

Engaging Communities to Enhance Impact and Sustainability of International Partnerships

As you plan for implementing research translation projects, one of the most critical components to consider is the extent to and methods by which you engage communities. While research translation and community engagement do not have single prescriptive approaches that work in all cases, this file features tips and examples on partnerships and international programs from the experiences of IUPUI Professor of Earth Sciences Gabriel Filippelli. We hope this will assist you in effectively engaging local community stakeholders in your projects, as applicable, to ensure both impact and sustainability of partnerships.

Background

Public participation in research highlights opportunities for researchers to penetrate society at a much more granular level than in traditional research. Community engagement in participatory research exists on a spectrum between passive participation in data collection and active participation in the research process (Figure 1). Communities can be involved solely in data collection, consulted early in defining the problem at hand, active across the entire research process, and/or assist with uptake of findings. Effectively, this involvement can permit community involvement to evolve toward deeply embedded partnerships that benefit *both* researchers and communities. By creating sustainable, bi-directional partnerships and engaging non-university partners with the processes and outputs of research projects, **knowledge transfer goes both ways** and communities can be engaged in framing research questions, collecting and analyzing data, and developing tools that make sense for communities involved.

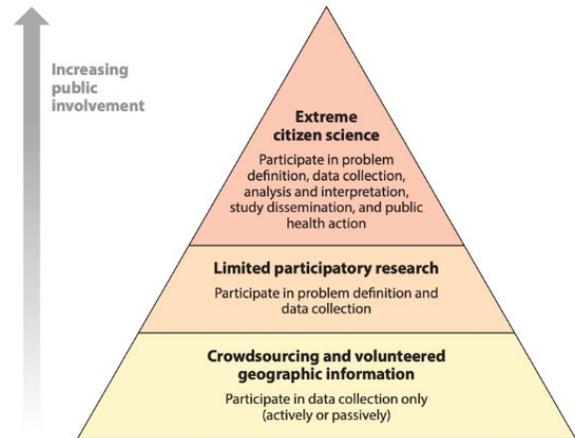


Figure 1: Pyramid of participatory research approaches (English et al., 2018)

Part of this motivation to pivot to a new model of research engagement has arisen from the tensions and distrust from previous approaches, where research has been done *on* instead of *with* communities. This has provided little lasting benefit to the communities themselves while explicitly benefitting the researcher side of the relationship. Participatory approaches do not preclude researchers from doing what they do best—conducting research, publishing in specialty journals, and building research reputations—but they do ensure that the research products reach the thousands of community members where they can inform practical and locally-relevant solutions.

Components of Successful Community-Researcher Partnerships

While understanding the context of participatory research is critical to ensure successful collaboration, four key components exist in successful community-engaged research partnerships:

Mutually Beneficial. Partnerships should generate benefits for both community and researcher partners. The community partner should benefit in the currency that they find appropriate and valuable, such as analytical support, solution-building, or technology transfer. The researcher gains data and access to resources that they would not otherwise be able to obtain and utilizes these for knowledge creation and expanding the resource base for continued discovery.

Respectful and Reflective of Local Knowledge. Traditional knowledge in international partnerships includes community-based knowledge that has been accrued over decades or even generations that would be impossible for an outside partner to build in the span of a research partnership. For example, research projects on climate change in the Arctic have involved the multi-generational perspectives and observations of indigenous peoples, which proves critical where scientific climate monitoring is incomplete (Golden et al., 2015).

Bi- or Multi-Directional in Communication and Engagement. Partnerships succeed when lines of communication or engagement between the partners are well developed, and where the expertise of both sides is respected and built into the structure of the partnership (Figure 2). When these lines of communication are perceived as isolating, unresponsive, or biased, the trust in the information received and the motivation to act on this information is threatened. The key to building bi-directionality is to integrate communication between the two sides throughout the project to make sure perspectives are reflected in research procedures.

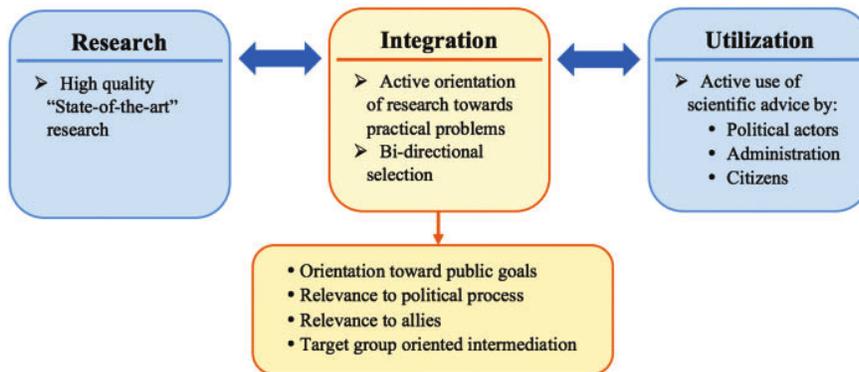


Figure 2: The RIU model of bi-directional knowledge transfer between researchers (left) and practitioners (right). Adapted in Do (2019) from Böcher (2016) and Böcher and Krott (2014).

Sustainable as Partnerships Evolve. The key to a sustainable partnership is to regularly share whether the partnership is meeting the needs of each partner, whether the partnership needs to adjust direction in light of priorities and/or funding, and when parties need to move in or out of a partnership to meet their needs. Effective partnership should be able to evolve over time through continued work, additional funding, or joint opportunities for different collaborations. Partnerships that reflect the above components are more likely to be sustainable over time.

Overcoming Obstacles to Building Lasting Researcher-Community Partnerships

Building effective researcher-community partnerships is not always easy. A variety of barriers exist to building lasting relationships. However, through active consultation and mutual respect, partners can work to overcome obstacles.

1. Lack of Incentives to Engage at the University Level. Generally, researchers are not well recognized for the effort that is involved in building impactful and sustained community-engaged research programs. For example, a researcher could spend ample time developing deep and meaningful community contacts toward an impactful engagement program but would not be rewarded by promotion and tenure committees for doing so.

Overcoming the Obstacle: Build university recognition of the value of doing community-engaged research, both to the research enterprise and general community. Expand the definition of service to include service to community.

2. Lack of Sustained Leadership at the Community level. Partnerships with communities are often catalyzed by individuals within the community who have a passion to make changes, or by organizations that have a mandate to achieve. When that catalyzing individual moves on or organizational priorities change, the partnership with the university can become less of a priority to successors.

Overcoming the Obstacle: Build multiple bridges to a single organization and/or partnerships with multiple organizations whose missions are complementary, providing a fallback option should one organization change priorities.

3. Lack of Trust Among Partners. The history of scientific research on human subjects and on communities is rife with issues. IRBs have effectively eliminated the most egregious of these abuses, but more subtle issues persist such as not considering community perspectives and benefits or failing to fulfill promised deliverables.

Overcoming the Obstacle: Build value and mutual respect through a series of participatory workshops with all partners, opportunities to learn from communities and reflect on the partnership, recognition of community contributions through co-authorship, and commitments to extending the partnership beyond one project. Consider with your partners how you can document and measure partnership and engagement to ensure shared accountability for researchers and community partners (Luger et al., 2020).

4. Lack of Funding Avenues to Support the Partnership. For both universities and communities, obtaining sustained and consistent funding to support a community-engaged program is challenging. University partners typically seek research funding from federal sources that might not have local community support as a key priority and does not extend for long durations. Similarly, community organizations seek funding from federal, state, or private foundation sources that at times do not fund original research but instead focus on community action.

Overcoming the Obstacle: Simultaneously develop multiple types of complementary funding streams. For example, a researcher pursuing federal

grants to research water resource changes could interleave this with a foundation grant with a local partner for water security and access. Indeed, such efforts often add credibility and show capacity for both federal and foundation reviewers. In addition, researchers can target a growing number of funding opportunities that do prioritize community engagement.

Overcoming Obstacles and Making Impacts—An Example in Safe Urban Gardening

Building meaningful sustained partnership takes time, but one key starting point is engaging early, often, and equally. The structure of these engagements can be formal or informal, but they must always start by sharing individual values and goals, learning from each other in a way a sound partnership can be built. The common obstacles to this process can be met, and overcome, with intentional and measured program development, which by necessity must evolve to fit the changing needs of partners and funding sources. Below is an example of successful program development between researchers and communities:

Safe Urban Gardening Initiative, Indianapolis, Indiana, USA



Figure 3: The Safe Urban Gardening Initiative, a partnership between the Center for Urban Health at Indiana University – Purdue University Indianapolis and several community partners in Indianapolis, Indiana

Project Launch

The Safe Urban Gardening Initiative began as a project to map the distribution of harmful lead contamination in cities, involving basic sampling in legal rights of way and parks. To expand sampling, the team partnered with a local inner-city high school science teacher who wanted a hands-on and relevant project for his students. The students were trained at sampling and subsequently sampled in

their own neighborhoods. Their findings showed shockingly high values in an area around an old lead smelting facility.

Identifying and Empowering New Community Partners

The researchers used these findings to partner with a local environmental justice initiative and a local children’s health organization to obtain an EPA Environmental Justice grant, designed to expand the citizen science sampling of yards by residents. Upon realization that the burden of lead contamination is not just in streets or parks, but also in homes and backyards, the team proposed the Safe Urban Gardening Initiative to sample properties in central Indiana. It designed a guide on Safe Urban Gardening (Figure 3) to distribute to homeowners’ organizations in the region to provide communities solutions to deal with and mitigate lead.

The research team then received a community engagement grant designed to transfer much of the sampling, education, and stakeholder engagement to youth development programs already running in three partner organizations. This resulted in many innovations, including door hangers in advance of an in-person visit, a simpler risk communication system, and a youth-

initiated mulching campaign in the neighborhoods with likely lead hazards. Instead of researchers presenting the data, youth groups created a video about how to test soil for lead. While researchers achieved hundreds of samples previously inaccessible, communities obtained valuable information on existing lead contamination and how to garden safely.



Figure 4: MapMyEnvironment image from Indianapolis, where contaminant lead in soils (colored circles) is visualized with the economic status of communities (Percent of Poverty, in gray). individual household samples, and to learn about exposure hazard risks and mitigation.

Project Iteration and Sustainability

The last evolution of the program involved moving indoors with community members collecting dust from vacuum containers and sending them for laboratory analysis of indoor risks. This program eventually went international through [an interactive web-based portal](#) for information, sampling instructions, and results reporting.

Currently, the MapMyEnvironment program provides interactive tools to explore the environmental conditions in neighborhoods, to request testing of

Takeaway Points

Over the course of a decade, what started with minimal engagement from the research team in taking soil samples to find hot spots in lead poisoning led to a larger-scale community engagement program and eventual multinational research enterprise to understand the drivers of environmental health and key mitigation factors around the world, involving a diversity of partnerships.

To reflect on the four components of successful community-researcher partnership, this example was:

- **Mutually Beneficial.** Researchers obtained access to backyards and gathered rich soil data that resulted in ten publications. The community obtained results to identify areas of major concern, and in one case, a neighborhood conducted a free mulch drive to mitigate the immediate problem of lead exposure.
- **Respectful and Reflective of Local Knowledge.** Youth leaders in the program had a strong sense of the most problematic areas in the community and how to conduct testing appropriately with respected community members. The community also heard a young local voice delivering the message about contamination and mitigation.
- **Bi-Directional in Knowledge Transfer.** In addition to researchers transferring knowledge to communities on contamination hotspots and mitigation efforts, communities transferred knowledge to researchers in how to communicate to vulnerable populations. This was facilitated by close collaboration and frequent communication with community representatives. Youth community members became empowered action drivers to be able to do and communicate science.

- Sustainable as the Partnership Evolved. The partnership grew and expanded appropriately over time through central Indiana, including long-term relationships with community organizations and the private sector. The partnership eventually evolved into an international program to gather citizen science information about environmental hazards and communicate results that have local impact, expanding beyond lead to heavy metals, allergens, PFAS, and AMR.

Overall, the program learned that community inputs can have unintended benefits to long-lasting research partnerships. A key lesson learned is that researchers should engage in deeper and more meaningful way to focus on sustainably building capacity within vulnerable communities to address community needs through community channels.

Next Steps & Resources

The models and example presented can guide your work to engage communities well in a variety of settings for research translation. As you build your partnerships and engage communities in research translation toward development impact, remember to construct your engagements in ways that are Mutually Beneficial, Reflective of Local Knowledge, Bi-Directional in Communication, and Sustainable as Partnerships Evolve. Alongside your partners, consider how you can measure engagements across these different dimensions at the start to allow for and encourage mutual accountability.

For additional resources on the strategies outlined here, please see:

<https://www.mapmyenvironment.com/>

<https://www.citizenscience.org/>

<https://www.nimhd.nih.gov/programs/extramural/community-based-participatory.html>

<https://www.joinallofus.org/#>

<https://about.citiprogram.org/en/course/community-engaged-and-community-based-participatory-research/>

https://www.meharry-vanderbilt.org/sites/vumc.org.meharry-vanderbilt/files/public_files/CESToolkit%202.0.pdf

<https://bmcproc.biomedcentral.com/articles/10.1186/s12919-019-0163-z>

Works Referenced

Böcher, Michael & Krott, Max. (2014). The RIU model as an analytical framework for scientific knowledge transfer: the case of the "decision support system forest and climate change". *Biodiversity and Conservation*. 23. 3641-3656. 10.1007/s10531-014-0820-5.

Böcher, Michael & Krott, Max. (2016). The RIU Model as an Analytical Framework for Scientific Knowledge Transfer. 10.1007/978-3-319-34079-1_2.

Do, Huong & Juerges, Nataly & Krott, Max & Böcher, Michael. (2019). Can landscape planning solve scale mismatches in environmental governance? A case study from Vietnam. *Environment and Planning E: Nature and Space*. 2. 251484861882251. 10.1177/2514848618822510.

English, P. B., Richardson, M. J., & Garzón-Galvis, C. (2018). From crowdsourcing to extreme citizen science: Participatory research for environmental health. *Annual review of public health*, 39, 335-350. <https://doi.org/10.1146/annurev-publhealth-040617-013702>

Filippelli, G.M., Risch, M., Laidlaw, M.A.S., Nichols, D.E. and Crewe, J., 2015. Geochemical legacies and the future health of cities: A tale of two neurotoxins in urban soils. *Elem Sci Anth*, 3, p.000059. DOI: <http://doi.org/10.12952/journal.elementa.000059>

Golden, D. M., C. Audet, and M. A. (Peggy) Smith. 2015. "Blue-ice": framing climate change and reframing climate change adaptation from the indigenous peoples' perspective in the northern boreal forest of Ontario, Canada. *Climate and Development* 7(5):401-413. <http://dx.doi.org/10.1080/17565529.2014.966048>

Luger, T. M., A. B. Hamilton, and G. True. 2020. Measuring community-engaged research contexts, processes, and outcomes: A scoping review. *Milbank Quarterly* 98(2):493-553. <https://doi.org/10.1111/1468-0009.12458>