

**Summary of Comments from the Waffle Project  
Agency Advisory Board Meeting  
October 22, 2002**

**Chuck Fritz**

- Asked about the fudge factor for storage volume.
- Stated that Gerry Groenewold needs to talk with Lance Yohe, so there can be a joint effort, with no duplication.
- Stated that the Wild Rice River in Minnesota is very well studied and would make a good selection for a subwatershed to model. Also stated that other subwatersheds in the basin would be receptive of efforts to focus on their issues.
- Indicated that the Wild Rice watershed is ripe for involvement with flood mitigation activities.
- Stated that farmers will not understand removing their land from productivity.

**Dean Wieland**

- See if Waffle concept has been used/implemented abroad.

**Dave Sprynczynatyk**

- Indicated that the public perception is a challenge. The “old” version/definition of the Waffle is significantly different than what he just heard in Bethany Bolles’ presentation. The project needs to change its image. A name change is necessary to get past the old concepts of the Waffle plan.
- Stated that a lot has been tried in the past (modeling). Need to focus on what is real vs. what is ideal. Emphasized the need to start small and work up in scale.
- Reemphasized the need to look at a subbasin first. Also reiterated the need for combining science with societal needs, values, and perceptions. Stated that the initial perception of the Waffle was that the EERC would say where and when water would be stored.

**Ed Steadman**

- Stated that the project is evolving.
- Said that coordinating efforts is our goal and indicated that the issue of trust is valid.
- Stated that there may be different methods of applying the Waffle to each watershed. So watershed managers should help to determine the appropriate approach.
- Commented on the need to know the fundamental data for decision making.
- Stated that we need to have some public interface to accomplish the project and cover all aspects.

**Leon Osborne**

- Suggested the use of radar as an estimator of water content.
- Is currently developing a GIS component.
- Stated that improved data input is needed (near real-time). New methods for determining accurate determination of spatial distribution of snow water equivalent/moisture before the melt starts. He questioned the use of a steady-state 1-D model in conjunction with an anomalous rainfall event during the melt.

- Indicated that in addition to manual measurements at scattered stations, evolving radar-based estimates are being refined to provide data on a 2-km by 2-km resolution.
  - Suggested that the project name be changed. There are some misconceptions from the original promotion of the idea.
- Indicated that the detail of the model should allow for the inclusion of structural approaches.

### **Roger Hollevoet**

- Stated that social and political concerns are important, that a socially acceptable scientific approach was needed.
- Stated that many environmental groups would not want to see native prairie areas flooded.
- Suggested that the *Waffle* study include the impact of land practice modifications on water/moisture retention.
- Focus on flood storage using the capability of the soil.
- Look at the potential of the soil and consider examining the less-than-prime soils for Waffle use.
- Study highly tilled areas versus grassland areas for soil retention.
- Consider storage/management of water/land use. There is a Texas A&M study addressing these issues.
- Define what microstorage is? What is really being discussed is distributed storage.
- We should have some entity speak on half of the Waffle group to the citizens or at least be introduced by the DNR or some other agency at public meeting.

### **Genevieve Thompson**

- Stated that no overall model integrating hydrology and (wide scale) conservation practices exists. Stressed the need for a common currency of technology and the ability to transfer the technology and approaches.
- Said it was nice to hear that the Waffle was going to look into an expanded list of storage opportunities.
- Questioned the presence of a level of trust and team spirit across the board (water management community).
- Stated that there should be some effort to leverage current landowner activities in watershed management. Also, what benefits will the landowners and rural entities get from the implementation of the Waffle plan? Rural residents wonder why Grand Forks is more important than me. Also stated that in the near future there will be new efforts at a subwatershed scale and the question will be to either integrate the Waffle model or start something new.
- Commented on the usefulness of the model as defined to determine wise management of land that will encompass all types of water storage. Flood prevention to avoid costs for flood cleanup and rebuilding.
- Commented on the implementation aspect and wonders as implementation moves forward, how do other management activities affect necessary storage.
- Also stressed a “common currency” for this study and other studies under way and in the future.
- Stated that the EERC should not promote itself as all things to all people and to avoid the impression of empire building. There needs to be the development of partnerships and the EERC should do its part in the bigger picture and recognize the validity of others’ work.

### **Bethany Bolles**

- Asked what technology is currently employed for estimating snow water equivalents.
- Stated that the project was originally going to consider soil types but not land use practices.
- Briefly discussed the issue of what model(s) should be used in this effort.
- Brought up the issue in a letter to the Grand Forks Herald stating that the Waffle project would “destroy agriculture.” Brought up several of the issues that were submitted by Bill Schuh of the North Dakota State Water Commission (NDSWC) concerning the benefits/hindrances to agriculture of storing water in the spring.
- Discussed the approach of examining the various physiographic regions of the basin and their suitability for water storage.
- Discussed the concept of water storage as being beneficial to all.
- Stated that there may be the need to have structures to make up for insufficient natural storage.

### **Xixi Wang**

- Explained the application of SWAT and RZWQM field-scale models for incorporating the factors brought up by Roger Hollevoet.
- Discussed the integration of various models and the level of detail needed to accurately apply these models to the issues that are being brought up.

### **Roger Hollevoet**

- Stated that the selection process for potential storage areas should be a combination of topography + soils + land use. Utilize the conservation agriculture approach of using nonprime farmland for purposes other than crops.
- Stated that the EERC needs to better define the role of the Waffle to avoid more bad press. Good press will integrate social and scientific approach.
- Brought up the huge leap from scientific results to on-the-ground study/implementation. Asked whether the EERC should have face-to-face meetings with the public or if that should be left to those that already have the connections. Maybe the EERC should stick to the technical staff.
- It is stated that the EERC needs solid results to maintain credibility.
- Stated that there needs to be clarification of what the EERC is doing; specifics are needed.
- Suggested that maybe the EERC could communicate its message through other groups.
- Wanted to know what the difference is between artificial storage and natural storage and exactly how comprehensive the Waffle study will be.
- Again asked about the definition of structural vs. nonstructural. Was also concerned about the statement of examining wetlands as water storage mechanisms. Will all wetlands be explored?
- Wanted to know how nonstructural the Waffle approach will be and asked how we plan to add storage without structural improvements.
- Asked about building small water control features to develop wetlands (Kelly’s Slough style) versus building larger impoundments.
- Added the same sentiment about the Waterfowl/ Wildlife Management Areas (WMA) and the Waterfowl production areas (WPA) in North Dakota. Most are at design capacity.
- Again asked for a specific definition of what the Waffle hopes to accomplish.

## **Lynette de Silva**

- Commented that the water boards have felt left out and that a concerted effort will be made to consult with and address the concerns of the water board members and landowners.

## **James Schmidt**

- Stated that the main concern for many landowners would not be how long the water was stored on the land, but what would the physical impact to the land be, e.g., increased salinity, erosion.
- Stressed that the people/groups that would be implementing the plan should be leaders in the project.
- Said that there is a subwatershed prioritization process available. The resulting selection should be well defined and simple to model/analyze. Also stressed the need to get local involvement at the subwatershed level.
- Stated that some subwatersheds already have flood control structures that would be useful for modeling.
- Commented that we need to go back to the people/groups that will be putting the practice on the ground. Without them, the study results will be put on the shelves.
- Suggested a scaled approach for water storage scenarios. For 100-year events or greater, structural options may be necessary. Also questioned the economics of planning for 500-year events. In addition, stated that the limits of the implementing agencies should be taken into consideration. If the resulting tool is not usable by agencies, then that agency will have to redo the model.
- Reiterates the question as to the definition of structural. Asked that we specify various methods of storage, indicate where they might be used, and then allow the locals to determine the most acceptable choice.
- Take the boarder approach.
- Don't limit the study to just one type of storage.
- Show the economics of several structural and nonstructural approaches and we are more likely to get the buy-in of the citizens.
- Also indicated that in many cases landowners would support the building of a dam rather than flooding their land.
- Would like the results of the project to be able to show the differences between nonstructural and structural scenarios and/or land practice modifications.
- Farmers are less concerned about the length of time water has been on their land and more concerned with erosion and soil compaction.
- Focus on subwatershed.
- The social aspects of this project far outweigh the scientific aspects. Even if the project is feasible, without the support of the citizens it will not be selected by government entities for implementation.
- Setting up the Citizens Advisory Board is more vital than the Agency Advisory Board.
- Find out what models are currently being utilized in the basin.
- Ensure that whatever is being done in this study can be of use to these entities,
- Make sure it surpasses whatever models they currently utilize.
- An approach that takes into account storing water in other kinds of structures would make the final model of greater use to the U.S. Army Corps of Engineers (USACE) and other government entities.

- Plans on having the Waffle team talk with his hydrologist about the modeling aspect to discuss what they currently utilize.

### **Mark Luther**

- Discussed the required approach of where to do detailed modeling.
- Stated that the Waffle approach was conceived partly because of the difficulty in getting approval to build dams.
- Brought up the issue of how much storage is available vs. how much storage would be needed.

### **Randy Gjestvang**

- Stated that we should not give up on convincing the Joint Water Resource Board (of ND).

### **Jim Solstad**

- Commented on the options between microstorage vs. large storage options. There will most likely be the need for something like dams or dry dams.
- Recommended taking a broader look at water retention outside of the realm of road-bounded storage.
- Views the EERC as providing the model, not necessarily the method. In this case microstorage would no longer be the focus. A different take on the approach to modeling, not methodology, would be the focus of the EERC efforts.
- Suggested referring to the project as Distributed Storage. He also stated that there would be little likelihood of storing additional water on WMAS in Minnesota regardless of the time of year.

### **Scott Jutila**

- Indicated that there will need to be some degree of off-channel storage structure.
- Stated that the finer-scale distributed model proposed by the Waffle will be an improvement.

### **Additional Comments**

- Consider looking at land use/land cover in conjunction with soil characteristics as a function of water storage potential.
- The NRCS has a mandate(?) for dam restoration/improvements.
- Consider examining potential benefits of improvements to current structures. Is it outside the scope of the project?
- The group indicated that there will be more support from the water boards if a full range of storage options is explored.
- Comments were made that microstorage would be good for 25- or 50-year events.
- There was then a discussion of how to determine the benefit/cost ratio for structural vs. nonstructural and microstorage. Relatively easy to establish benefit but very difficult to predict cost.