NATIONAL ACADEMIES – U. S. INSTITUTE OF PEACE ROUNDTABLE ON TECHNOLOGY, SCIENCE, AND PEACEBUILDING

STRATEGIC PLAN FOR FIRST THREE YEARS OF OPERATION
(ver. 06/06/11)

I.   Goal of the Roundtable

The goal of the Roundtable on Technology, Science, and Peacebuilding ("Roundtable") is to facilitate the strategic application of technology, science, and engineering to make a measurable and positive impact on conflict management, peacebuilding, and security capabilities around the world.

II.   Definition of Peacebuilding

For the purposes of the Roundtable, peacebuilding is defined as a process intended to address the root causes of conflict, to reconcile differences, to normalize relations, and finally to build institutions that can manage conflict without resorting to violence. Like conflict itself, peacebuilding is not a one-dimensional, static activity but a multi-faceted and changeable one, typically occurring over years, sometimes even decades. Basic security is normally a pre-condition for peacebuilding efforts in zones of active conflict.

Peacebuilding comprises an array of tasks that include identifying and addressing the underlying political, economic, social and structural imbalances that may have contributed to violent conflict, reconciling the objectives of opponents, preventing re-emergence of past conflicts, ensuring broad citizen participation in transitions to peace, and building institutions that support a secure civil society. Even nonviolent civil resistance may play an indirect role in peacebuilding by forcing change within an oppressive regime.

III.   Guiding Principles

To assure the effective application of technological and scientific tools to promote peacebuilding, manage conflict, and increase security, the Roundtable adopts the following general principles to guide its activities:

  1) Technology, science, and engineering should be applied with an understanding of relevant social, cultural, political, and economic factors, as well as the potential for unintended consequences;

2) Efforts to address peacebuilding, conflict, and security challenges—complex and interacting phenomena—are more likely to succeed if approached from a holistic, systems perspective; and

3) Sustainable peacebuilding requires strong partnerships that engage local populations.

IV.   Membership and Secretariat

The strength of the Roundtable lies in the interests and capabilities of its diverse membership, which includes representatives from government, industry, NGOs, and academia. The membership is the policy-making and decision-making body for the Roundtable. The secretariat, managed jointly by the National Academies (NA) and U.S. Institute of Peace (USIP), provides planning and support services to the Roundtable.

a. Membership

The Roundtable membership currently consists of 22 individuals appointed jointly by the National Academies and USIP. Member terms are for three years.

The size of the membership is expected to increase over time as interest in the Roundtable's activities grows. New members will be invited to join the Roundtable by the president of the National Academy of Engineering and the president of USIP, who serve as co-chairs of the Roundtable. Preference will be given to individuals from organizations with expertise, experience, and capabilities that complement those of the existing membership. As membership expands, an effort will be made to include greater international participation and to ensure that the perspectives of populations in zones of present and potential conflict are represented.

The Roundtable will meet approximately two times per year.   Unless otherwise specified, meetings will take place in Washington, D.C. One or more of these meetings may be held in combination with an information-gathering workshop, hosted by either NA or USIP. To plan and help execute Roundtable activities, additional meetings of members' staff proxies or of subgroups of the Roundtable may be held as needed and as funds allow.

Roundtable members are expected to participate in the biannual decision-making meetings of the Roundtable and to contribute technical advice, on-the-ground insight, and/or financial support to workshops and other Roundtable activities that align with their interests.

b. Secretariat

The core functions of the secretariat are to

- Help identify potential new members,
- Facilitate agenda development,
- Integrate member goals and feedback into Roundtable activities, and
- Manage Roundtable operations (such as record-keeping, travel arrangements, document distribution, etc.)

As needed and dependent on available funds, the secretariat also will

- Support the creation of spin-off networks,
- Conduct systems-based assessments of proposed member initiatives, and
- Identify complementary member and non-member capacities that could be leveraged to address specific peacebuilding challenges.

V.   Initial Challenge Areas

The Roundtable believes it can have near-term and measurable impact on eight initial challenge areas, which are described more fully in the Strategic Plan Annex. The challenge areas were identified and elaborated through a series of expert meetings held during the Roundtable planning phase. Each challenge area addresses a specific type of capacity required by a society entering or emerging from violent conflict:

- Improving Coordination of Peacebuilding and Stabilization Efforts
- Reducing Political and Economic Corruption
- Improving Water Management and Security
- Improving Demographic Data Collection and Decision-Making
- Increasing ICT Connectivity
- Increasing Food Security
- Improving Access to Energy
- Clarifying Property Ownership

The Roundtable expects that other worthwhile challenge areas will be identified as a result of Roundtable activities or other factors, such as the emergence of new conflicts.

VI.   Mechanisms of Action and In-Country Capacity Building

The Roundtable has developed a conceptual model to serve as a starting point for the identification and prioritization of specific projects Roundtable members might undertake. The model can be represented by a two-dimensional matrix that combines three mechanisms of action with three complementary means for building in-country capacity. Individual projects, anchored in one of the challenge areas identified by the Roundtable, potentially span multiple cells of the matrix (Table 1).

TABLE 1: Conceptual Model for Roundtable Activities, with Hypothetical Projects

Mechanisms of Action

In-Country Capacity Building	Formation of Collaborative Networks	Knowledge Generation	Enhancement of Existing Initiatives
Technology	Challenge 1: Project 1		
Education & Training	Challenge 2: Project 2	Challenge 3: Project 1	
Diplomacy Engineering, Science, or Health			

a. Mechanisms of Action

The Roundtable will meet its goal and address the challenge areas through three primary mechanisms of action:

- *Forming collaborative networks* - Members—and if appropriate, relevant partner organizations outside the Roundtable—may join forces to leverage complementary strengths in order to address a particular challenge;
- *Generating new knowledge* - The Roundtable may sponsor information-gathering workshops to inform its deliberations, commission papers on topics of interest, spin off formal studies to shed light on and offer recommendations for addressing particularly complex issues, or use systems analysis approaches to help guide its decision making.
- *Enhancing existing member initiatives* - Some Roundtable members have ongoing activities to advance peacebuilding through the strategic application of technology, science, and engineering that could be scaled or made more effective by the addition of resources and capabilities of other members.

b. In-Country Capacity Building

Addressing the challenge areas and specific Roundtable projects that derive from them will require the strategic deployment of three complementary means of in-country capacity building: technology, education and training, and diplomacy.

- *Technology* - Improving technological capacity by strengthening existing infrastructure or providing new technology in zones of conflict will be crucial to the Roundtable's peacebuilding efforts.
- *Education and Training* - In order for technology initiatives to be effectively deployed and sustained as well as to support economic and entrepreneurial growth, local populations will require appropriate education and training in technology, science, and/or engineering.
- *Diplomacy* - Successful peacebuilding efforts can also occur through collaboration and community building activities among scientists, engineers, and health professionals in zones of conflict and between these professionals and their counterparts working in other parts of the world.

VII. Criteria for Selecting Projects

As distinguished from the broad challenge areas, Roundtable projects need to be defined at a level of specificity suitable for action. As a general rule, the Roundtable should only undertake projects it believes it can uniquely add value to or has a greater likelihood of success than other organizations. In addition, projects should meet the following criteria:

1. A need or opportunity to act is present,
2. Roundtable members with interest and capability to address the challenge exist,
3. There is a reasonable likelihood of engaging significant partners outside the Roundtable membership,
4. Any proposed intervention is likely to provide lessons for addressing problems in other locations with similar characteristics,
5. A desired impact can be defined, measured, and achieved within a reasonable timeframe, and
6. Projects must focus primarily on the shorter term peacebuilding dimensions of a challenge and not its longer term developmental aspects.

VIII. Timeline

The prospective timeline for the first three years of the Roundtable takes account of expected regular meetings and likely data-gathering workshops. The timing and extent of the Roundtable's other two mechanisms of action—network formation and enhancing members' existing peacebuilding work—are difficult to anticipate and so are not explicitly indicated.

The timeline may be adjusted to respond to new or unanticipated opportunities, and the timing of meetings in Years 2 and 3 is less certain than for Year 1. The specific projects to be addressed by the Roundtable will be developed on an ongoing basis with input from the membership.

<u>Year 1</u>
Inaugural meeting (May 17, 2011)
Identify and Explore Potential Challenge Areas, TBD
Public announcement of Roundtable Activities (to coincide with USIP opening ceremony, October 4, 2011)
Meeting 2/Workshop 1 (November 2011)

<u>Year 2</u>
Continuation of Year 1 projects; report progress
Meeting 3/Workshop 2 (April 2012)
Initiation of new projects, TBD
Meeting 4/Workshop 3 (October 2012)
Initiation of new projects, TBD

<u>Year 3</u>
Continuation of Year 1 and Year 2 projects, report progress
Meeting 5/Workshop 4 (May 2013)
Initiation of new projects, TBD
Meeting 6 (November 2013)

IX.   Metrics for Judging the Success of the Roundtable

The Roundtable will apply appropriate metrics to gauge the effectiveness of its activities. This effort will be informed by quantitative and qualitative measures that have been proposed by other groups to judge the success and impact of peacebuilding initiatives in the context of the interests of the Roundtable members.

ANNEX

Challenge Area Summaries

Eight challenge areas have been identified during the planning process for the Roundtable. The following summaries contain:

1. A high-level description of the challenge area and the primary obstacle to addressing the challenge.

2. A list of Roundtable members who have expressed interest in the challenge augmented by a list of other organizations with relevant expertise.

3. An example of a specific problem within the challenge area amenable to Roundtable action and a potential solution to that problem.

4. A suggestion of what the impact of successfully addressing the challenge might look like and possible metrics for tracking impact.

CHALLENGE 1: IMPROVING COORDINATION OF PEACEBUILDING AND STABILIZATION EFFORTS

1. What is the peacebuilding challenge? Why is it difficult to overcome?

    During disaster relief and post-conflict stabilization, many basic government services are provided through international NGOs. To protect their funding sources and deploy quickly in relief operations, NGOs tend to coordinate or plan insufficiently with other NGO organizations. Working independently, most NGOs consequently lack the political and economic clout of large scale relief operations. The Roundtable will examine how to use technology, science, and engineering (TSE) to coordinate better the planning, purchasing, and operational activities of NGOs by identifying areas of common need and enabling rapid, coordinated action against those needs.

2. Who on the Roundtable are interested? Which experts beyond the RT should we approach?

    Expressed Interest from Roundtable Participants: Google: Open planning processes that support broad coordination and participation; USAID: Mapping existing NGO/government partnerships; GE: Improve cooperation among 1st world actors to enhance productivity of aid dollars. NSF: Greater collaboration between research and training sectors. SFCG: Using SMS technology to crowd source information on what organizations are invested where. *Other Interested Roundtable Participants:* Alliance for Peacebuilding, UNDP, InterAction, CRDF Global.

    Other Experts to Approach: Coordination of Disaster Relief: Red Cross, Coordination of Peacebuilding: UN Department of Economic and Social Affairs (Peacebuilding Portal); Coordination of NGOs: NGO Coordination Committee for Iraq; Open Planning for Development: Architecture for Humanity – Open Architecture Network; Open Source Code Development: Redhat.

3. What is a specific problem and possible solution? Where is there an opportunity to apply it?

    In Iraq, the NGO community has begun the transition in role from deliverer of relief services to participant in civil society. Better coordination among NGOs, both domestic and international, should improve their effectiveness both individually and as a group. The Roundtable can develop a platform for an online community dedicated to developing an effective civil society in Iraq. Online, NGO participants could share ideas, develop proposals, collaborate, and share best practice. Platform functionality could track proposal development, project management, and metrics. In addition to improving organizational effectiveness, the platform also provide NGOs, especially the small organizations often created following a conflict, the tools necessary to operate more professionally.

4. What is the estimated impact of solving this problem? What metrics would show impact?

    Impact: NGOs are crucial to post-conflict reconstruction and to the creation of a sustainable peace. Solving this problem would enable more cost-effective delivery of post-conflict support services and accelerate the professionalization of newly created domestic NGOs.

Metrics: Number of NGOs responding to crisis (expect decrease); Number of NGOs working per project (expect increase); Project delivery on-time percentage (expect increase).

CHALLENGE 2: REDUCING POLITICAL AND ECONOMIC CORRUPTION

1. What is the peacebuilding challenge? Why is it difficult to overcome?

    By systematically diverting resources from public goods to individual gain, corruption creates social instability, undermining the credibility of political and economic institutions. The Roundtable will examine how to use TSE to make visible the size and destinations of financial and material flows during post-conflict reconstruction. Because decision-making elites tend to benefit most from corrupt misappropriation of such flows, any solution developed by the Roundtable must include convincing incentives for decision-makers to ratify implementation of the solution.

2. Who on the Roundtable are interested? Which experts beyond the RT should we approach?

    Expressed Interest from Roundtable Participants: Google: GIS mapping of corruption (trucking industry in Africa); USAID: Using e-government technology to create transparency between the government and the people; ICNC: Use mobile technology to poll masses and make government responsive to minority voices; ICG: Using trust funds to protect monies allocated for development; State: Identify tool set that creates transparency in governance. *Other Interested Roundtable Participants:* Qualcomm, Defense.

    Other Experts to Approach: NGO: Transparency International, MNO in Afghanistan: Roshan, Social Investor in Afghanistan: Aga Khan Fund for Economic Development (AKFED), Supporter of MMT in Afghanistan: Agriculture, Rural Investment, and Enterprise Strengthening (AIRES), Technical Advisor for MMT in Afghanistan: Vodafone.

3. What is a specific problem and possible solution? Where is there an opportunity to apply it?

    In Afghanistan, rapid increases in mobile phone usage present a tremendous opportunity to provide information and a voice to Afghan citizens. Cell-based programs to provide mobile money transfer, increase access to market information, and strengthen local governance have shown success increasing transparency and reducing corruption. Mass adoption of mobile money transfer (MMT) for all government agencies would eliminate pervasive skimming of salaries by senior officials and result in a substantial increase in salary payments. Despite technical success with prototype programs in the police force, senior officers resisted wider adoption of MMT for fear of losing a valuable income source. Development of a general strategy to create incentives to adopt MMT is crucial to wider application of this technology.

4. What is the estimated impact of solving this problem? What metrics would show impact?

    Impact: Transparency in resource flows (fiscal and material) in a post-conflict environment would reduce shrinkage of salaries, budgets, and all formal resource allocations.   Less corruption would enhance government credibility and improve economic performance.

Metrics: Amount of salary/budget received (expect increase with successful project); delay in delivery of salary/budget (expect decrease); price paid for senior bureaucratic positions (expect decrease); turnover rate among salaried employees (expect decrease).

CHALLENGE 3: IMPROVING WATER MANAGEMENT AND SECURITY

1. What is the peacebuilding challenge? Why is it difficult to overcome?

   Given the increasing industrial, agricultural and individual needs for water, the allocation of water resources creates touchpoints for conflict both nationally and internationally. Even when agreement can be reached as to an equitable division of scarce resources, compliance with the agreement remains a source of ongoing tension. The Roundtable will examine how to use TSE to increase water availability by improved processing (conservation, purification, treatment) and better compliance with water use agreements (monitoring, enforcement).

2. Who on the Roundtable are interested? Which experts beyond the RT should we approach?

   Expressed Interest from Roundtable Participants: NSF: Look to apply a broad range of water desalinization, bio-sensing, and purification technologies; Google: Use distributed monitoring system to create transparency around water use; Engineers without Borders: Water as a core issue for health, agriculture, and industry. USAID: Use TSE to improve access to clean water and manage national and transboundary water resources appropriately. *Other Interested Roundtable Participants:* State, Defense, ICG, USDA, UNDP, OSTP, InterAction, CRDF Global, CH2M HILL.

   Other Experts to Approach: Systems Expertise on Water Management: IIASA; Water in Development: WHO; Water and Conflict Management: UNDP Cap-net, Conflict Management Mechanism for Water: Permanent Indus Commission.

3. What is a specific problem and possible solution? Where is there an opportunity to apply it?

   In fragile nations, the financial resources necessary to build capital intensive water processing systems are absent. A cost-effective and sustainable water management strategy reduces water consumption and disposal at a local level without the need for large scale sewer systems and waste treatment plants. Distributed, biological treatment systems are successful in low population environments. Taxes, user fees, subsidies, and loans provide incentives to adopt such distributed systems and associated water recycling practices. Given limited resources, health impact from contaminated water, and 'rubble' blocking installation of large scale systems, Haiti is a potential application for such technology. Finally, GIS technology can track the impact of adoption of such systems on environmental water supply.

4. What is the estimated impact of solving this problem? What metrics would show impact?

   Impact: Next to air, water is a basic requirement for human activity. Depending on how this issue is addressed, better water management has the potential to affect a society across a broad range of dimensions, from food supply to its economy and overall health.

Metrics: Domestic water quality (expected increase); agricultural yield (expected increase); agricultural water consumption (expected decrease); industrial contaminants in water supply (expected decrease); cases of disease from contaminated water (ie cholera, amoebiasis, etc.) (expected decrease); cases of non-compliant or illegal water use (expected decrease)

CHALLENGE 4: IMPROVING DEMOGRAPHIC DATA COLLECTION AND DECISION-MAKING

1. What is the peacebuilding challenge? Why is it difficult to overcome?

   Poorly managed election registers diminish the credibility of election results; inaccurate demographic information undermines even-handed post-conflict government decision-making. Accurate and secure systems for registering such information contribute to peacebuilding by enhancing rule of law and improving governance. The Roundtable will use TSE to develop politically credible and secure demographic and electoral databases in post-conflict societies.

2. Who on the Roundtable are interested? Which experts beyond the RT should we approach?

   Expressed Interest from Roundtable Participants: Google: Use GIS data and mapping techniques to rebuild registries; DoD: Integrate legacy data sets to define human terrain (demographics, etc.). *Other Interested Roundtable Participants:*

   Other Experts to Approach: Standards for Democratic Elections: The Carter Center; Application of SMS Technology to Election Monitoring: Georgia Tech Information Technology Center; Census Methodology: US Census Bureau; Methods for Voter Registration: International Federation for Election Systems; Biometric Voter Registration: UNDP – Smartmatic, Inc.

3. What is a specific problem and possible solution? Where is there an opportunity to apply it?

   Use of biometric data (digital photograph, finger prints, etc.) on voter identification cards is becoming a standard component of voter registration campaigns in post-conflict societies. By eliminating duplicate registration and impersonation, such systems bolster the credibility of the election process. There is, however, major potential for abuse of such data sets. Do such registers intrude upon basic rights to privacy? Can the state use them to track, exclude, or oppress groups based on their identifiers, potentially increasing rather than diminishing conflict? The Roundtable will develop technology to support and procedures to manage electoral registers in which abuse of individual and group identifying information can be reliably prevented both by corrupt governments and biased corrupt electoral commissions.

4. What is the estimated impact of solving this problem? What metrics would show impact?

   Impact: Understanding the social, economic, and political demographics of a nation enables better allocation of resources by government agencies. In a democratic society, a reliable census becomes the basis for equitable division of government resources. Accurate and secure electoral registers reduce fraud and improve the credibility of the government.

Metrics: Per capita allocations of government funds to education, security, etc. (expect less variation between regions); Cases of gerrymandering (expect increase); Votes thrown out due to fraud (expected decrease); Incidents of polling violence (expected decrease).

CHALLENGE 5: INCREASING ICT CONNECTIVITY

1. What is the peacebuilding challenge? Why is it difficult to overcome?

   Either from conflict or underinvestment, conflict environments often lack well-developed ICT infrastructure. Effective peacebuilding and transition to post-conflict civil society can be accelerated by IT-based interventions (social media, mobile banking, open government, etc.). This requires rapid, systematic upgrades and integration to legacy ICT systems to support these peacebuilding interventions. The Roundtable will identify the principle challenges in enhancing ICT connectivity in post-conflict societies and develop TSE solutions that overcome those challenges and support of peacebuilding.

2. Who on the Roundtable are interested? Which experts beyond the RT should we approach?

   Expressed Interest from Roundtable Participants: Google: Wants to partner with international development community to build out optical fiber layer; ICNC: Develop techniques to maintain safety for peacebuilders using ICT-enabled techniques to communicate. *Other Interested Roundtable Participants:* State, Qualcomm, UNDP.

   Other Experts to Approach: Using ICT for peacebuilding: ICT4Peace. Deploying ICT rapidly for Humanitarian Relief: UN OCHA; Using ICT for Development: Cisco – International Telephone Union; Using ICT (Wi-Fi) in Disaster Relief: Inveneo.

3. What is a specific problem and possible solution? Where is there an opportunity to apply it?

   Rapid response is crucial both for future disaster relief and peacebuilding operations. However, lack of knowledge regarding the particular circumstances under which such operations are likely to occur limit ability for effective pre-crisis planning. The Roundtable will develop procedures for rapid deployment of an integrated ICT platform (Wi-Fi, mobile, internet, etc.). In addition to technical requirements for operation, Roundtable activities must address core issues such as equipment availability, power availability, telecommunications policy, and educational outreach to users.

4. What is the estimated impact of solving this problem? What metrics would show impact?

   Impact: More robust, higher bandwidth ICT infrastructure eanbles more effective relief response and larger scale peacebuilding interventison using social media, crowd-sourcing, etc.

   Metrics: Total upload/download capacity (expected increase); Time until network capacity equals pre-conflict network capacity: (expected decrease); Network downtime (expected decrease)

CHALLENGE 6: INCREASING FOOD SECURITY

1. What is the peacebuilding challenge? Why is it difficult to overcome?

   Conflict disrupts food production by physically destroying crops, by destroying farm equipment and other capital, by driving farmers from their land, and by disrupting transportation networks needed to access markets. Stable food supplies are crucial to successful short- and long-term post-conflict stabilization efforts. The Roundtable will study how to apply TSE to improve productivity and improve reliability of the activities defining food security (production, processing, distribution and consumption).

2. Who on the Roundtable are interested? Which experts beyond the RT should we approach?

   Expressed Interest from Roundtable Participants: USDA: Managing transition from short-term interventions (disaster relief) to long-term intervention (sustainable agriculture); Engineers without Borders: Food security is a localized problem amenable by improving transportation systems; State: Long-term stability of a fragile state is linked to basic human needs like food, health, and housing. USAID: Using TSE to improve access to quality, nutrient-rich foods following conflict and resumption of sustainable agricultural activity. *Other Interested Roundtable Participants:* UNDP, OSTP, InterAction, CRDF Global.

   Other Experts to Approach: Conflict-fueled Food Insecurity; FAO. Gene Modification: WHO – Dupont-Biotechnology; Transport Infrastructure: European Commission EuropeAid; Governance: Amartya Sen. Cell-based Crop Insurance: Syngenta Foundation – Safaricom.

3. What is a specific problem and possible solution? Where is there an opportunity to apply it?

   From the small farmer's perspective, investment in new agricultural methods adds risk to the already risky proposition of farming. Provision of cell-phone based crop insurance has enabled farmers in Kenya to invest in higher productivity seed by insuring the crop produced against drought. A network of automated weather stations across Kenya provides the rainfall data necessary for insurance pricing and payouts. In a conflict environment, however, such gauges do not exist to measure the risk facing farming activity from, for example, competing factions in conflict. The Roundtable will develop means for estimating the risks to crops, equipment and other forms of agricultural capital in conflict environments.

4. What is the estimated impact of solving this problem? What metrics would show impact?

   Impact: Higher local agricultural sector productivity (from production through consumption) coupled with improved integration with national markets and broader dissemination of technical and market information will stabilize food supplies, raise returns for small land holders, and improve overall food security.

   Metrics: Agricultural yield (expected increase); Fraction of long haul trucking carrying agricultural products/equipment: (expected increase); Fraction of port traffic carrying agricultural products: (expected decrease); Farm incomes: (expected increase); Fraction of total population undernourished (expected decrease).

CHALLENGE 7: IMPROVING ACCESS TO ENERGY

1. What is the peacebuilding challenge? Why is it difficult to overcome?

   Energy scarcity, caused either by inadequate production and/or distribution or by population growth that causes demand to exceed supply can create societal tensions that spawn violence. Large scale sources of energy tend to be expensive, technology intensive, and depend on human capital to build and maintain equipment well as to manage the complex legal, financial, and regulatory issues associated with large infrastructure projects. The Roundtable will consider traditional as well as non-traditional (e.g., small-scale solar) applications of TSE that address critical technological as well as human-capacity-building steps needed to support equitable and sustainable generation of energy.

2. Who on the Roundtable are interested? Which experts beyond the RT should we approach?

   Expressed Interest from Roundtable Participants: State: Partnering with universities to deliver training/education curricula are crucial for these large technology systems; Google: Importance of low capital, distributed generation; CRDF: Rehabilitation of engineering specialists for reconstruction; USAID: Using TSE to provide low-cost clean energy solutions and build in-country expertise. *Other Interested Roundtable Participants:* State, OSTP, NSF, CH2M HILL.

   Other Experts to Approach: Development and Access to Energy: UNDP – UN-Energy; Designing Turnkey Systems in Fragile Environments: Parsons-Brinckerhoff; Deploying Appropriate Technology In-country: GE, Siemens.

3. What is a specific problem and possible solution? Where is there an opportunity to apply it?

   A recently published master plan for expanding Iraq's electricity generation and distribution infrastructure proposes $77 billion in investments over a 20-year period. The plan largely ignores the need for technically trained individuals to manage this immense task. One aspect of a solution may be close at hand: the cadre of currently unemployed Baathist engineers, who were kicked out of government following the 2003 U.S. invasion. This presents an opportunity for the Roundtable potentially to leverage member expertise in science and engineering diplomacy as well as develop and deploy training initiatives to build capacity such as a joint U.S.-Iraq technician training program through the Iraqi university system.

4. What is the estimated impact of solving this problem? What metrics would show impact?

   Impact: Restoring more regular and plentiful supply of energy can be expected to reduce civil tensions, increase government credibility, and, in the longer term, set the stage for sustained economic recovery.

   Metrics: Hours of regular electricity supply (expected increase); hiring of qualified engineers to repair existing infrastructure and build and manage new infrastructure (expected increase); number of university-based technician-training programs (expected increase); number of Iraqi diaspora engineers building in-country capacity (expected increase)

CHALLENGE 8: CLARIFYING PROPERTY OWNERSHIP

1. What is the peacebuilding challenge? Why is it difficult to overcome?

   Disputes over property ownership—land, natural resources, and dwellings—are a significant source of conflict around the world. Contradictory claims of ownership may foment new conflicts, exacerbate existing conflicts, or become flashpoints to renewed hostilities during stabilization efforts. The absence of ownership records or inconsistent/incomplete recordkeeping as well as lack of processes for fair adjudication of property disagreements are key factors standing in the way of a solution. The Roundtable will study TSE techniques for systematically and transparently helping identify and record property ownership in situations where formal registries may be absent, incomplete, or mistrusted.

2. Who on the Roundtable are interested? Which experts beyond the RT should we approach?

   Expressed Interest from Roundtable Participants: USAID: Engaged in multiple uses of GIS technology, including the mapping of USAID-funded water-related investments; Google.org: Using GIS tools to display crowd-sourced data sets using web interfaces such as MapMaker and fusion tables.

   Other Experts to Approach: Expertise on land ownership, rights, access, and use: University of Wisconsin-Madison Land Tenure Center/Environmental Remote Sensing Center; Expertise on application of GIS: University Consortium for Geographic Information Science, American Association of Geographers; Methods for Ground Truthing: Participatory Avenues.

3. What is a specific problem and possible solution? Where is there an opportunity to apply it?

   Efforts to clear the massive piles of rubble from the 2010 Haiti earthquake have proceeded much more slowly than expected in part due to the country's lack of land ownership records. In Port au Prince, for example, land titles have not existed since the 1700; ownership traditionally has been passed down within families. Following the earthquake, property owners fear their claims to title will not be recognized and consequently are reluctant to clear land, uncertain that their investment will remain under their control. The Roundtable will investigate the application of crowd sourced approaches coupled with transparency (anti-corruption) techniques and GIS analysis to support or disprove title applications.

4. What is the estimated impact of solving this problem? What metrics would show impact?

   Impact: Documenting property ownership would be one important step toward establishing rule of law, help economic recovery by vesting property owners with equity rights, facilitate equitable collection of property taxes, and aid planning at the municipal level.

   Metrics: Number of registered properties (expect an increase); rate of rubble removal (expect an increase in areas where property ownership is established); tax revenues (expect an increase); building permits (expect an increase).