

Assessment of Hydraulics and Hydrology (H&H) Capabilities in USACE

Implementation Progress Briefing



William Branch,
Task Force Leader

Situation

Hydraulics and Hydrology is a core technical expertise that forms the foundation of the Corps Civil Works program

- **Key support within areas of technical expertise include:**
 - Develop critical design parameters for CW Projects
 - Provide technical basis for project development
 - Regulate water control infrastructure
 - Support natural disaster response
 - Support OSD for Theater Operations

Situation

Recent key staff retirements revealed looming crisis in H&H expertise in field and HQ

Strategic evaluation accomplished at HQ

Staff recommended task force establishment to thoroughly evaluate options (similar to Planning Assessment)

Team Leader for assessment selected

Charter

Task force established by DCW and DMP, 14 March 2001

- Evaluate options to restore and retain H&H Technical Competency in USACE
- Systematic corporate response
- Integrates current business processes and organizational structure
- Emphasis placed on RBC and PDT

Task Force Membership: HQ (1); MSCs (6); Districts (8); Labs (2); FOA (2); Recent Retirees (2)

H&H Capability Survey

Sent to all Districts, MSC, Labs, FOA, HQUSACE

Data gathered included approximately 1100 H&H staff

Conclusions:

- 19% of Districts believe H&H capability is inadequate
- 50% of the Districts have chronic H&H position vacancies
- Significant fraction of experienced H&H staff will reach retirement age within next five years
- HQ H&H staff currently under-resourced
- 86% of time Districts have technical or policy questions they do not go to HQUSACE for answers
- Only 17% of the time do MSCs go to HQUSAC

Senior H&H technical specialists grade levels not on par with other technical specialties and project management

H&H staff feel disenfranchised

Identified Field Concerns

- Restoring visibility and role of H&H as the core technical expertise that is the foundation of the Corps Civil Works program.
- Re-establishing an effective HQ H&H team and technical leadership
- Improved definition of division H&H role
- Providing a road map for training and development
- Building a solid career ladder for H&H staff
- Recognizing that maintaining in-house H&H software development and maintenance is essential element of Corps achieving standing as a “world class” engineering organization

Implementation Progress

Recommendation #1 - Restore visibility and role of Hydraulics and Hydrology (H&H) as a core technical expertise that forms the foundation of the Corps Civil Works program

- That HQUSACE senior leaders use appropriate opportunities and venues to accomplish this goal by speaking to the role of H&H in Corps and public forums, and issuing letters and directives to subordinate Commanders requesting their assistance in restoring the visibility and role of H&H as a core CW function.

Status –

- Chief E&C Division and Dep. Director of CW spoke at conferences and meetings in 2001 and they are here at the Watershed System Conference.
- HQUSACE senior leadership spoke in support of H&H in several forums
- E-mail sent encouraging H&H staff to apply for Team Leader Position
- Selection of H&H Team Leader
- Selection of two GS-14's completed
- Watershed System Conference held to include all H&H functions

Implementation Progress

- **Recommendation #2** - Restore visibility and role of Hydraulics and Hydrology (H&H) as a core technical expertise that forms the foundation of the Corps Civil Works program
 - Designate the Watershed Team Leader as the Corporate Champion and Corps Technical Leader for H&H. Create business processes that ensure that the Watershed Team Leader is invited to attend all HQ briefings and meetings that concern water resource projects, studies or issues.
- **Status –**
 - ACCOMPLISHED - Watershed Team Leader accepted as Corps Principal H&H Engineer
 - “Watershed Team” has not been renamed “Hydrology and Hydraulics Team”
 - A letter Corps-wide announcing selection of H&H Team Leader has not been sent

Implementation Progress

- **Recommendation #3** - Re-establishment of an effective HQ H&H team
 - That the HQ Watershed Team apply the PMBP by: (1) Supporting project delivery teams at USACE districts and divisions (vertical integration) using BG Madsen's concept of SPD District Support Teams as described in the Task Force Report, and (2) Providing technical leadership by communicating with H&H leadership at national meetings which focus on H&H issues (2 meetings per year), and including representatives from Engineering/Construction, Project/Programs Management, Planning & Policy, Operations, and other functional areas as appropriate to discuss policy, guidance, current issues, tech transfer, future work, share information and experience
- **Status –**
 - H&H Representation on HQ PMBP Teams
 - HQ Watershed Team Lead meets with MSC H&H Leads
 - HQ Watershed Team attendance at MSC-wide H&H workshops
 - H&H Team Leader an Advocate for scheduling national H&H/Water Resources Conferences

Implementation Progress

- **Recommendation #4** - Re-establishment of an effective HQ H&H team (cont.)
 - That the Watershed Team Leader position be reclassified from an interdisciplinary position to a Hydraulic Engineer, GS-0810-15, with required Professional Engineering registration. This will ensure that the position of the technical lead for H&H in the Corps will be filled with someone that has a strong H&H background. The Team Leader should also have demonstrated a technical leadership capability.
- **Status –**
 - COMPLETED. Watershed Team Leader Position reclassified to Hydraulic Engineer GS15. VA #FL028205 – permanently backfilling Team Leader position emphasizes the Team Leadership and Technical Leadership roles

Implementation Progress

- **Recommendation #5** - Re-establishment of an effective HQ H&H team (cont.)
 - That the Watershed Team Leader position be backfilled in the following manner while a permanent replacement is being recruited (estimated fall 2001 to late summer 2002): a mini-recruitment should be performed immediately to obtain a temporary GS-15 replacement from the field for a period not to exceed twelve months. The Advisory Committee should be an active participant in the recruitment and selection process.
- **Status –**
 - Lateral 90-day temporary backfill was initiated
 - Selection panel designed and questions prepared
 - Temporary H&H Leader position to cover until reporting date for permanent Chief

Implementation Progress

- **Recommendation #6** - Re-establishment of an effective HQ H&H team (cont.)
 - That two GS-14 hydraulic engineer positions be added to the Watershed Team to ensure that HQ maintains H&H technical competencies that are essential to the CW program: hydraulic design, hydropower, river hydraulics, stream/ecosystem restoration, and sedimentation. The most recent workload assessment identified a need for 6.26 FTEs to perform the duties of the Watershed Team; currently there are only 4.0 FTEs.
- **Status –**
 - CW Director provided one additional position to Watershed Team advertised as Hydraulic Engineer GS-13/14

Implementation Progress

- **Recommendation #7** - Re-establishment of an effective HQ H&H team (cont.)
 - That the Watershed Team actively pursue the functional responsibility of interagency coordination by coordinating Corps R&D efforts with those of other federal agencies to encourage collaboration and leveraging limited research funds.
- **Status –**
 - Interagency Coordination of R&D at HQUSACE level currently at low level
 - Limited interagency coordination at Lab/FOA level

Implementation Progress

- **Recommendation #8-** Improved Definition of Division H&H Role
 - That the division PMBP H&H role be patterned after the District Support Teams in SPD. Fitting within the framework of our existing PMBP guidance, these have a high level of engagement with the districts, and a high level of customer satisfaction.
- **Status -**
 - Committee believes this recommendation has merit, however, HQUSACE has not fostered this concept for Corps-wide implementation

Implementation Progress

- **Recommendation #9** - GS-13 Technical Specialists
 - That non-supervisory technical GS-13 hydraulic engineer positions be encouraged for key district H&H function positions which are regional or national technical specialists, one to several in each district depending on workload and specialty expertise.
- **Status -**
 - COMPLETED – Reference CEHR-E Memorandum dated 6 July 2001
 - Encouraged by issuance of EC 1110-1-104, para. 5b, dated 31 march 2002

Implementation Progress

- **Recommendation #10** -Training and Development
 - That the “Basic H&H Training Plan”, as detailed in this Task force Report, be generally adopted for Corps wide implementation in FY03 for all entry-level H&H technical staff. Commanders will assure district support of the Basic Training Plan and that this Plan is included in Individual Development Plans (IDPs), as applicable. All formal training required by this plan will be funded at the district level.
- **Status –**
 - Dwight Beranek recommended Committee explore utilizing EP 690 series to publish the Basic/Expert/Journeyman H&H Training Plans

Implementation of Progress

- **Recommendation #11** -Training and Development
 - That the “Journeyman/Expert H&H Training Plan”, as detailed in this Task Force Report, be generally adopted for Corps wide consideration. Commanders will assure district staff prepare annual IDP’s with the 5 year training plan prepared as an individual career development plan to meet mission requirements.
- **Status –**
 - Technical competency and Workforce Development is addressed in EC 1110-1-104
 - Executive Committee believes this recommendation has merit

Implementation of Progress

- **Recommendation #12** - Training and Development (cont.)
 - Increase central funding of long-term training to include labor, tuition, travel and per diem to ensure access to nationally prestigious graduate programs.
- **Status** –
 - Committee believes the need still exists. Mission changing and becoming more complex. Increasing need for “advanced engineering education”.
 - Dwight Beranek suggested Committee review the Planning “Masters Degree in Water Resources planning and Management” and the Geotechnical Masters Degree programs

Implementation of Progress

- **Recommendation #13** - Training and Development (cont.)
 - That the critical need to educate H&H work force to meet the new and growing mission area of stream/ecosystem restoration receive one-time central funding over a period of two years. The Watershed Team Leader would propose a training plan after consultation with Planning/Policy and Operations Divisions.
- **Status –**
 - No Task Force follow up to the request by Director, Civil Works for Task Force to develop additional options for Central funding
 - HEC and ERDC developed training courses
 - Committee believes need still exists. Committee will revisit from the perspective of examining the potential for coordinating training courses between ERDC and HEC to meet needs of districts

Implementation of Programs

- **Recommendation #14** - Research and Development
 - That Corps leadership recognize the need to maintain a sustainable level of research and development in hydrology and hydraulics, to include in-house H&H software development and maintenance capability, and be advocates for such R&D and associated expertise in the Corps. H&H R&D and associated software are essential elements of the Corps achieving standing as a world-class engineering organization.
- **Status –**
 - Central funding was not presented or approved at the Corps Command Council
 - Chief, E&C Division can implement related option by emphasizing and increasing role of HQUSACE H&H Team in managing existing research programs
 - Committee believes if the Corps is going to be a “World Class Engineering Organization, investments are essential in R&D
 - Further R&D funding decisions should recognize need for base level funding of H&H programs to ensure continuity of R&D efforts

Implementation of Progress

- **Recommendation #15** - Executive Advisory Committee
 - That the HQUSACE Chief of Engineering & Construction Division create an Advisory Committee (composed of the H&H Capability Assessment Task Force members) to provide assistance to HQUSACE executive staff for the next three years in implementing the above Task Force recommendations. Due to the near-critical staffing shortage and the impending retirement of the Watershed Team Leader in fall or early winter 2001, the Committee will have a major role as the champion of the Task Force recommendations.
- **Status –**
 - COMPLETED – Established by Chief, E&C Division in letter dated January 2, 2002

Next Steps

- Draft Task Force report has been posted to HEC web site
- Currently preparing final report for printing and distribution in both paper and e-format
- Implementation of recommendations approved by DCW and DMP which do not require central funding