experiment for research on water use, nitrate leaching and greenhouse gas emissions, using sensor technology and wireless data collection, through collaboration with UCD faculty and Lawrence Berkeley National Lab researchers.*

Closing the Loop: Integrating Sustainable Waste Management in Agriculture

- *Expand “Close the Loop” experiments in small plots (currently amended with biochar, compost) and in microplots of Century Experiment to evaluate agricultural waste materials as nutrient sources and potential sources of contamination. Proposal submitted to Department of Water Resources*

Harnessing Ecosystem Services to Increase Agricultural Sustainability

- *Develop strategy to obtain endowment funding to strengthen Russell Ranch infrastructure and meet equipment needs.*
- *Submit publication on meta-analysis of long-term impacts of nitrogen sources on soil microbial biomass and communities.*
- *Upgrade Russell Ranch database to include real-time data from weather station and soil moisture probes, increased operational data on fuel use and tillage, and develop capacity to record data on farm operations in the field.*
- *Implement a four-year rotation with goal of increasing soil quality through increased reliance on rotation with legumes, reduced fallow and increased organic matter inputs (as described in the RR Science Plan). A proposal has been submitted to UC ANR*
- *Increase capacity to conduct spatial and temporal analyses of long-term Russell Ranch data using GIS, multivariate and Bayesian statistical approaches, and other tools in collaboration with UC Davis faculty and ESRI.*
- *Increase number of publications utilizing long-term data from Russell Ranch*
- *Develop a funding program to provide small grants to support graduate student research projects at Russell Ranch.*
- *Compare different combinations of organic and mineral sources of fertilizers in integrated soil fertility management trials in the mixed rotational system at Russell Ranch.*
- *Introduce drip irrigation to tomato rotations in Century Experiment.*
- *Provide high quality wheat from Russell Ranch for use in making flour for Dining Services on campus.*

IV.2. Food and Society Theme (all of the following are SAREP activities)

Progress on 2012/2013 milestones

Building Regional Markets and Communities

- *We supported farm-to-school programs and conducted evaluation research in nine Northern California school districts and summarized results for funders, school districts, community partners, public and policy makers.*
- *We expanded our small, ethnic, beginning farmer tour project to include Monterey/San Benito farmers and more UCCE advisors. Conducted 2 all-day tours (Oct, Nov 2013) for these farmers to meet potential wholesale and retail buyers at the SF Terminal Market.*
- *We completed the first phase of an Urban Agriculture project – assessing activities and needs of UCCE personnel and community practitioners – with Co-PI, Rachel Surls (ANR funding). We submitted an article based on the assessment to the Regenerative Agriculture and Food Systems Journal.*
- *We developed a local/regional food systems bibliography (on SAREP's website) with more than 2,500 articles, categorized by topic with Dave Campbell (Community Development Dept.) and grad students. The bibliography (with literature from 2000-2011) can help students and researchers better understand the landscape of the literature, gaps and needs for future research; non-profits can use it to help them identify the potential successes and shortcomings of existing strategies and highlight opportunities for future work.*

Community Food Security

- *We did not end up developing a new initiative with Yolo Food Connect. Funding never materialized.*

Food System Assessments/Food Policy

- *We completed a San Luis Obispo food system assessment which will reside on SAREP's website and Central Coast Grown's website.*
- *A Yolo County food system assessment was not started due to lack of funding.*
- *The Yolo County Food Systems Alliance and Yolo Food Connect are currently working out a plan to integrate their goals. This will take the place of a Yolo County Food Policy Council.*

2013/2014 workplan

Building Regional Markets and Communities/Community Food Security

- *Continue supporting farm-to-school programs and evaluation research in Yolo County school districts, Stanislaus and Sacramento counties. Write policy briefs, UC Delivers and peer-reviewed articles.*
- *Develop a national evaluation protocol with common metrics for farm-to-school programs (with partners at the National Farm to School Network).*
- *Follow-up with farmers from small, beginning, ethnic farmer tours with consultations and profiles; gather outcome and impact data. Build relationship with Farm Credit.*
- *Work with UCCE and community organizations to conduct assessment research on beginning farmers in CA (focused on marketing) and provide outreach venues to share results and successes.*
- *Expand values-based supply chain initiative through collaborative research and extension projects on a) farmers' experiences with values-based supply chains/ food hubs and b) farmers' participation in the specialty processed foods industry (AFRI grants) as well as above research with beginning farmers.*
- *Expand Urban Agriculture research and outreach in California through a) organization of outreach materials on ANR UA Portal, b) policy briefs, and c) UA tours with 4-H youth.*
- *Conduct collaborative research on the economic impact of regional food systems.*
- *Organize comparative case studies using local food systems bibliography.*

Food System Assessments/ Food Policy

- *Work with Central Coast Grown and other interested parties to share results of SLO food system assessment and use it in local policy development*
- *Explore development of CA food system indicators with Roots of Change, for use in CA Food Policy Council*

IV.3. Education and Leadership Theme, including the Student Farm

Progress on 2012/13 Milestones

- *We continued our traditions of recognition by awarding the annual **Bradford-Rominger Sustainability Leadership Award and the Shapiro Family Award** for best dissertation in agroecology or a related field.*

Student Farm

- *The Student Farm's program planning and development efforts have led to higher quality, field-based learning experiences for more students than ever before. Students are also taking on more leadership roles. In the field, more advanced students help teach and lead teams to accomplish various tasks. Students are also organizing various activities and events designed to strengthen the Student Farm community and students' voice in the Farm's development. The work that has been facilitated by our graduate student mentors has been so successful that the donor is now providing support for both the graduate student position and additional staff time.*
- *ASI continues to strengthen its collaborative educational work on campus. Student Farm staff and ASI-affiliated faculty worked with students to develop the recently approved academic plan for the campus Sustainable Living and Learning Community. The Student Farm worked with Dining Services to educate UC Davis students about the complexities of the food system. The Student Farm also worked closely with campus recruiting units and off-campus partners to host 25 field days which engaged over 700 high school youth in field based learning and advising, mentoring, and/or recruiting activities.*
- *We continued to collaborate with partners on campus and around the state on several of grant-funded projects focused on school gardens, garden-based education and farm-to-school. These include train-the-trainer programs to reach diverse communities and provide professional development, training and support for teachers, nutritionists, garden educators, food service providers, farmers and others involved in developing regional farm to school networks and school garden programs. With our partners, we have awarded 60 mini-grants over two years for trainers to deliver our school garden trainings in their own regions. We developed and used a webinar format for the first time to connect our network of new trainers and communicate more efficiently with colleagues around the state.*

Sustainable Agriculture and Food Systems major:

- *UC Davis students began transferring into the new Sustainable Agriculture and Food Systems (SA&FS) major in Fall 2011. Currently, there are over 80 students in the major, and the senior capstone course series is being offered for the second time to 18 seniors. Interestingly, a majority of the students are entering the major in their junior or senior year, both as transfers and through change of major, and we also have higher the average rates of first year Regents Scholars (the highest UC honor for an undergraduate) choosing the major.*
- *Our five core courses are experiencing record demand, with impacted enrollment and more than 25% of students in each of these courses being SA&FS majors. In curriculum advancements, the first set of courses using the “SAF” course code now approved and will be included in the upcoming catalog (14 new SAF 90-99 and SAF 190-199 course codes can be used for experiential and experimental course offerings such as internships, portfolios, research, service learning, group study/projects, peer-to-peer learning and thematic or survey-type seminars) We are also adding courses in Sustainable Animal Agriculture (ANS 112) and Sustainable Nutrient Management (SSC 109) and an exciting new course is being developed in Food Science and Technology focusing on energy use in the food system.*
- *As we reported last year, The Sustainable Agriculture and Food Systems major was selected as winner of the **MacArthur Foundation-funded Digital media learning grant competition** in early March. The funding has supported the development of a digital portfolio and badging system for SA&FS students that helps them build ‘badges’ they can then display on LinkedIn, Facebook and to future employers.*

2013/14 workplans

Post-Secondary Experiential Learning and Formal Post-Secondary Education

- *Continue Student Farm program planning and development process, particularly develop and test new field-based, competency-focused lessons, activities and curricula and create and test methods to help students develop and use leadership skills on the Farm.*
- *Shepherd the Sustainable Agriculture & Food Systems major, particularly*
- *Further develop our internship program by adding new opportunities and enlisting new faculty as academic sponsors, and continually deepen and refine the curriculum and internship experience to meet the SA&FS learning objectives*
- *Complete development of a full-featured prototype of our portfolio and badging system that can be used by all SA&FS majors and be made available to campus and other stakeholders for experimentation and possible further development.*
- *Expand peer-to-peer learning, culture and community building and opportunities for mentoring relationships within the major.*

Education for Primary and Secondary School Audiences

- *Provide on-campus, hands-on educational programs in food, nutrition, agriculture and ecology to over 1700 regional primary school students.*
- *Work with partners to provide on-campus field-based learning experiences for traditionally underrepresented high school students and increase their awareness of, and interest in, college studies and careers in sustainable agriculture and related areas.*
- *Continue to conduct statewide train the trainer programs in school gardening, garden-enhanced nutrition education, and farm-to-school. Support new trainers by offering mini-grants and mentoring.*

Cultivating Leadership in Sustainable Agriculture and Food Systems

- *Identify 2013 winner for the Bradford-Rominger Sustainability Leadership Award*
- *Identify 2013 winner for the Shapiro Family Agroecology Award*

IV.4. SAREP Grants and Crosscutting Initiatives

Progress on 2012/2013 milestones

SAREP grant program

- *Conducted initial outreach on SAREP's 2011 grants through a) posting all final project reports on SAREP's website and b) designing a plan for press releases about individual projects.*

Farmworker and Rural Community Well-being

- *Farmworker assessment was vetted, revised and is set to be completed by the end of October. The document will be posted on SAREP's website and shared widely among academics and community practitioners.*
- *We have the data ready to export to an on-line database of farmworker researchers across CA. We are working with campus IT specialists to get this on line.*
- *We have started a DPR funded farmworker activity study but are struggling to identify willing farmers (caneberries) to participate in the study. The IRB protocols have been sent to the IRB Administration.*

Benchmarks for Food System Sustainability

The project on Sustainable Sourcing of Global Agricultural Raw Materials completed its first stage, supported by funding from Mars, Incorporated. Key milestones include:

- *A productive multi-stakeholder meeting that generated high-level interest among key international organizations, businesses, and farmers, validated our frameworks and topical approach, refined priorities and next steps, and created a safe space for dialogue across entities that do not typically communicate directly with one another.*
- *Identification of a list of 300+ component sustainability issues (related to 44 core issues) and linking them to a set of 2000+ indicators.*
- *Successful "proof of concept" testing of optimization techniques for significantly focusing the number of indicators needed to cover a set of sustainability issues.*
- *Completion and launch of web-accessible database on corporate sustainability communications.*
- *Completion and launch of prototype web-accessible Geographic Information System showcasing capacity for user-directed mapping of data related to sustainability issues and indicators.*
- *Progress on design and construction of a semantic web information management platform, with support from diverse IT industry experts who participated in a 1.5 day brainstorming workshop.*
- *Strategic expansion of membership on stakeholder and technical advisory committees.*

2013/2014 workplan

SAREP grant program

- *Circulate communications pieces such as press releases and blog posts about selected projects to coincide with relevant ASI events, news focus, or seasonal interest in the agricultural community.*

Farmworker and Rural Community Well-being

- *Be near to completing data collection for one-year farmworker activity study (caneberries).*
- *Identify and apply for at least one farmworker/rural community research/outreach project that builds on the assessment.*

Benchmarks for Food System Sustainability

Sustainable Sourcing of Global Agricultural Raw Materials project:

- *Complete and submit journal manuscripts on novel sustainability and information management approaches pioneered in the project.*
- *Launch prototype semantic web information management platform for public access.*
- *Continue to explore opportunities for further funding and in-kind support with corporate and philanthropic partners, and through competitive grants programs.*
- *Design and focus next phase of project activity with key stakeholder collaborators.*

IV.5. INTER-INSTITUTIONAL NETWORK FOR FOOD, AGRICULTURE AND SUSTAINABILITY (INFAS)

Progress on 2012/2013 milestones

- *Convened the first Network research-focused gathering of twelve members to initiate discussion on the future of US agriculture research and development funding. The three day meeting established the foundation for future INFAS development of a domestic research and education agenda with intent to impact policy makers, funding agencies, and research and education at academic institutions.*
- *The first publications facilitated by INFAS and including INFAS authors were published in the Journal of Agriculture, Food Systems, and Community Development. (1) Food Webs and Food Sovereignty: Research Agenda for Sustainability and (2) Critical Research Needs for Successful Food Systems Adaptation to Climate Change.*
- *A summer meeting provided space for members to convene and redefine Network priorities to focus on Network design and development in the coming year. A 'Network design and development Core Team' including nine members was established to lead the effort.*
- *The Coordinator and Chair of the Executive Committee of INFAS were invited to participate in a meeting convened in Washington D.C. by the Union of Concerned Scientists to broaden and deepen relationships regarding sustainability in the food systems. There are two follow-up meetings already scheduled and INFAS's participation is requested.*

2013/2014 workplans

- *The Network design and development core team has been meeting virtually for several months to develop a process for Network design. The next 8 months will involve intense network development activities include at least two meetings with a broader stakeholder group.*
- *The design process will generate a set of Network priorities for action which is expected to include activities such as: broadening the Network to include additional institutions and stakeholders; increasing visibility of sustainable agriculture and food systems research and education; developing relationships with new relevant organizations; engaging in discussions with, or submitting proposals to, federal funding agencies to impact research directions; strengthening ties to food systems and agriculture advocates outside academia.*

IV.6. FUNDRAISING

Progress on 2012/2013 milestones

- ***Develop a new ASI case statement*** Overarching document completed through collaboration between communications and fundraising teams. Inserts focused on specific programs being developed as needed.
- ***Conduct the first year-end appeal for ASI*** Year-end appeal sent via email to EAB members in December 2012—members were invited to share the message with their contacts. Will be repeated in 2013.
- ***Grow the Sustainable Agriculture and Food Systems Endowment to support ASI in perpetuity. Immediate goal: exceed \$25,000 to endow the fund.*** Fund has been endowed but is slightly below the \$25,000 threshold
- ***Work toward \$1 million goal for Endowed Professorship of Agroecology (fundraising deadline for this target is December 2014)*** \$550,000 has been committed to this endowment from: TomKat Charitable Trust, Columbia Foundation, Gaia Fund, Department of Plant Sciences
- ***Establish endowment for Russell Ranch Sustainable Agriculture Facility. Immediate goal: exceed \$25,000 to endow fund.*** \$25,000 threshold reached, fund endowed. Adopt-an-Acre program continues
- ***Once again, we met our goal of more than \$1M in new grant funding with \$1.1 million in new competitive grants this past year.***

2013/14 workplans

- ***Recruit, hire and train additional development professional to focus on ASI fundraising priorities.***
- ***Reach \$1 million for Agroecology Endowed Professorship***
- ***Bring in 3 paying supporters of the Sustainable Sourcing of Global Agricultural Raw Materials Project.***
- ***Work with academic leadership on building Russell Ranch Endowment through Adopt-an-Acre and larger proposals***
- ***Secure at least one 7-figure gift to ASI program***
- ***Bring in at least \$1 million in competitive grant funding, emphasizing pursuit of larger grant opportunities.***

IV.7. COMMUNICATION

Progress on 2012/13 milestones

- *We focused on implementing ASI's communications plan by moving forward on ASI branding to help frame the institute's work around food and farming solutions. We have a new ASI case statement, draft ASI brochure, draft ASI key messages, and the beginnings of an ASI branding tool kit. At the same time, we've updated existing outreach pieces that have proven useful over the years (Farm to School brochure), and developed new pieces primarily for UC SAREP.*
- *We've continued to make effective use of multimedia tools such as video, photography, interactive graphics, including a high-quality Russell Ranch promotional video featuring Russell Ranch Director Kate Scow and several informative webinars.*
- *We've increasingly taken advantage of social media to drive traffic to ASI events and the Web site. We also more frequently post to ANR's Food and Green blogs in order to share ASI research and projects.*
- *We've improved and added several pages to the ASI Web site. The SAREP portion of the site has seen significant growth and better reflects SAREP successes of recent years. The ASI home page is more frequently updated to reflect what is current with ASI and its programs.*

2013/14 workplans

- *Using ASI's branding tool kit, update and produce new outreach pieces.*
- *CA&ES informed us that they are ready to assist with a Web site redesign. We have created a work plan and are looking forward to redesigning the ASI website this year.*

IV.8. MONITORING AND EVALUATION

Progress on 2012/13 milestones

- *Completed evaluation of ASI institutional strengthening, informing considerations for design of future ASI assessments, and identifying other lessons learned during the California Nitrogen Assessment*
- *Supported CA&ES five-year evaluation of ASI and the WK Kellogg Endowed Chair.*

2013/14 workplans

- *As part of process to revise/refresh ASI's Strategic Plan, identify key measurable outcomes and establish practical and feasible monitoring plan.*
- *Explore methods to document and represent ASI networking connections.*

V - INDICATORS OF SUCCESS

Where are we going?

ASI's strategic plan, and particularly our vision statement, suggests a number of desired transformations within agriculture and the food system and institutional capabilities to be built within ASI. With input from our director, deputy director, academic coordinators, communication coordinator, and proposal coordinator, ASI's program manager is working to institutionalize monitoring and evaluation of various performance indicators, including measures of inputs, outputs, their uptake by partners, and ultimately studies of outcomes for our partners and impacts in the "real world".

We are developing monitoring systems that will serve several useful purposes: 1) focus our work on ASI's mission and priority goals, 2) guide adaptive management of our current projects and activities, 3) stimulate learning within our team and with our partners, and 4) provide compelling evidence of ASI's impacts for current and potential funders and other stakeholders.

Beginning in 2011 and continuing through 2012, we are working with an evaluation consultant, Francesca Wright, to guide our development of a monitoring and evaluation plan. Based on meetings with SAREP's academic coordinators and Student Farm staff, we have identified a first draft of potential outcome statements and associated data collection methods:

1. ASI Builds Knowledge through Externally Funded Projects & SAREP-awarded Grants

- For internal learning, team members identify and share process insights at key points during and after projects. Track key learnings on shared written documents, including formulation, testing, and reframing of hypotheses.
- For external audiences, identify key findings and outcomes from projects; track and report via ASI web site, press releases, various reports, as appropriate.

2. ASI Distributes Knowledge

- Track staff presentations and publications (using MyInfoVault – on-line campus academic activity reporting system)
- Track media coverage
- Track web site use
- Track meaningful and significant external inquiries via simple on-line form. (Consider follow-up w/ email survey to clients.)
- Periodic email surveys to "customers" (e.g. Student Farm alumni, key strategic partners to document uptake)

3. ASI Incubates Leaders, Producers, Consumers and Advocates

- Track SA&FS graduates
- Track # of students participating in Student Farm activities. Consider follow-up w/ some.

- Track # of K-12 students & school district personnel trained in eco-garden trained.

4. ASI Collaborates with Strategic Partners

- Explore informal group process to document growing network of strategic partners every 6 – 8 months. (Large wall paper, post-its, color coding, photo recording.) Link with ASI contacts database.

5. ASI Leverages Resources

- Track external funding

We expect our monitoring and evaluation plan to be a dynamic construct that we will adapt and improve over time. Since time is always a constraint, we are looking for ways to streamline data collection, and effectively use the support offered by our student assistants.

Lastly, our process should help us to evaluate how we are living up to our operational principles: practicing sustainability, legitimacy, usefulness, and the scientific credibility of our work.

VI – LIST OF APPENDICES

Appendices can be accessed at: <http://asi.ucdavis.edu/about/advisory-board/Board-meetings/2013-external-advisory-board-meeting>

Institutional Framework and Assets

- Appendix 1: Organizational Structure
- Appendix 2: Programs and Facilities
- Appendix 3: Personnel
- Appendix 4: Core Staff and Grant Funded Staff (2006/07- 2012/13)
- Appendix 5: ASI Annual Income (2007/08 – 2012/13)
- Appendix 6: Stakeholders
- Appendix 7: Advisory and Accountability Structure

External Advisory Board Documents

- Appendix 8: External Advisory Board - Current Members
- Appendix 9: External Advisory Board – Purpose and Operation
- Appendix 10: Report from 4th External Advisory Board Meeting, 2 November 2011

UC DANR Documents

- Appendix 11: MOU between UC DANR and UC Davis CA&ES
- Appendix 12: SAREP External Review documents
- Appendix 13: DANR restructuring documents

Themes and Possible Priorities

- Appendix 14. Results of the 2008 Online Consultation on Priorities

Education and Leadership Theme – Concept Notes

- Appendix 15: Experiential Learning for Post-Secondary Students
- Appendix 16: Formal Post-Secondary Education in Sustainable Agriculture and Food Systems
- Appendix 17: Education for Primary and Secondary School Audiences in Agriculture, Environment, Food & Nutrition
- Appendix 18: Cultivating Leadership in Sustainable Agriculture and Food Systems

Food and Society Theme – Concept Notes

Appendix 19: Building Regional Markets and Communities

Appendix 20: Community Food Security for Low-Income Residents

Appendix 21: Food System Assessment/Food Policy

Appendix 22: Farmworker Wellbeing

Agriculture, Resources and the Environment Theme – Concept Notes

Appendix 23: Energy and Climate Footprinting of Food Production and Supply Chains

Appendix 24: Responding to Climate Change

Appendix 25: Sustainable Management of Nutrients and Water in Agriculture Landscapes

Appendix 26: “Closing the Loop”: Integrating Sustainable Waste Management in Agriculture

Appendix 27: Harnessing Ecosystem Services to Increase Agricultural Sustainability

Crosscutting Initiatives – Concept Notes

Appendix 28: Benchmarks for Food System Sustainability

Appendix 29: Farmworker and Rural Community Well-being

Communication and Fundraising

Appendix 30: Our messages

Appendix 31: Fenton Communications Strategy: Summary and full report

Appendix 32: Fundraising Case for Support

Appendix 33: Fundraising – ASI Grant Proposal Successes

Appendix 34: Fundraising – Cumulative Endowments

Appendix 35: Fundraising – Campaign Projections

SAREP Grant Program

Appendix 36: SAREP-funded Projects 2011-2012