SUMMARY

Clemson University’s research profile is considerable with over $100 million in external funded research expenditures in 2010-11 and 2011-12, four research campuses (automotive, restoration, biomedical and advanced materials), another fifteen research centers across the state in research areas from agriculture to business, from genomics to optics; and, a robust administrative infrastructure to support research activities. The focus on and success in research extends to both graduate and undergraduate students as well, with an innovative undergraduate research program and an impressive record of graduate research awards including 11 NSF graduate research fellows in 2012 and more than 100 graduate students sponsored by home or US government scholarships during the 2012-2013 academic year.

Clemson’s 2020 Road Map identifies the following eight focus areas for research and economic development, with the research focus being more heavily oriented to the first five of these:

- Advanced Materials
- Automotive & Transportation
- Information & Communication
- Biotechnology & Biomedical Sciences
- Sustainable Environment
- Leadership & Entrepreneurship
- Family & Community Living
- General Education

Among the very active and successful research activities of Clemson faculty and centers, little, if any, attention is given to international research however defined. In the absence of a global strategy for research, it is difficult to capitalize on the existing global research networks and connections of our faculty, thus jeopardizing valuable research opportunities. Tapping into global resources could strengthen Clemson’s research stature (Carnegie classification) and international ranking, foster interdisciplinary research and creative work, advance graduate student education, and present new funding opportunities.

The research subcommittee collected information on the extent and nature of “international research” at Clemson, looking specifically at the type of “international research” or collaboration
currently undertaken, administrative support structures for such research, and attitudes/opinions of faculty and administrators with regard to international research.

The findings, presented below, indicate that:

- Individual faculty members and researchers at Clemson are motivated to engage in international research in its multiple forms (collaboration and co-authoring with overseas partners, conducting research abroad, hosting visiting scholars on campus, focus on global challenge or international research topic, seeking funding from international/overseas sources).
- Many of the international networks and the experiences of individual faculty members and some departments remain underutilized and undervalued.
- Institutional support for international research is perceived as lacking. This includes the dissemination of information about international research opportunities, clarity on policy and procedure for grant management for international activities, seed/start up funding, and an infrastructure to support visiting scholars and faculty.
- Existing reporting mechanisms for faculty activity do not adequately track international research activity.
- Faculty report little incentive/encouragement of international activities, some indicate that tenure and promotion guidelines and departmental cultures discourage/diss-incentivize international research activities.

Taken together, these findings strongly suggest that international research activity at Clemson could easily be increased with some minor interventions. While a more strategic attention to a global research strategy will go even further in supporting Clemson University in its goal to engage faculty and students in bold thinking around the grand challenges faced by society both at home and abroad, and to move from a Carnegie classification of “Research High” to “Research Very High”. In the absence of a strategy for international research, Clemson risks missing the opportunity to capitalize on the existing research networks and connections among its faculty and engage students in research and inquiry around Global Challenges.

DEFINITIONS OF INTERNATIONAL RESEARCH

In the absence of any specific strategy or administrative policy regarding international research, the research subcommittee took a broad approach to the topic and allowed faculty to indicate the nature of their research and research related activities that they perceived to be internationally or globally focused. We found the following type of activities to be included:

- Research abroad,
- Research on international/global issues,
- Collaborative research with partners overseas,
- Engaged undergraduates in international research,
- Engaged graduate students in international research,
- Applied for/received funding from an international agency or foreign government,
- Applied for/received funding for international activities from US entity
Participated in/or initiated partnership, exchange, or joint degree programs.

HIGHLIGHTS OF SURVEY RESPONSES

A general survey on internationalization was administered to Clemson faculty in the spring of 2014. The data below are drawn from that survey. Fuller results of the survey are available in the general appendices of the Internationalization Task Force Report; and, raw data may be requested from the Office of Global Engagement.

There were 255 responses to the general section of the faculty survey out of 1329 instructional, public service, and research faculty, which is approximately 20% response rate. The faculty respondents comprised 31% Full Professor, 31% Associate Professors, 22% Assistant Professor, 8% Lecturer or Senior Lecturer, and 8% Non-Tenure track teaching/research position and other faculty. The response rate for the faculty survey by college is as follows: 22% - AAH, 19% - BBS, 27% - CAFLS, 14% - E&S, 24% - HEHD.

There were 69 responses to the research section out of 255 total responses, which is 27% of the total response to the faculty survey, 18 responses to the teaching section of the survey or 7% of the total response, and 4 responses to the service section of the survey, which is less than 2% of the total response. The faculty respondents listed 25 languages other than English that they use in their teaching, research, and/or service and around a dozen languages used in research.

Of the faculty respondents to the research section, over the past 3 years
- 73% conducted research abroad,
- 53% conducted research on international/global issues,
- 73% participated in international collaboration,
- 31% engaged undergraduates in international research,
- 53% engaged graduate student in international research,
- 38% applied for funding from an international agency or foreign government,
- 22% received funding from an international agency or foreign government,
- 48% applied for funding for international activities from US agency or government,
- 27% received funding for international activities from a US agency or government,
- 39% participated or initiated partnership, exchange, or joint degree programs.

Over the past three years, of the faculty respondents to the research section,
- 1-10% published in a language other than English.

From the response of 48 faculty in the survey, over past 3 years:
- 65 total visiting scholars were hosted; and,
- an average of 20 visiting scholars were hosted per year.

Barriers to International Research

When asked about the major barriers for international research among the following six options:
- 60% responded lack of incentives towards P & T,
- 75% responded lack of support staff for international travel,
50% responded restrictions on international travel, 
56% responded restriction of South Carolina funds for international travel startup money, 
4% responded barriers due to Export Control/IP.

In the free response section of the survey addressing barriers to international research, the basic trends are as follows:

1. Difficulties for International Visitors/Scholars: Major barriers for global research at Clemson include lack of accommodation for international visitors; obstructionist sponsoring/visa processes for hosting international visitors; cultural and social difficulties that international visitors, scholars, and graduate students face living in the local area.

2. Funding International Travel: The paperwork for reimbursement is difficult; the State of SC restrictions on international travel including startup money make it impossible for new faculty to travel abroad; departments insist that we use incentive funds for any international travel; restrictions by funding agencies for non-US nationals limiting funding for international faculty; funding restrictions and limits make attending an international conference difficult.

3. Lack of Funding for International Research Activities: No mechanism exists for internal funding opportunities for global research; no support for developing research collaborations and networks; seed funding for international activities or global initiative fund would be welcome.

4. Recognition of Faculty for Engagement in Global Research: No mechanism exists for the recognition for quality international research; Tenure track faculty indicated that global research/partnership activities before their tenure at Clemson might negatively impact their career.

5. OSP/Export Control Barriers for Global Research: OSP process is difficult with international projects even though overhead is collected for global projects but university is not investing back to global research, one of the major barriers due to export control and logistical limitations is that faculty are not well informed about the process.

Suggested Improvements for Overcoming Barriers to International Research

In the free response section of the survey addressing recommendation for improvements for overcoming barriers to international research, the basic trends are as follows:

1. Increase the Number and Support for International Visitors/Scholars: Provide internal funding for international visitors/hires in order to increase the number of international visitors on campus; provide centrally located housing (not requiring a car or provide transportation assistance) for international scholars/visitors; find ways to decrease the huge delay in initial payment of non US postdocs and graduate students; increase institutional support for hosting international visitors and scholars, connect to others on campus for support network for the international visitors. Designate a central location on campus for international center of activities/cultural events, etc.

2. Increase Support for International Travel: Increase travel support for connecting to global research networks/attend international conferences; Provide seed grants for travel so that faculty can develop collaborations; Ease travel fund restrictions; Ease SC restrictions on
international travel from startup funds; reduce paperwork for international travel and provide an expedited and simple reimbursement procedures or allow procurement/cash card use for international expenses.

3. Increase Recruitment/Recognition of Faculty Engaged in Global Research: Recruit top faculty with ability to collaborate internationally or international faculty involved in global research; increase university recognition of global research activities, value global research in the P &T guidelines, evaluation process (reward international collaboration and publication); support faculty involvement and recognize time commitments required to engage in international work; recognize international efforts in university publications; more publicity/recognition for international events, visitors or faculty accomplishments; Showcase the existing global research at Clemson through an event that acknowledge and shows appreciation for these efforts.

4. Increase Funding for Global Research and Partnership: Increase support for global research in a more sustainable way by providing faculty release times; provide funding for international partnership and research such as internal grant supplement for international projects; offer funding for module of creative inquiry courses abroad; Provide seed money, university or college-initiated research collaboration with foreign countries to develop research network with global research, academic, industry partners; enhance the quality of international programs and quality of research.

5. Increase Support for International Graduate Students: Increase support/assistantship for international graduate students; provide more funding for pilot studies; develop a strategy for global recruitment of top quality graduate students in line with global research priorities.

6. Increase Support for Export/Control/Intellectual Property and Sponsored Program Administration: Provide more targeted information to faculty about global opportunities for funding, assistance in applying for international funding, designate support staff at Division of Research to identify international research opportunities; cultivate team members that can write the proposals and do the research, facilitate the grant writing proposals; provide workshops on how to get international funding and collaboration with other universities in global research; Provide workshops related to working with international partners which would also improve more informed faculty about export control issues related to global projects.

DISCUSSION OF FINDINGS

Opportunities

Clemson is well positioned to develop strategies for global research and to provide direction for coordinated efforts in seeking international funding. The assets/strengths in this regard include:

1. A motivated, entrepreneurial, research-oriented faculty with recognized research expertise and facilities, established scholarly reputations and research networks that can be leveraged for international research and funding.

2. An inventory and portfolio of research activities that can serve as a foundation for an expansion of such activities into new research areas and/or regions. Of particular note in this regard are the research strengths and assets in agriculture and extension services; as well as, those in the research foci listed above.
3. A strong tradition and infrastructure for student research (undergraduate and graduate).
4. A high level of direct foreign investment and international industrial presence in the state and the State’s commitment to furthering such investment, and the established partnerships between the State and Clemson University Office of Economic Development in this regard. See report on Strategic Partnerships for more information on this issue.
5. Research foci with high potential for international collaboration. The focus areas identified in the 2020 Road Map are all of relevance to Global Challenges and to international and state economic development.
6. Robust administrative support for general research. The offices of research compliance (including import/export controls) sponsored programs and the Clemson University Research Foundation provide the infrastructure to support research that could be expanded/adapted to provide adequate support for international initiatives.

Challenges
1. Lack of articulated global research strategy linked to university strategic goals.
2. Culture of the State, region and institution. South Carolina, despite the high level of direct foreign investment, is still a relatively homogenous state with a similarly inward focused culture. Clemson’s institutional culture and rhetoric has continued to focus on its land grant mission and strong commitment to the students and economy of the state, with very limited recognition of global engagement as a contribution to that endeavor.
3. Unwelcoming climate for international visitors, faculty and students as evidenced in administrative obstacles to hosting or recruit international scholars/faculty/students; lack of housing and other services for visitors; and behaviors indicative of low tolerance for international diversity.
4. Lack of institutional recognition of the value of international research activity. Faculty reporting system, tenure and promotion practices, and some departmental practices are identified as dis-incentivizing international activities.
5. Administrative obstacles to international research activities. Faculty encounter obstacles to travel for both themselves, students and visitors they would like to host; unclear procedures for managing grants in support of international activities;
6. Limited resources designated for start-up, seed, or travel funding in support of international research activities.

GENERAL RECOMMENDATIONS
1. Develop Strategy and Funding for Global Research Activity. Based on the subcommittee findings, we are confident that Clemson can improve its research productivity and reputation (nationally and internationally) through the articulation and implementation of a strategy for international research activities. The strategic plan for international research should help prepare students for leadership in global research environment, attract and retain top international research talent, improve our competitiveness to attract research funding, and improve the institutional support and culture for international research activities. Strategy should be inclusive and flexible to support a range of activity type and participation from all colleges/disciplines.
2. Raise Visibility of International Research Activity. Provide mechanisms for the recognition of existing research excellence across the range of international research.
This could include: establishment of an international research center; research symposia/conferences highlighting international research; establishment of awards/recognition for international research; more explicit tracking of international activity in annual performance, as well as tenure and promotion reviews, announcements of international honors, etc.

3. **Improve Support for Visiting Scholars.** Establish a visiting scholar center and/or program that would support and honor the value of international collaboration and bring more distinguished scholars to campus through programs such as Fulbright, Scholar Rescue Fund, etc. Support should include administrative procedures for travel reimbursements, immigration procedures, logistics of housing, and funding to support visitors in-line with strategic research priorities.

4. **Expand Opportunities for Students to Engage in International Research.** Establish mechanisms to allow students to engage in international research activities either of their own or in collaboration with faculty/institutional partners. Expand the Creative Inquiry model to further internationalize undergraduate research, develop sustainable models of graduate study abroad programs, and remove obstacles to the recruitment of targeted/sponsored international graduate students.

5. **Improve Effectiveness of Administrative Support Services for International Research.** Provide professional development for grant administrators and faculty to increase their effectiveness in seeking and managing international research awards; enhance campus-wide communication and training for import/export, IP and other compliance regulations as related to international research; seek outside consulting and reconsideration of operational restrictions on international activities (procurement, hiring, etc.)

**Interim Recommendations**

The following are some specific actions that the subcommittee recommends as immediate/interim interventions.

1. Upgrade Faculty Activity System (FAS) to better track international activities of faculty.
2. Establish a Recognition/Award Reception to honor the accomplishments of our faculty and students in international research.
3. Convene regional (or topic) interest groups to develop university-wide teams for seeking large international research funding.
4. Provide seed funding to increase faculty ability to compete for funding for international research, and/or to offer travel funds as a supplement to existing seed funding.
5. Establish an International Visitor’s Program putting some of the following in place:
   a. Identify short-term furnished accommodation appropriate for visiting scholars/faculty
   b. Develop a strategy to recruit visiting scholars/faculty through existing programs such as IIE’s Scholar Rescue Fund, Fulbright, etc.
   c. Establish an International Visitors Speaker Series to highlight the work of visitors to campus
SUBCOMMITTEE ACTIVITIES & MEMBERS

The research subcommittee for this study consisted of members who met during through AY 2013 - 14. The committee gathered information via surveys and discussion groups with the administration, particularly with the Office of Global Engagement (OGE), the Office of Sponsored Programs (OSP), and the Division of Research. For example, we received the list of faculty and departments sponsoring international visiting scholars from the OGE; we received a list of funded research with global sponsors from the OSP; we sought input from the Associate Deans and the Division of Research to collect university-wide information on international projects.

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