Fiscal Year 2021
Panel Outcome Report
Water Availability & Watershed Management
(NP 211)

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Todd Ward, Ph.D. Scientific Quality Review Officer
(January 2020-December 2021)

Date

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Weidong Chen, Ph.D. Scientific Quality Review Officer
(January 2022-December 2023)

Date

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Marquea D. King, Ph.D., Director/Program Coordinator

Date

Panel Outcome Report FY 2021
Water Availability & Watershed Management (NP 211)

This Panel Outcome Report is a summary of the Water Availability & Watershed Management, National Program (211) Office of Scientific Quality Review (OSQR) Project Plan Peer Review (PPPR) process held from July 2021-January 2022.

The mission of this National Program is two-fold: (1) to conduct fundamental and applied research on the processes that control water availability and quality for the health and economic growth of the American people; and (2) to develop new and improved technologies for managing the Nation's agricultural water resources. These advances in knowledge and technologies will provide producers, action agencies, local communities, and resource advisors with the practices, tools, models, and decision support systems they need to improve water conservation and water use efficiency in agriculture, enhance water quality, protect rural and urban communities from the ravages of droughts and floods, improve agricultural and urban watersheds, and prevent the degradation of riparian areas, wetlands, and stream corridors. The rationale for this program is that water is fundamental to life and is a basic requirement for virtually all of our agricultural, industrial, urban, and recreational activities, as well as the sustained health and natural environment.

This panel outcome report is intended to inform the Office of National Programs (ONP) and each Area of research (research scientist or SY) progress as it relates to the NP 211. Data tables display outcomes of scoring by Areas, Panels, and overall program.

Selected chairs (Table 1) were in part, recommended by National Program Leaders (NPLs) from NP 211 and/or previous OSQR service; others were sought based on their nationally recognized expertise by the OSQR Director. They were examined for suitability to lead a panel review, screened for conflicts of interest (COI) and finally concurred upon by the appropriate Scientific Quality Review Officer (SQRO).

Table 1. Panels reviewed for the Water Availability & Watershed Management, National Program (211)

Panel	Panel Chair	Panel Meeting (Re-Review)	Number of Panelists	Number of Projects
1. Irrigation West	Mark Grismer	1/10/22	6	5
2. Precision Irrigation	George Hornberger	1/15/22	5	4
3. Alternative Water Sources	N/A	Ad Hoc	2	2
4. Drainage	Xinhua Jia	1/19/22 4/26/22	5	4
5. Watershed, West	Adel Shirmohammadi	10/25/21 3/14/22	5	4
6. Decision Support Tools	M. Levent Kavvas	10/22/21	4	3
7. LTAR	Binayak Mohanty	11/16/21 3/23/22	6	5
8. Sedimentation	Carmen Agouridis	12/15/21	4	3
9. Water Productivity	Amy Kaleita	11/29/21	4	3

*Reviews are conducted by no less than two (or greater) expert panel reviewers providing independent written reviews and scores without group panel deliberation. Scores reflect the average of no less than two expert reviewers and written reviews are compiled and screened by OSQR Director.

Review Process

Following panel review for each plan, OSQR Director, with SQRO concurrence, sends each Area Director a panel consensus recommendation document. This may include recommendations for revision of the plan to which researchers are required to respond in writing and, as appropriate, revise their written plans in accordance with guidelines as detailed in the OSQR Handbook (see www.ars.usda.gov/osqr).

In addition, as part of the panel deliberation, a scoring of the overall quality of the plan is judged based on the degree of revision the panel deems is required. This scoring is termed an "Action Class." Each reviewer is asked to anonymously provide an Action Class rating for each plan. OSQR assigns a *numerical equivalent* to each Action Class rating and then averages these to arrive at an overall Action Class score for the plan.

Action Class is defined as follows:

No Revision Required. An excellent plan; no revision is required, but minor changes to the project plan may be suggested.[1]

Minor Revision Required. The project plan is feasible as written, requires only minor clarification or revision to increase quality to a higher level.

Moderate Revision Required. The project plan is basically feasible but requires changes or revision to the work on one or more objectives, perhaps involving alterations of the experimental approaches in order to increase quality to a higher level and may need some rewriting for greater clarity.

Passed Review:

For plans receiving one of the above three Action Class scores (No Revision, Minor Revision, or Moderate Revision), scientists are required to respond, in writing, to address all panel comments in the consensus recommendation document; revise their project plan as appropriate; and submit the revised plan and responses to the OSQR through their Area Office. Both the updated plan and the recommendations' form are reviewed by the SQRO and, once they are satisfied that all review concerns have been satisfactorily addressed, the project plan is certified, the Area Office is notified, and the project plan may be implemented.

Certification:

Certification is contingent upon making a good faith effort to satisfactorily address panel comments and recommendations. A plan has not "passed" the OSQR PPPR process until the SQRO's certification is delivered to the Area.

Major Revision Required. There are significant flaws in the experimental design and/or approach or lack of clarity which hampers understanding. Significant revision is needed.

Not Feasible. The project plan, as presented, has major scientific or technical flaws. Deficiencies exist in experimental design, methods, presentation, or expertise which make it unlikely to succeed.

Failed Review:

For plans receiving an Action Class score of Major Revision or Not Feasible, scientists are required to address, in writing, all panel comments in the consensus recommendation document; revise their project plan as appropriate; and submit the revised plan and responses to the OSQR through their Area Office. The plan *MUST* then undergo a Re-Review by the initial deliberating panel, at which time a second set of consensus recommendations and second Action Class score are obtained.

[1] While a No Revision Action Class would imply that change to the plan is not required, where the panel requests specific additions to the plan, if accepted, should be incorporated into the updated plan.

Per the Re-Review, if the plan receives an Action Class score of a No Revision, Minor Revision, or Moderate Revision, the project plan may be implemented after following the **Passed Review** section above. Plans receiving a second Major Revision, or Not Feasible score are considered failed reviews. The Action Class and Consensus Recommendations from the Re-Review are provided to the Area with NO further option for revision or review on that particular project plan as it has been submitted.

Such plans may be terminated, reassigned, or restructured at the discretion of the Area Office and ONP. For plans receiving Major Revision, it may be elected not to further revise them and to end review with the plan not receiving certification (plan fails review). For those receiving a score of Not Feasible, Area and National Program Leader (NPL) approval are needed for the plan to be revised for re-review. Otherwise the plan will be considered to have failed review. Subsequent action with regard to the research and researchers is left to Area and ONP-NPL leadership.

At the conclusion of each PPPR deliberation, the chair and panel reviewers are asked to provide general statements or recommendations on the overall process as well as the general quality of the plans which underwent review. The Chair is specifically asked to provide a Panel Chair Statement which they feel focuses on the overall conduct of the review or any broad areas with regard to the research they feel would benefit future researchers or the Agency as a whole. Copies of such statements for (NP 211) can be found following this report.

Review Outcomes

Reviews can vary, but ultimately, depends on a combination of the panelists selected and the scientific writing capabilities of the team who wrote the project plan. The OSQR is responsible for assuring that each panel contains subject matter experts who provide knowledgeable, clear, rigorous, and fair assessments. Therefore, PPPR panels vary in their overall outcomes.

Uniquely, the ability of an ARS research team to respond to panel recommendations/comments in order to *revise and improve project plans is, perhaps, the greatest strength of the ARS PPPR process.*

ARS uses the National Program Panel Outcome Report as a measure of scientific progress and as a demonstration of overall program quality, how well researchers understand and address the needs of the expert panel reviewers. Initial review scores that are moderate or higher are recorded as such and will not be certified as having completed the PPPR until the SQRO has deemed that all reviewer concerns have been satisfactorily addressed. For lower scores/failed reviews, the panel provides a re-review score, which is considered along with the initial review score.

Table 2.
Initial and Re-review Scores for Water Availability & Watershed Management, National Program (211)

Panel	No revision	Minor	Moderate	Major	Not Feasible	Re-Review
1. Irrigation, West		5				
2. Precision Irrigation		2	2			
3. Alternative Water Sources	1		1			
4. Drainage		3		1		Minor
5. Watershed, West			2	2		1 Minor 1 Major
6. Decision Support Tools	2	1				
7. LTAR			2	3		3 Minors
8. Sedimentation		3				
9. Water Productivity		2	1			

*Review conducted by no less than two (or greater) expert panel reviewers providing independent written reviews and scores without group panel deliberation. Scores reflect the average of no less than two expert reviewers and written reviews are compiled and screened by OSQR Director.

Table 3.
Area Scores for Water Availability & Watershed Management, National Program (211)

Area	No revision	Minor	Moderate	Major	Not Feasible
MWA		2	2	2	
NEA	1			1	
PA	1	4	2	1	
PWA	1	4	2	1	
SEA		6	2	1	

Table 4.
Overall Scores for Water Availability & Watershed Management, National Program (211)

	No revision	Minor	Moderate	Major	Not Feasible
# Plans with each score	3	16	8	6	

Overall Panel Characteristics:

Panel Characteristics

The OSQR PPPR relies heavily on expert panel member selection by the OSQR Director and SQRO selected Panel Chairs. ARS scientists, research leaders, and ONP are encouraged to recommend panelists they understand to be free of any COIs. While the selected/seated Panel Chair is under no obligation to use Agency recommended panelists, the SQRO must review and approve the Chair's panelist selections and may ask for substitutions or provide additional experts for consideration.

Factors and qualifications considered in PPPR panel selection (chair and panelist) such as being a qualified expert overall in the field being reviewed, research tenure, publication record, award history, geographic location, overall diversity, and availability to participate fully in the process, all play an integral role in who is invited to serve an ARS/OSQR PPPR panel. Many of the reviews are composed with a balance of nationally and internationally recognized experts. Tables 5-6 display various characteristics of the panel composition; all affiliations were accurate at the time of the panel review.

Affiliations

Peer reviewers are affiliated with several types of institutions, primarily those in academia, but also special interest groups and industry. In some cases, peer reviewers have recently retired but are still active as consultants, scientific editorial board members, and members of professional societies.

Table 5. Panelist Faculty Rank and Affiliations for Water Availability & Watershed Management, National Program (211)

Panel	Professor	Associate Professor	Assistant Professor	Government (Agency)	Industry & Organizations
1. Irrigation, West	3		1		2
2. Precision Irrigation	2	1	2		
3. Alternative Water Sources		2			
4. Drainage	3	1			1
5. Watershed, West	4	1			
6. Decision Support Tools	1	2		1	
7. LTAR	2	3			1
8. Sedimentation	3	1			
9. Water Productivity	3	1			

Research Impact and Ethnicity/Gender

The OSQR PPPR process is lauded as a rigorous and objective ARS function striving for the highest possible scientific credibility. In general, panelists shall hold a doctoral degree unless the discipline in question is one which does not subscribe to a doctorate level education to achieve the highest recognition and qualification (e.g., engineers and modeling specialists). Panelists are also judged by their most recent professional accomplishments (e.g. awards and publications completed in the last five years). Finally, the panelists who are currently performing or leading research to address a problem similar to those being researched in the National Program under review are preferred.

Table 6. Panel Additional Information Water Availability & Watershed Management, National Program (211)

Panel	H-Index Average	Gender	Geographic Locations
1. Irrigation, West	14	6 Males	3 PWA, 3 PA
2. Precision Irrigation	20	4 Males 1 Female	3 SEA, 1 MWA, 1 PA
3. Alternative Water Sources	20	1 Male 1 Female	2 PWA
4. Drainage	14	3 Males 2 Females	2 PA, 2 Canada, 1 SEA
5. Watershed, West	26	4 Males 1 Female	2 NEA, 2 SEA, 1 MWA
6. Decision Support Tools	24	4 Males	1 PWA, 1 SEA, 1 NEA, 1 PA
7. LTAR	30	4 Males 2 Females	2 PA, 2 SEA, 1 PWA, 1 MWA
8. Sedimentation	17	2 Males 2 Females	2 MWA, 2 NEA
9. Water Productivity	19	3 Males 1 Female	2 MWA, 1 PA, 1 PWA

List of Panel Chairs

1. Irrigation, West
Mark Grismer, Professor
University of California, Davis
Education: Colorado State University

2. Precision Irrigation
George Hornberger, Professor
Vanderbilt University
Education: Stanford University

3. N/A

4. Drainage
Xinhua Jia, Professor
North Dakota State University
Education: University of Arizona

5. Watershed, West
Adel Shirmohammadi, Professor
University of Maryland
Education: North Carolina State University

6. Decision Support Tools
M. Levent Kavvas, Professor
University of California, Davis
Education: Purdue University

7. LTAR
Binayak Mohany, Professor
Texas A&M University
Education: Iowa State

8. Sedimentation
Carmen Agouridis, Professor
University of Kentucky
Education: University of Kentucky

9. Water Productivity
Amy Kaleita, Professor
Iowa State University
Education: University of Illinois, Urbana-Champaign

NP 211 Water Availability & Watershed Management, National Program Panel Chair Statements

Panel Chair responsibilities include providing the OSQR with a statement that describes their overall panel experience, how the panel was conducted, and general quality of the plans reviewed. It does not lend itself to discussing details of specific research project plan reviews nor attribution to individual panelists. Panel Chairs are given a format to follow for writing their statements, however, are free to discuss what they believe is important for broader audiences.

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13 January 2022

TO: Dr. Weidong Chen, Scientific Quality Review Officer
Office of Scientific Quality Review
Agricultural Research Service, USDA
5601 Sunnyside Avenue, MS 5142
Beltsville, MD 20705

RE: NP 211 –Summary of Panel Review Meeting on 1/10/22

The NP 211 Review Panel met via Zoom on Monday 1/10/2022 to discuss five project plans from USDA-ARS researchers across the western USA whose projects broadly related to irrigation water management in AZ, CA, CO, and ID. These generally applied research projects spanned scales of application from the lab/bench to water assessments and associated impacts of irrigated agriculture on regional scale water issues. Overall, the proposed plans were well-written, and the projects reasonably conceived with some having greater clarity and detail than others. Following broad panel discussion of each project objective, all of the proposals were ranked as requiring only "minor revisions". The reviewers prepared specific comments that underscored the value of the proposed research to irrigated agriculture in the western USA, outlined many strengths and highlighted some concerns usually related to the clarity of the research methods & procedures, a few concerns about needed support or collaboration and some suggestions towards clarifying or strengthening the research proposal and associated work. The reviews were thoughtfully prepared, and the reviewers seemed generally capable of addressing the key aspects of the proposed research. Following some delays during the fall of 2021, the process proceeded smoothly, and the USDA staff provided excellent support and clear instructions as needed throughout.

Four of the five proposals would be improved through creation of a conceptual model schematic of the overall vision and objective that contains the project objectives as they vary from process dynamics to field trials and regional assessments. These conceptual models should have sufficient detail to enable creation of overall research hypotheses and enable the reviewer as well as the lead project scientist to clearly 'see' where/how individual project objectives fit and add towards the overall project objective or vision. Such a schematic, or model, will facilitate changes in specific project approaches and possibly changes in sub-objectives as new researchers and technologies become available to the project lead.

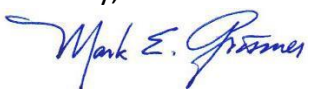
Typically, the last objective of each proposal considered an economic evaluation of some kind that was based on the knowledge and results gained from the prior objectives and the review panel as a whole lauded this effort. However, in some cases the economic analyses proposed were somewhat vague or loosely defined, perhaps in part as a result of not yet having the information needed to yet form a clearly defined research objective. We recommend that some support or further guidance be provided to the research leads with respect to developing clear economic analyses of their work.

Similarly, the panel recognized the importance of outreach/extension of the applied research knowledge gained from the proposed activities and strongly recommend that these be further supported and better documented in the project plans. As the "cloud" and web-based technology advances, much of the critical field data collected by the USDA-ARS researchers and their associated modeling codes should be placed in publicly accessible depositories for other researchers while the

project teams conduct their public outreach programs, or field days together with others from NRCS, State Cooperative Extension, or Resource Conservation District personnel among others.

We thank you for the opportunity to serve on the review panel and we enjoyed reviewing the respective research projects underway or developing at USDA-ARS.

Sincerely,



Mark E. Grismer
Professor of Hydrologic Sciences and Biological & Agricultural Engineering
UC Davis

George M. Hornberger
Distinguished University Professor Emeritus
Vanderbilt University
Nashville, TN

17 November 2021

Todd Ward, Ph.D.
Scientific Quality Review Officer
Office of Scientific Quality Review
Agricultural Research Service, USDA
5601 Sunnyside Avenue, MS 5142
Beltsville, MD 20705

Dear Dr Ward:

I write to provide my overview and assessment of the panel review of proposals in the Precision Irrigation area, part of ARS 211 Water Availability & Watershed Management National Program. Overall, I found that the review was handled well, that the panel recommendations were supported by reviewer analyses, and that the USDA logistic support for the effort was excellent.

The review team proved to be up to the task. Each reviewer provided thoughtful and serious written comments on the proposals. The reviewers were engaged during the panel meeting and open to discussing perspectives from others about the proposals. Consequently, the panel was able to reach consensus on recommendations in a smooth fashion.

There are a few things that could be done to increase the effectiveness of the review process. The proposals clearly describe work that builds on and extends research that has been in progress for many years. It sometimes was not clear, however, exactly what the *new aspects* of the proposed work were. The extensive introductory general review could be shortened a bit to make room for proposers to write a brief paragraph at the beginning of each subobjective on what important question was found to be open based on their previous work that they will answer in the proposed work. In the same vein, previous work done by the research groups could be used to point to the extent to which *new* and improved knowledge is expected to yield meaningful benefits to farmers. That is, describing expected practical significance and not just statistical significance of the proposed work would be helpful to reviewers. Another gap for some items in proposals is that there was not a clear identification of how the proposed work would contribute directly to addressing the specified objectives. Insisting that proposers carefully identify an item's connection to achieving an objective would be of benefit. Finally, the videos made available to the reviewers were not extremely useful. A short video overview of programs can be helpful to orient reviewers broadly, but it is unlikely

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that reviewers will devote hours of time to watching presentations of multiple research results absent any specific directions of how they connect to the review task at hand. One way that could increase the effectiveness would be to refer to specific videos to augment the description in the proposal itself of how previous work led to the research question (video appendices, if you will). In this way reviewers could delve into details on specific questions as they review proposals rather than being faced with the prospect of spending a lot of unstructured time viewing presentations.

In summary, reviewers found that the proposals in this program represent important extensions of the excellent previous and ongoing work of the various investigators. All reviewers participated fully and dealt effectively with working in a virtual meeting. Based on my experience, this panel was successful in providing review comments, as requested, that could be used in improving the proposals.

Sincerely,

Distinguished University Professor Emeritus

NDSU NORTH DAKOTA STATE UNIVERSITY

Xinhua Jia, Ph.D., PE, Professor
Department of Agricultural and Biosystems Engineering
North Dakota State University
Fargo, ND 58108

February 3, 2022

Weidong Chen, Ph.D.
Scientific Quality Review Officer
Office of Scientific Quality Review
Agricultural Research Service, USDA
5601 Sunnyside Avenue, MS 5142
Beltsville, MD 20705

Dear Dr. Chen:

I am Xinhua Jia, professor at the Department of Agricultural and Biosystems Engineering, North Dakota State University. I have been doing research in water resources for more than 20 years. I am honored to be invited and served as a panel chair for NP211, Panel 4 Drainage in the USDA ARS 211 Water Availability & Watershed Management National Program. This statement is my overview and assessment of the review process and the panel.

Since this is the first time I served as a panel chair for this program, I worked very closely with the contact persons in USDA throughout the entire process. We have selected the reviewers, while some were provided by USDA and others were suggested by me, but all with a strong background on the review topics. We had some difficulties on selecting a time for the panel review, but it worked out at the end and we were able to meet on January 19, 2022 via Zoom.

I especially liked the review process over Zoom because we were able to share the comments on the computer screen, discuss each proposal at a time, and make a group evaluation decision. When contrasting comments arose from the discussion, we were able to talk about it openly with the rationales, and arrive at a common ground that we have all agreed on. The review panel was relatively small, so each panelist was able to contribute to the evaluation. We have targeted a 30 min discussion time for each proposal, but we kept the discussion time flexible for each proposal, and our discussion for each proposal ranged from 21 min to 40 min. Our discussions during the review were very smooth, effective, efficient, and professional. The evaluation comments are mostly positive and constructive, with detailed suggestions to improve it if needed. The scriber from USDA was also very good, captured our discussion very well, and reaffirmed the final comments with the panelists.

I really enjoyed working with the panelists. They have submitted their written evaluation before the due time. The reviewers were very well prepared to talk about the proposal, while the discussion was led by the primary reviewer, followed by the secondary reviewer, and more by other panelists. The group also provided detailed recommendations for enhancements for each proposal. The overall review process was very smooth, friendly, and professionally. I believe that this panel has conducted a very good review. Several panelists expressed their appreciations working with this group as well.

Most reviewers are not familiar with the ARS proposal format, but they communicated with the USDA persons for clarifications, such as whether the objectives can be improved. It will be good to let the reviewers know in advance what part of the proposal need to be reviewed.

In summary, I believe the overall quality of the review process is good. Please let me know if you have any comments or questions about the review or this letter.

Sincerely,

Xinhua Jia

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November 4, 2021

Dr. Todd Ward, Ph.D.
Scientific Quality Review Officer
Office of Scientific Quality Review
Agricultural Research Service, USDA
5601 Sunnyside Avenue, MS 5142
Beltsville, MD 20705

Reference: Feedback on Panel 5 (Watershed Sciences)

Dear Dr. Ward:

Per guidance provided by the Office of Scientific Quality Review, As the Chair of the Panel 5 (Watershed Sciences), I hereby am providing some feedback regarding both proposed Plan structures and the review process that I hope will be of some help into the future. These comments and suggestions are a summary of what I have learned from our expert reviewers in the panel and my own observation of the process. I should note that I was honored to chair this panel and I had four very dedicated panelists who truly put their time and maximum effort in the whole review process. They were very thoughtful in their reviews and were able to identify both strengths of weaknesses of each proposed plan as appropriate. In addition, support staff from the Office of Scientific Quality Review were very helpful and accommodating during the whole process. Thank you to all!

Comments on Plan Structures:

1) In the section "Related Research", all the Plans have referenced current related research plans from USDA-NIFA and USDA-ARS, but they have failed to provide title and PI names of these projects, maybe as an Appendix. That would actually be good for the reviewer to know how related those projects are and also it can help the Co-PIs of the Plan to make contacts with the PIs of those projects during the course of their investigation and share notes, lessons, data, etc. Further, to better assess the novelty of the proposals, the scope of this section should be broadened to include other related research programs outside ARS, i.e. at least NIFA and possibly NSF.
2) Because objectives of the Plans are provided by the National Program Leaders, the Plans do not appropriately delve into the literature and synthesize it. Thus, they are generally lacking novelty when identifying science gaps and forming interconnected hypothesis, objectives, and methods. This caused most of the Plans to have many sub–objectives under each objective, and per reviewers' feedback, they were not always all coherent in achieving the initial goal.
3) We suggest each Plan to have a **Logic Diagram** to show how the different components of the proposed project link and lead into achieving the ultimate goal of the project. This will help the reviewers to understand better the sometimes-disconnected parts of the Plan.
4) Plans generally failed to identify the novelty. It would be more groundbreaking if the Plans clearly state novelty of their plan or novelty with each of their objectives. Again, such a claim could be made if researchers did a thorough literature synthesis and identified science gaps for which they were forming objectives/hypothesis.
5) Plans should provide certain fundamentals based on which any component of the project may be repeated by someone else or in some other location. In other words, could the same project be

repeated in some other location(s) besides the proposed research sites? Could the results be applicable and implantable in some other climatic and physiographic regions? Are sufficient details provided to comprehend what is proposed? We understand that there is a page limit like in any other proposal, but some of the objectives and tasks in the plans were hard to assess because they lacked important details to understand the feasibility, risk and relevance of these.

Comments on the Process:

1) Since the plans do not generally follow a rigorous process of literature synthesis, gap identification, formation of objectives and hypothesis, novelty is not there in most cases. Thus, the review appears to be more of a compliance exercise with the program than scientific scrutiny where reviewers are looking for novelty and broader impacts both in objectives and in the methods. We suggest that the plan preparation guidelines are revised to as the proponents to conduct a thorough literature review and identification of science gaps and formation of objectives, rather than being given by a set of objectives by the NPL(s). That is not to say that the national objectives are not relevant, but simply focusing of those detracts from the research logic and merit of what is proposed.
2) I suggest that the **Office of Scientific Quality Review** should first identify and secure the Panel Chair after sharing at least a short executive summary of the plans, and then letting the Chair to recruit appropriate reviewers. I think most often people recruited to chair a panel are those who know good number of experts within their field, thus they can find the most appropriate ones to serve. I found that the names were being suggested and it was being done in a very "hush/hush" manner that really did not give much latitude for the chair to recruit reviewers. When you are asking someone to commit a huge amount of time as a reviewer or a chair, they would like to know at least a short abstract of the plan before they can commit their time. Just stating that it is on "Watershed Sciences" is not often enough. Most of the scientist, including ARS Scientists, review papers or participate in competitive Grant proposal panels, thus they know the process and they usually receive an abstract of a paper or an executive summary of a research plan before they commit their time to serve.
3) Although we all do such service for the science and professional service, I strongly suggest that honorarium be compatible with the large time commitment on the part of each reviewer and the chair. These plans are very long and have many components.

Again, thank you for the opportunity to serve and provide comments in your review process. I have collaborated with many world-known USDA-ARS Scientists over the years and I have great respect for their professional dedication and accomplishments. I also got an impression that the PIs of the Plans submitted to Panel 5 have tremendous scientific expertise and I am certain that they will produce significant outcomes through their proposed research. I also hope that they will be able to use the reviewers' suggestions to enhance their plans as appropriate.

Thank you.

Sincerely,

Adel Shirmohammadi
Professor and Former Associate Dean for Research and Associate Director
Chair of Panel 5 (watershed Sciences)

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Todd Ward, Ph.D.
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October 25, 2021

RE: NP 211 Panel 6 Decision
Support Chair Statement

Dear Dr. Ward:

Below I am providing an overview of the NP211 Panel 6 Decision Support Tools Review that was performed recently.

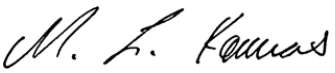
Panel 6 reviews involved three project plans on the NP211 on Water Availability and Watershed Management. The review process was initiated at the end of August 2021 and a review panel, consisting of the panel chair and three experts on watershed hydrology, land surface processes and hydraulics was formed. For each of the project plans a primary reviewer and a secondary reviewer from the panel were assigned in early September 2021. Then the panel chair and panel members received the review material on project plans and review forms by September 21, and a panel orientation was held on September 23. The panel members submitted their reviews to the USDA/ ARS program analyst by October 15. Finally, a panel meeting was held on Zoom on October 22 for the assessment of the three project plans. During the panel meeting each of the three project plans were discussed individually in detail, and then were rated by each of the panel members and the chair.

Based on their reviews and the panel discussion, it became clear that all of the three reviewed project plans were well-prepared and consistent with the mission and goals of NP211 Water Availability and Watershed Management Program Action Plan. The ARS scientists who will participate in the reviewed projects have excellent training and capability to execute the planned projects. All three projects have high probability of successfully meeting their stated objectives.

The review panel members did perform their respective reviews in detail and on time. Their detailed reviews facilitated in-depth analyses of the three project plans during the panel review meeting.

Overall, under the excellent guidance of the USDA/ARS program analyst and the director the review process went very smoothly with results to the satisfaction of all the review panel members. The only issue the panel faced was its timing which fell to the very busy Fall teaching period of the academics in the panel.

With best regards,



M.L. Kavvas, Panel Chair
ASCE Distinguished Member and ASCE Fellow
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COLLEGE OF AGRICULTURE AND LIFE SCIENCES
COLLEGE OF ENGINEERING

BIOLOGICAL AND AGRICULTURAL ENGINEERING DEPARTMENT

November 21, 2021

To:
Dr. Todd Ward
Scientific Quality Review Officer
Office of Scientific Quality Review (OSQR)
Agricultural Research Service, USDA
5601 Sunnyside Avenue, MS 5142
Beltsville, MD 20705

Ref: USDA-ARS NP 211 Panel 7 LTAR-Water Availability & Watershed Management Panel Summary

Dear Dr. Ward:

On November 16, USDA-ARS NP Panel 7 LTAR met over zoom comprising of 6 national experts on agricultural watershed management, water quality, surface and ground water interaction, systems analyses and socio economics, irrigation/drainage, ecohydrology, remote sensing, soil physics, and near surface hydrology, supported by your office, OSQR. The subject area experts were selected across the nation cutting across research expertise, regional scope of the plans, demography, as well as accounting for no conflict-of-interest with the ARS scientists of the proposed research plans under consideration. OSQR did a fabulous job of coordinating the event, training the panel members via video conferencing, checking the conflict of interest, and sharing the research plans early with the panel members for review. Assignments of primary and secondary panelist for each research plan were coordinated by the panel chair based on the key research areas. Written reviews were collected prior to the panel meeting and synthesized for each plan by OSQR for facilitating the discussion during the panel meeting. All five panelists did a thorough job reflecting the strengths and weaknesses of each plan in various proposed objectives. During the panel meeting, further adjustments in the comments were made based on the discussion by the primary and secondary panel members to bring a consensus view and constructive criticism/recommendations. Overall, several proposals passed the review with minor/moderate revision, while few others were recommended for major revision and re-review. Panel 7 observed the following common attributes for these research plans, which may help ARS for future such plan development and their review process.

- most of the research plans under review were solid and commendable in respective data gathering efforts utilizing various laboratory experiments, field monitoring activities, UAS campaigns, satellite remote sensing, and other sampling techniques.

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- many plans were presented without providing connections and flow of information across the multiple objectives to evaluate the feasibility of the efforts and/or error propagation and corresponding uncertainties in their outputs or outlooks.
- in various occasions, detail information of the ARS-LTAR study sites, or similar ongoing/past efforts were not elaborated, assuming it may be trivial. However, this lack of information put the external reviewers (outside of ARS) in a disadvantageous position to judge the state-of-the situation and perform a fair assessment of the plans.
- in many plans various numerical models such as SWAT, MODFLOW, APEX, AnnAGNPS were suggested for adoption without considering their limitations (mis-match scale issues in governing processes, incoherent data availability, missing underlying depiction of physical, chemical, biological, socio-economic processes and/or human-environment intervention functions).
- in few occasions, many vacancies of FTE beg the question, the proposed plan may not commensurate with the pending talents (yet to be filled!).
- lack of competition across various plans or teams minimizes the incentive for the ARS scientists to utilize the valuable long-term data collected by LTAR and other such ARS facilities to their fullest extent in terms of scientific discovery and applications!

Finally, on behalf of our entire expert panel, I very much appreciate the opportunity to be part of this important review and feedback process of national significance.

Sincerely,

Binayak P Mohanty
Regents Professor and COALS Chair in Hydrologic Engineering and Sciences

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December 21, 2021

Todd Ward, PhD
Scientific Quality Review Officer
Office of Scientific Quality Review
Agricultural Research Service, USDA
5601 Sunnyside Avenue, MS 5142
Beltsville, MD 20705

Dear Dr. Ward,

The scientific review panel consisted of three experts in the areas of water resources modeling and management and nutrient and sediment transport. On December 15, 2021, the panel met to review three projects focused on water availability and watershed management. Each panel member had approximately four weeks to review the proposals either as the primary or the secondary reviewer. One week prior to the panel, panelists submitted detailed review comments to ARS for compilation and distribution to the entire panel for review. During the panel review, primary and secondary reviewers provided an overview of the proposals along with specific plan comments. All panelists were invited to comment on all plans during the panel meeting. Overall, comments were favorable for the project plans.

The entire process was well-organized and efficiently managed. Panelists were well prepared, provided in-depth and insightful comments, and responded to tasks in a timely manner. Areas of expertise among panelists complimented each other and the project plans.

Thank you for the opportunity to lead this USDA-ARS scientific review panel.

Please let me know if you have any additional questions.

Sincerely,

Carmen T. Agouridis, PhD, PE, MPP, MBA
Associate Dean for Instruction
Extension Professor, Biosystems and Agricultural Engineering

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April 1, 2021

Todd Ward, Ph.D.
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From: Amy Kaleita, 211 Panel 9 Chair

Please consider this my report on 211 Panel 9: Water Productivity.

Dear Dr. Ward,

Three panelists were recruited to provide review. These scientists and researchers represented different disciplinary backgrounds, different career stages, and different geographical regions of expertise. One challenge in recruiting for this panel is that the projects under review, while all related to water productivity, were themselves quite diverse in technical content and focus area. As such, identifying reviewers who could capably review at least two of the projects limited the pool of people who might be invited. And as with many service responsibilities, it was not easy to arrange a small but diverse slate of reviewers who actually felt they had the necessary time to commit to this process.

However, I believe that as the panel chair I was given the necessary information and training to facilitate this process, and was supported in full by the staff who ensured that proposed reviewers had no conflicts of interest or other barriers to their service, before I made an invitation. Staff also followed up in a timely manner to provide adequate training to the reviewers who agreed to be part of the panel.

Support on the day of the panel was also invaluable. Because this type of project review is different than other proposal reviews that people may have done before, having staff on hand during the discussion was helpful in

addressing any questions I or the reviewers may have had about process and structure for these projects and for a fair and comprehensive review.

Thank you,

Amy Kaleita, PhD PE
Professor & Department Chair
Agricultural & Biosystems Engineering
Iowa State University