CSREES Portfolio Review Expert Panel Report Summary

Portfolio 5.2 Soil, Air, and Water
CY 1999 – 2003

SUMMARY

External Review Completed: February 2005

Portfolio Description

This portfolio is a mix of research, education, and extension programs aligned with 13 Knowledge Areas intended to provide science-based knowledge and education to improve the management of soil, air, and water. Programs in this portfolio increase the nation's capacity to support agricultural production while minimizing adverse environmental impacts. These programs contribute to improved soil, air, and water quality and appropriate land use that provides living space, food, fiber, forage production areas, and wilderness areas. These programs lead to a better understanding of ecosystems management strategies and the impact of global climate change on the diversity of plant and animal life. The Knowledge Areas addressed are as follows:

- KA 101 Appraisal of soil resources
- KA 102 Soil, plant, water, nutrient relationships
- KA 103 Management of saline and sodic soils and salinity
- KA 104 Protect soil from harmful effects of natural elements
- KA 111 Conservation and efficient use of water
- KA 112 Watershed protection and management
- KA 131 Alternative uses of land
- KA 132 Weather and climate
- KA 133 Pollution prevention and mitigation
- KA 141 Air conservation and management
- KA 403 Waste disposal, recycling, and reuse
- KA 405 Drainage and irrigation systems and facilities
- KA 605 Natural resource and environmental economics

Summary of Recommendations

In 2005, a panel comprised of independent experts from the field was convened to assess and score the current state of the Soil, Air, and Water Portfolio. A discussion of specific comments and recommendations related to each of the dimensions of the three Office of Management and Budget (OMB) research and development (R&D) criteria used (relevance, quality, and performance) is provided below.

Relevance

The panel notes the vast array of natural resource and environment related projects and programs covered in this portfolio. In view of this, the panel believes a good effort was made in preparing a comprehensive report with good illustration of the interconnectivity of the 13 Knowledge Areas presented. While there is a nice start in documenting the integration among research, education, and extension, it is incomplete. There is a good crosswalk with previous and current USDA strategic plans. However, the overall emphasis is research, and more data are needed on both extension and higher education.

Quality

Outputs are not really documented, are incomplete, and appear dated. It is difficult to assess significance. When faced with ambiguous terms or other questions, the panel gave the portfolio the benefit of the doubt. Through personal knowledge, panel members were aware of CSREES activities that

were not apparent in the report. Information would be helpful on how many scientists and graduate students are involved, FTEs and dollars per knowledge area, major states, and number of publications. The panel suggests documenting the contribution of research, education, and extension for each knowledge area. It also recommends consolidating the 13 Knowledge Areas into six or seven. The panel would like to see greater coordination with stakeholders and partners.

Performance

The panel expressed concern about the lack of quantitative measures of productivity. Panel members stated the data are lacking for them to make intelligent observations. Productivity expectations should be explicitly defined. It is not satisfactory to rely on NPL site visits and word of mouth.

General Comments

The panel acknowledges how important NPLs have been over the years. It also recognizes the dilemma of getting data at the national level to present a national picture. In developing goals, outcomes, and measures, CSREES should consider how it adds value and the unique role it plays. The panel sees very little evidence to illustrate the benefits derived from the dollars invested in NRE programs during 1999-2003. The panel would like to see more meaningful planning, collection, interpretation, and reporting of data about the successes of CSREES-funded projects.

Comments on Future Directions presented by CSREES

The panel recommends more multi-disciplinary research, education, and extension efforts to be accelerated by all means necessary. The panel encourages both multi-disciplinary RFAs and integrated efforts with formula funds. Economists and other social scientists should be part of proposal writing teams. There should be accelerated coordination with partners, including land-grant universities, other agencies, and organizations – particularly NSF, CARET, and NASULGC.

The panel believes NRE is funding critical work, however, with relatively small funding put into a vast array of areas, leadership positions are hard to establish. The panel recommends reviewing strengths and considering an alternative approach to look for niche areas where CSREES and its institutional partners have a competitive advantage and let go of other areas. The CSREES administrator and NPLs can take a leadership role through workshops, meetings, and conferences to demonstrate new and innovative ways of working collaboratively. The panel expressed concern that given the way CSREES is funded, it is often late in establishing a presence in emerging areas.

Data issues

The panel had difficulty drawing solid conclusions about the portfolio performance given the limited data available. A standardized database is needed to document research, extension, higher education, and integrated programs, including outputs, outcomes, and impacts. Development of a new data collection system should be accelerated and implemented in the next 2-3 years. The new system should have a comprehensive, synchronous connection to land-grant partners and related federal agencies. Institutional partners need to be involved in both development and implementation.

Evaluation issues

The panel supports the concept of a logic model, however, the model used hampered its ability to assess program strength and success. Performance definitions were ambiguous, difficult to follow, and need to be standardized. The use of trend and pie charts, in addition to the data tables, would have allowed panel members to quickly grasp trends within a knowledge area. Pie charts also would be useful to show dollar allocations. These tools are specifically needed to document extension and higher education activities. Logic models should be part of the RFA response so performance indicators will be developed as a natural course of action.

Portfolio Score

Portfolio 5.2 received a total score of 81 from the panel. This score places the portfolio in the category 'moderately effective in supporting CSREES objectives.'