Proposed Responses to Comments on the Riverine Erosion Discussion Paper

Discussion Paper Chronology

* Concept initially proposed at ASFPM National Meeting in Reno, NV (2008)
* Discussion paper on Committee Agenda 2009-2011.
* Concept of Riverine Erosion discussion paper presented at Arid Regions Session at ASFPM National Conference in May 2010 (Oklahoma City).
* Initial draft of discussion paper distributed to Arid Regions committee as an outline with January 4, 2011 agenda.
* Sub-committee formed to complete discussion paper (J.Fuller, M. McIntosh, T.Walker) in March 2011. Comments solicited from Arid Regions Committee.
* Final draft submitted to Arid Regions in April 2011. Posted on ASFPM website & comments solicited.
* Draft presented at ASFPM National Conference Technical Session and in Arid Regions Early Bird Session in May 2011 (Louisville). Comments solicited from audience.

Comments and proposed responses are provided on the following pages in tabular format.

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| **Comments & Responses** |
| 1 | Email. 7/9/2010  | I indicated to Jeanne that I will be interested to work with you on this white paper. If I understand it correctly, we are planning on establishing an outline of a white paper on channel migration zones for policy making purposes. Is that correct? The biggest question that I ran into was, how can this information be blended in with NFIP and hence, for insurance purposes. Since this white paper will be developed under the Arid Regions Committee umbrella, is it only going to discuss issues pertaining to the arid southwest? In that case, are we going to develop some sort of an exponential equation to determine site specific limits of channel migration by using physical characteristics of watercourse? Please let me know if you have any specific ideas in mind. I will research some material over next few weeks. Thank you Jon. |
| Mandar Nangare/ Maricopa County FCD |
| **Response** | This comment pre-dates the initial draft of the discussion paper. Mr. Nangare was invited to participate in drafting the paper. His comments were incorporated into the initial drafts.  |
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| 2 | Email. 2/7/2011 2:22 pm | Jon,It might be appropriate to discuss that some (and perhaps many) communities lack the resources and/or background data (detailed topography, historical aerial photography, etc.) to do an adequate job of assessing erosion hazards.  I see this as being a long process on a nationwide scale so there needs to be some effort to generate or gather such data immediately that will be helpful down the line as the methodology of mapping erosion hazards comes to fruition.  Some clarification would be helpful in the introduction regarding the damage figure.  Is $450 million an annual estimate, just for the year 1999, or from year XXXX to year XXXX?  How does it compare to flood water damages for the same time period?  Some comparison might prove useful.A national effort to map erosion hazards would be fantastic, and I hope the idea gains traction |
| Brian Jones/Pima County RFCD |
| **Response** | This comment was in response to the initial outline of the paper distributed in January 2011. Mr. Jones’ comments were incorporated into the April 2011 draft. |
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| 3 | Email. 2/7/2011 9:08 am | My only suggestion is a possible new bullet for the introductionLateral erosion may greatly increase infrastructure and utilities design, installation and maintenance costs |
| Greg Saxe/Pima County RFCD |
| **Response** | This comment was in response to the initial outline of the paper distributed in January 2011. Mr. Saxe’s comment was incorporated into Problem Statement section of the April 2011 draft. |
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| 4 | Email. 4/26/2011 7:52 am | Jon, this is really great!  Can I attach this to the agenda for next week?  Could you provide dates for all of the photos?  I am particularly interested in the photo from Caliente, NV…I had not seen this photo before.  I did a quick read, will look more closely tomorrow…I know this is a big issue across the country, not just an arid issue.  Thank you all so much! |
| Jeanne M. Ruefer, CFM, PMPRegion IX Program Management Lead1111 Broadway, Suite 1200Oakland, California  94607 |
| **Response** | No response needed. |
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| 5 | Email. 5/13/2011 1:28 pm | Not [any comments] yet on my end Jon.  When do you come in Louisville?  When is latest you can accept comments before meeting? |
| Robert L. Davies Jr. PE, PH CFMAMEC Earth & EnvironmentalSenior Water Resources Engineer1405 W. Auto DriveTempe, Az. 85284 |
| **Response** | No response needed. |
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| 6 | Email. 5/23/2011, 12:29 pm. | Hello Jon Fuller,  Thank you very much for your presentation Thursday at ASFPM on “Riverine Erosion Hazards and Floodplain Management: A White Paper”.    During the presentation I believe you mentioned that the paper is in draft form.   As you noted in your presentation, Vermont is doing related work,  I’m sure it would be helpful to us to become more familiar with your work.  Is the paper posted somewhere?Thank you for keeping this issue moving!   Best wishes,   Ned  |
| Ned SwanbergFlood Hazard Mapping CoordinatorVermont DEC103 South Main St., Bldg 10 NWaterbury, VT 05671-0408 |
| Response | No response needed. |
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| 7 | Email. 6/7/2011, 12:16 pm. | Here are a couple of thoughts and suggestions:Add to Recommendation #4:Survey communities representative of climatic regions to inventory methods for erosion hazard delineation in use.Investigate whether methods vary significantly by region.Establish effectiveness of methods in use.Survey available methods and establish if additional, scientifically-based, models should be developed *(That is, do we NEED new methods or do we already have some from which we should choose the best available practice?)*Relative to Recommendations #5 and #6:There may be some additional thought or discussion required before we put mitigation measures in this paper.  The definition of sufficient mitigation could lead to the need for a certification process similar to levee certification.  *(How could Pima County, for example, prove conclusively that the bank protection on the Rillito River reduces the erosion hazard area to zero? Or something less than is established for other similar watercourses?  Maybe Step 1 is to have a work group sign off on methodologies.  Step 2 is to complete some multi-regional pilot assessments to see what the extent of the problem is shaping up to be.)*Relative to Recommendation #8:FEMA or other national entity should fund a study of multi-regional aerial historic photography databases to determine which major watercourses have exhibited the most dramatic lateral migration over time. Idea for a new paper:  Debris FlowsWell, that’s all my brain can do for now. |
| Ann B. Moynihan, P.E., CFM*Planning and Development Division****Pima County Regional Flood Control District***97 E. Congress, 3rd FloorTucson AZ  85701 |
| **Response** | The committee discussed Ms. Moynihan’s comments and incorporated them to the extent possible in the final draft. In general, the committee felt that while the reviewer made excellent suggestions, they were beyond the scope of the discussion paper, and would fit better as part of an action plan to be formulated after the discussion paper was adopted.  |
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| 8 | Email. Monday, June 27, 2011 8:13 AM | Dear ASFPM Arid Regions Committee Co-ChairsThank you for your leadership and effort towards furthering the ASFPM vision and goals as related to the Arid Regions.    I am an interested member of the ASFPM Arid Regions Committee that would like to extend my assistance by becoming more active in your work.  To start, I would like to share a few concerns I have regarding the direction and priorities of the Committee with regards to the needs related to the subject of Riverine Erosion.The primary concern that I have is that extensive work has already been done by FEMA in this area and has not been considered in the Committee’s decision/direction to solicit a white paper on “ *Riverine Erosion Areas and Floodplain Management”*  and within the corresponding presentation at the 2011 ASFPM National Conference.  Such white paper and/or presentation would  have been more useful if it built upon previous work, especially when recent FEMA study work already exists, that investigates the same riverine erosion problem and provides conclusions and recommendations more clearly and in more detail (FEMA 1999, below) than that provided in the proposed white paper.  **Response: We respectfully disagree. FEMA’s REHA study (1999) is referenced in the 1st sentence of the discussion paper as well as other places throughout the paper. Past FEMA work on this issue is summarized in the “Background” section of the paper.** The National Flood Insurance Reform Act (NFIRA) passed in 1994 required FEMA to submit a technical study documenting the feasibility of mapping Riverine Erosion Hazard Areas (REHA’s) along with its economic impact on the National Flood Insurance Program (NFIP).  This study was entitled *Riverine Erosion Hazard Areas, Mapping Feasibility Study* and was completed in September 1999.  The study was presented in an annual report to The Honorable James E. Witt, Director of the Federal Emergency Management Agency (FEMA) in 2000.  This study went through a comprehensive review process that took several years to complete.  Part of this process included review by a Project Working Group (PWG) which included several members of ASFPM.  I was a member of the 1999 FEMA study team as a FEMA contractor.  **Response: We respectfully disagree. See previous response.**I am concerned that the committee has apparently allocated and spent considerable time to put together the white paper that in essence is a shorter synopsis of the 1999 FEMA study with no additional detail and some major omissions.  With that said, a synopsis of the 1999 FEMA study is included below.  A link to the 1999 FEMA study can be seen and downloaded for review at the following internet location:   <http://www.fema.gov/library/viewRecord.do?id=2209>**Response: The committee is well aware of the 1999 FEMA study, as well as its presentation to FEMA management in 2000. The lack of action on the part of FEMA in response to the 1999 REHA study is one of the main reasons that this paper was written. There was no intent or attempt to re-invent or reiterate the content of the REHA study in this discussion paper.** The study proposed to consider stream reaches prone to erosion and/or channel instability differently from reaches that do not face such problems and the current way that hydraulic modeling is performed (which is that the stream centerline remains unchanged).  The study included communities throughout the country as case studies that have erosion methodologies in place.  The study specifically highlighted the following conclusions and further needs: * Riverine Erosion Hazard Areas (REHA’s) can be mapped.  There is an assortment of analysis techniques available and flexibility is key for site-specific locations.
* Implementation of erosion regulations can be done as an extension of the NFIP or delegated to local jurisdictions with support from the federal government.
* Understand the physical processes of erosion and channel instability along with their causes
* Evaluate and approve mapping techniques
* Develop appropriate insurance procedures and standards for areas prone to erosion and/or channel instability
* Evaluate methodologies for mitigating erosion and channel instability
* Develop quantitative and qualitative procedures for approval or disapproval of proposed mitigation of erosion and channel instability

Based upon the above summary, it can be seen that the 1999 FEMA study addressed the areas outlined in the Arid Region Riverine Erosion White Paper and presentation, but more clearly and in more detail.  Numerous other technical papers and studies such as *The Heinz Center Evaluation of Erosion Hazards (2000)* have further investigated issues associated with erosion.  I would suggest that instead of  “reinventing the wheel” the Arid Region Committee do the following:**Response: We note that the Heinz Center study evaluated coastal, not riverine, erosion.** * FEMA has already performed a study of REHA’s under NFIRA 1994.  It is nationally understood that REHA’s exist and are a major concern.  Instead of stating generalities, focus on why FEMA has not taken the next step and implemented its own findings.  Could it very well be that the economic and regulatory costs exceed the benefit?  It could also be that due to the geographical uniqueness of erosion hazards a local community approach is more suitable than a national/federal approach?
* Ask how the Arid Region Committee can help FEMA better evaluate the findings presented in the 1999 study and other pertinent studies.  Maybe a more detailed analysis of cost-benefit ratio would prove helpful in showing the need for REHA’s?

**Response: The committee believes that the recommendations in the paper already focus on urging FEMA to take the “next steps.” The paper already addresses the need for flexibility of delineation and management approaches. We concur with the reviewer’s suggestion to consider cost/benefits of riverine erosion hazard management.** I think we all agree that the risk from erosion and channel instability are real, the financial costs are substantial, and  something more needs to be done in evaluating this risk; whether it be from the local/community/state standpoint as currently exists or potentially exists in the federal front in the future.  However, I would strongly suggest that the need for and/or the current direction/focus of the white paper is re-evaluated so that instead of repeating the work that has already been done, more meaningful and helpful issues are investigated and recommended upon. **Response: We disagree that that paper recommends repeating work that has already been done. We believe that the focus is on implementing and clarifying FEMA’s intent with regard to riverine erosion, increasing the level of local awareness of erosion hazards, and protecting the public from harm.**Furthermore, we are concerned that the Arid Region Committee has recently supported two contradictory papers.  The first “discussion” paper was concluded last year and stated the need for “new” mapping techniques in regards to alluvial fan analysis.  The alluvial fan “discussion” paper is proposing to map areas of high hazard and low hazard  on an alluvial fan.  This position allows the placement of fill in ‘ultrahazardous’ areas which can be subject to the same erosion discussed with the riverine erosion white paper currently being supported by the Arid Region Committee.  To further emphasize the Committee’s conflicting positions, the 1999 FEMA riverine erosion study includes in Section 4.3 “Probabilistic Spatial Assessment of River Channel Instability”.  Using stochastic methods similar to FEMA’s “FAN”, the investigation came to the same conclusions regarding flow path uncertainty that FEMA’s alluvial fan analysis does.  Further, the investigation concluded: *“Although similar assumptions of system stationarity are common in engineering and hydrologic deterministic models, stationarity may not be assumed for erosion problems.”***Response: We strongly object to characterizing any of the work of the Arid Regions Committee as promoting development in flood hazard areas. It is unclear how the reviewer’s objections to the alluvial fan discussion paper are relevant to the riverine erosion paper.** In closing, I hope that the Committee would view my comments as constructive criticism and a call for a re-evaluation of the direction and focus of the Committee that can result in an improved approach.  To help the Committee succeed in further efforts towards achievement of  ASFPM's vision and goals as related to Arid Region issues, I would like to offer a helping hand and assist the Committee in any way I can.**Response: The committee welcomes Mr. Rezakhani’s active participation in improving, editing and modifying the draft discussion paper.**  |
| Massoud Rezakhani, CFMPrincipalMRC LLC |
| **Response** | The committee thanks Mr. Rezakhani for his detailed review of the discussion paper. Due to the number of comments provided, specific responses were inserted into the text above.  |
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| 1 | Email. 8/3/2011, 11:32 a.m | Jon,I got your message.   I think the riverine erosion topic is a good topic for the Arid Regions Committee.  My concern is that it not be the product of a small self-selected subcommittee, as was described in the call.   Anything worth doing is worth doing correctly.   In order to address the different state, local and federal regulatory requirements as well as the technical issues involved, it would be better to reach out to a broader set of participants.  This was also the conclusion that was reached during the call.  So, if we carry out that recommendation to engage other interested members and take more time to develop the problem statement, regulatory options and technical approaches to hazard identification, we would have a better product.   |
| **Mark Forest** **HDR** | **One Company** | ***Many Solutions*** 9805 Double R Boulevard, Suite 101 | Reno, NV | 89521 |
| **Response** | Mr. Forest’s characterization of the committee as “self-selected” is incorrect. The agendas of the Arid Region Committee clearly indicate a rigorous effort to solicit participants and to obtain input from all interested parties over a several year period. We also note that Mr. Forest does not provide any comments on the content of the discussion paper.  |
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