

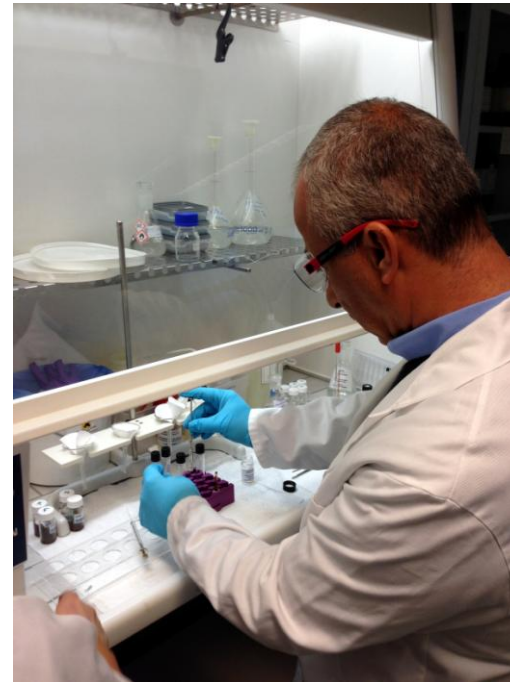
Implementation of a Chemical Safety & Security (CSS) Framework for Iraq

Dr. Kabrena Rodda, Ms. Laura Denlinger, Dr. Tim Bays, and Mr. Josh Byrd
Pacific Northwest National Laboratory



US DoS Chemical Security Program (CSP)

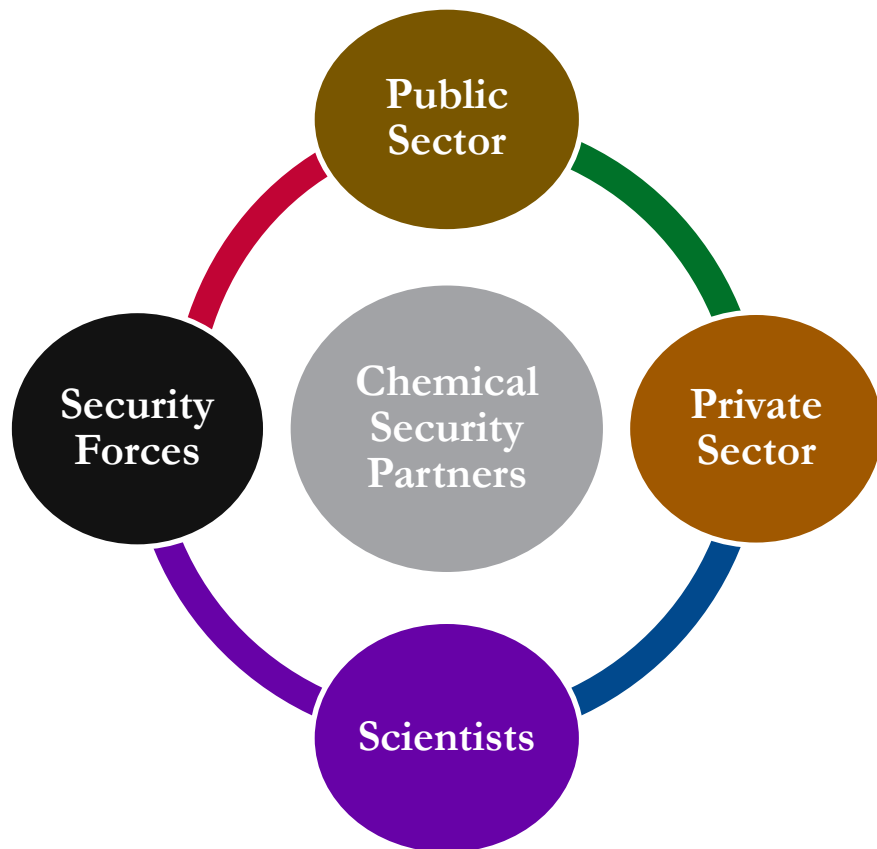
Mission: Reduce global chemical threats by preventing unauthorized access to weaponizable chemicals, weapons-applicable expertise, and/or related infrastructure.



- ▶ Chemical security is growing priority for US Government
- ▶ USG's only international chemical security program
- ▶ Focus: nexus between chemical threats & capabilities (material, expertise, infrastructure)
- ▶ FY15 Goals:
 - Strengthen partner countries' ability to prevent/detect/disrupt chemical attacks
 - Secure weaponizable chemicals, expertise, & infrastructure
 - Promote international CSS norms



CSP Partnerships



CSP course in worker safety & health held at PNNL.

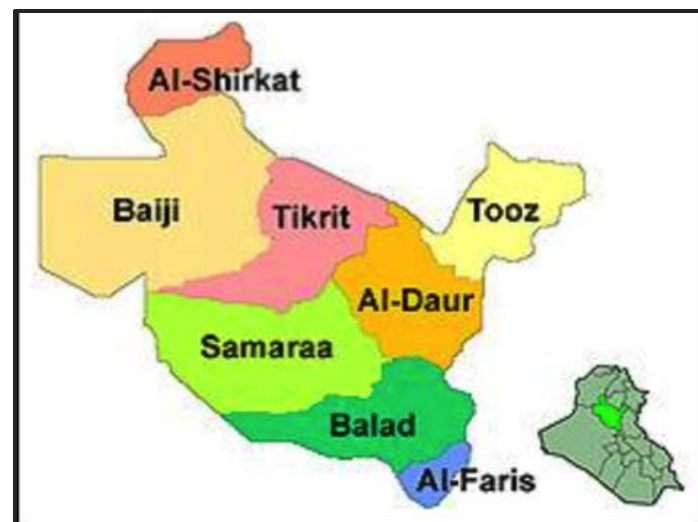
CSP active in 22 partner nations

Project Goals & Needs: Why CSS, why Iraq

- ▶ **Project Goals:**
 - ▶ Raise CSS awareness among early-career university chemists across Iraq
 - ▶ Introduce best practices & develop a culture of responsible science
 - ▶ Facilitate implementation of a national framework of CSS working groups
 - ▶ Define projects to execute to aid in CSS implementation across Iraq
- ▶ **Organizational Need:**
 - ▶ Years of isolation & sanctions left Iraqi science institutions vulnerable
 - ▶ Non-oil chemical sector suffers from little investment & lack of enforcement
 - ▶ Some universities & companies adopt dubious, dangerous practices
 - ▶ ISIL attacked several Iraqi university chemical departments since 2014



Tikrit University lab after 2014 ISIL attack.



Map of Iraq showing Tikrit's location.

Solution & Outcomes

- ▶ The Solution:
 - ▶ Obtain up-to-date info on current needs
 - ▶ Prepare curriculum & supporting materials
 - ▶ 3-day awareness symposium in Istanbul
 - ▶ 2-day site visit on CSS best-practices at PNNL
 - ▶ 5-day facilitated workshop to establish a national framework of CSS working groups
- ▶ Outcomes:
 - ▶ 5-fold increase in # of CSS units in 3 months
 - ▶ May workshop: PNNL engaged 19 universities – triple the # previously engaged in one event
 - ▶ Strategically impactful despite one-year period of performance
 - ▶ Completed \$70K under-budget
 - ▶ CSP earmarked under-run for follow-on PNNL-led engagement in 2016

Tuesday, March 01, 2016

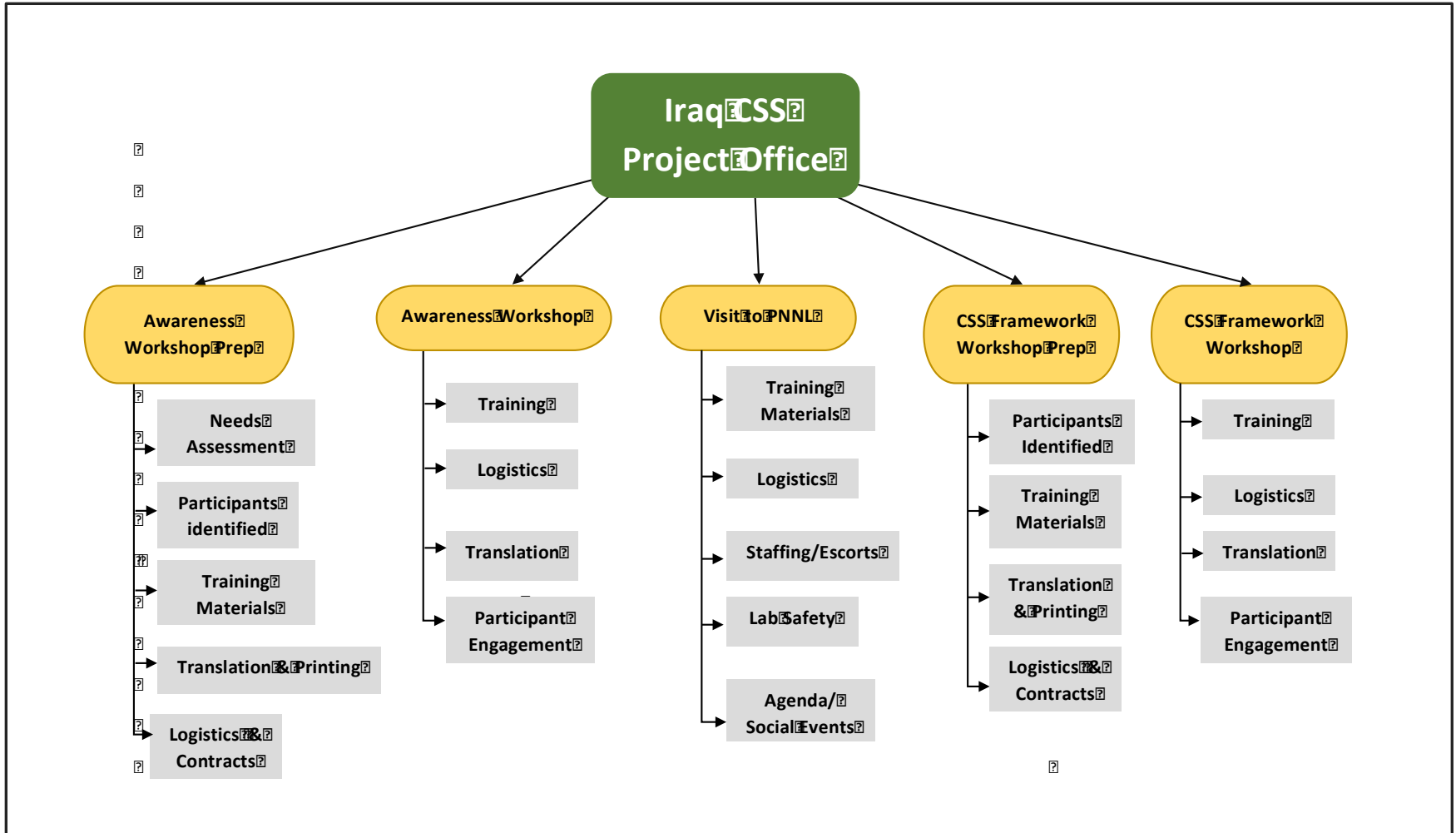


25 Chemists from 19 Universities: May 2015



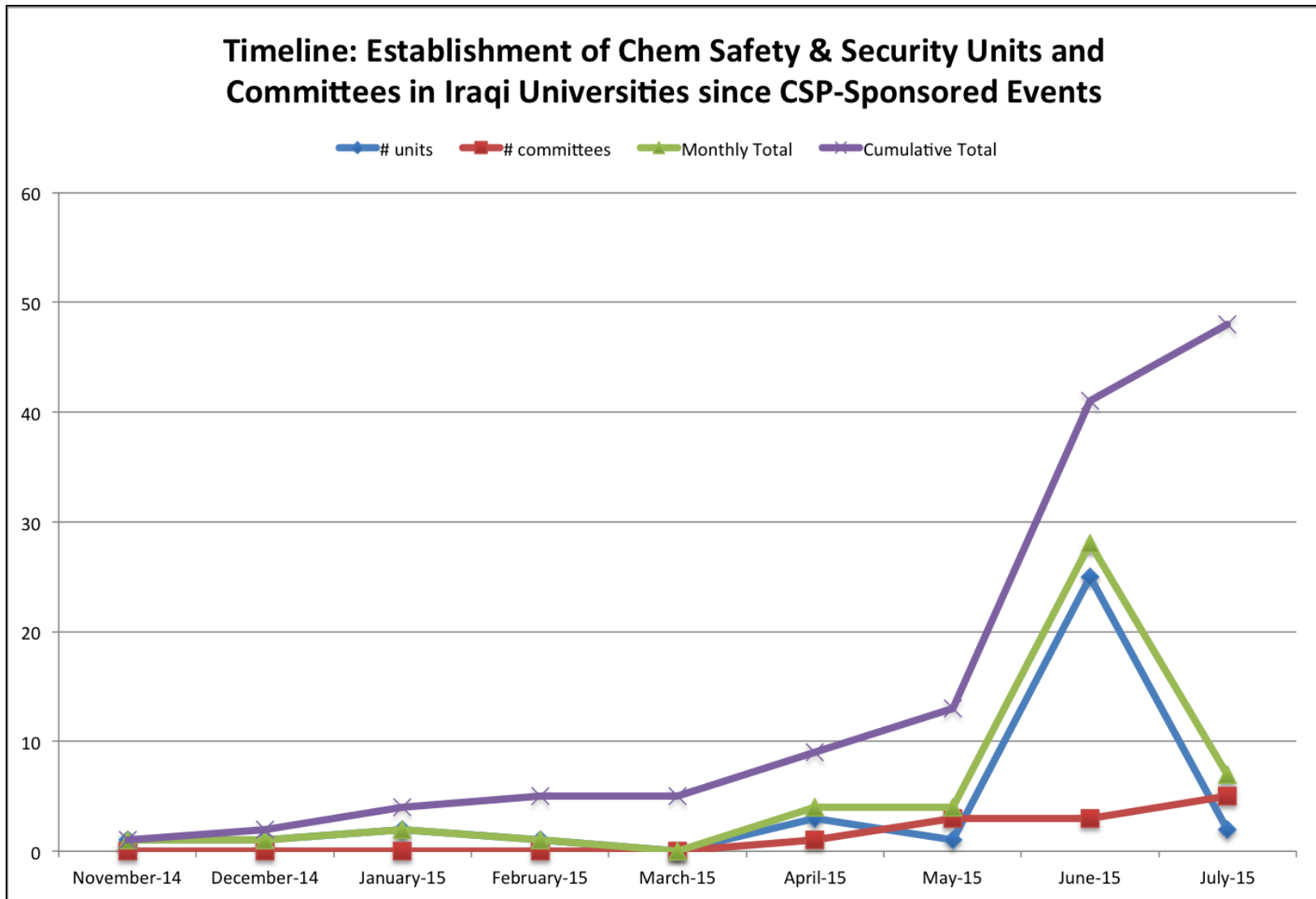
25 Senior Chemists & GOI Officials: Sep 2015

Work Breakdown Structure



\$70K under-run at project conclusion led CSP to award additional work in FY16!

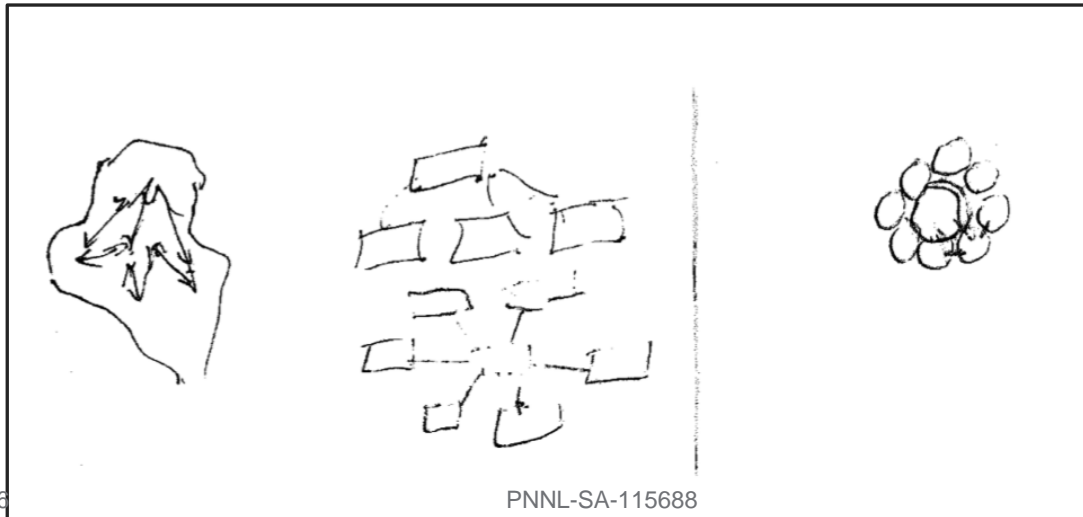
Benefits to Iraq: # CSS units & committees increased 5-Fold after May 2015 event!



Tuesday, March 01, 2016

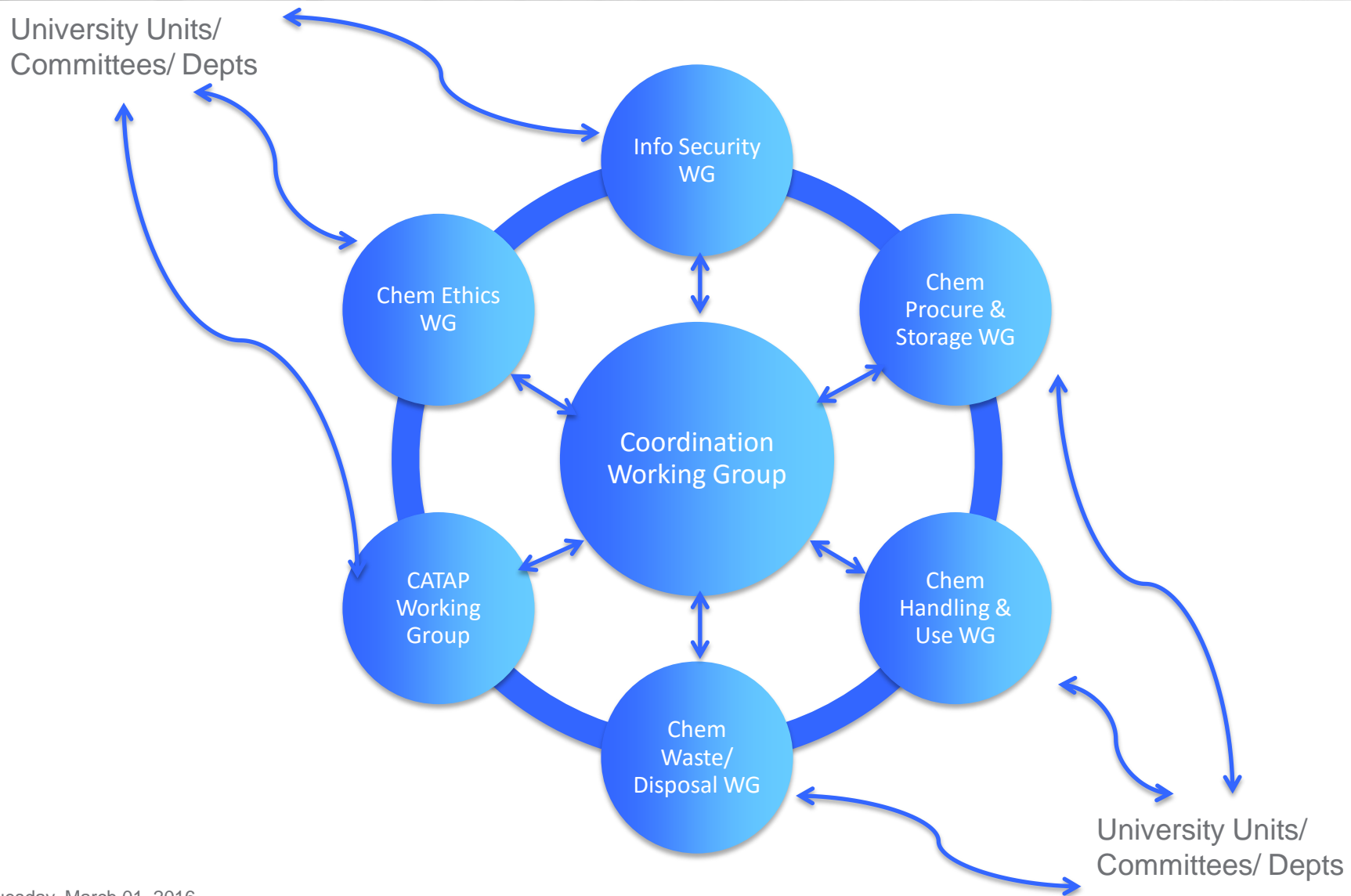
Cost, Scope, Schedule & Risk Mgt: A framework in the making & many chefs in the kitchen....

- ▶ Cost, scope, schedule & risk complexities were significant!
 - ▶ Dates for the 2 workshops had to be deconflicted from other engagements with little to no insight into developments at other' events
 - ▶ Both workshops had to be moved to stable 3rd country with existing budget
 - ▶ Scientists from ISIL-controlled areas had to obtain approval to travel prior to applying for visas, and even then **faced the possibility of ISIL later renegeing**
 - ▶ Constantly evolving circumstances in Iraq's chemical sector



Notional CSS frameworks sketched on a cocktail napkin in post-workshop discussions, May '15.

National Framework for Iraqi CSS



Stakeholder Engagement: PNNL best practices in CSS, HAMMER, strategy, and 3 cups of tea!

HAMMER overview for senior Iraqi interlocutors.



Engaging Dr. Falah: 3 cups of tea & strategy.



A PNNL trainer regales Iraqis with stories.



Participants engage in small-group discussions.

For ultimate project success, surround yourself with awesomeness!



Pacific Northwest
NATIONAL LABORATORY

Proudly Operated by **Battelle** Since 1965



PNNL-SA-115688