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Social Science Evaluation Executive Summary

Indian Creek watershed project, Livingston County, Illinois



Photo courtesy of Conservation Technology Information Center

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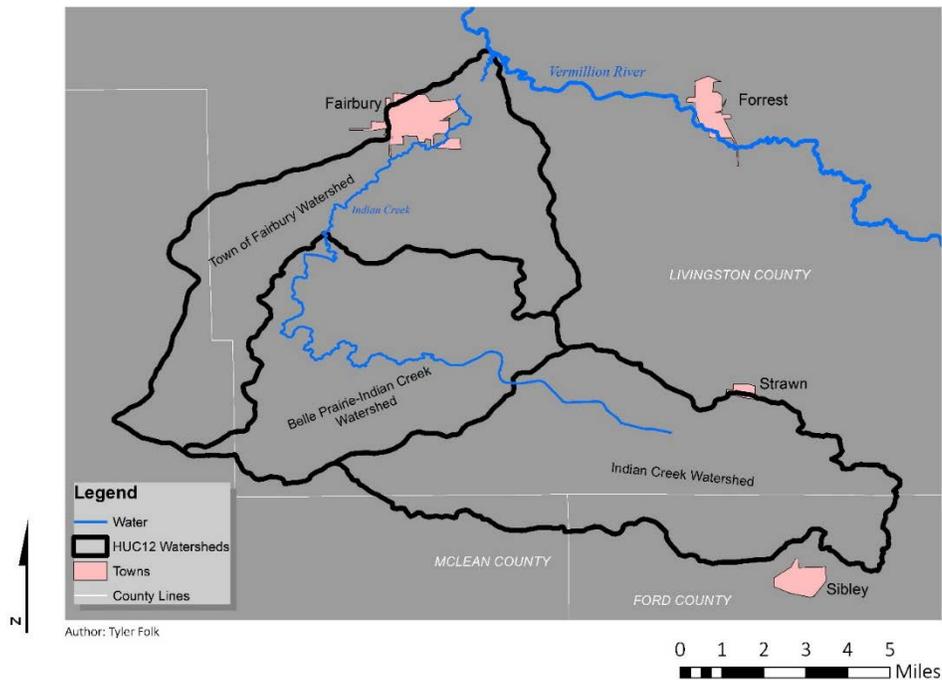
Executive Summary with Key Findings and Recommendations

Purdue University was engaged by the Conservation Technology Information Center (CTIC) to evaluate the Indian Creek watershed project by determining its successes and documenting key project elements that contributed to the project's success. What follows is a bulleted summary of key findings from the Indian Creek watershed evaluation. Information on the Indian Creek project itself and a detailed accounting of our findings can be found in the Indian Creek Watershed Social Science Evaluation Report.

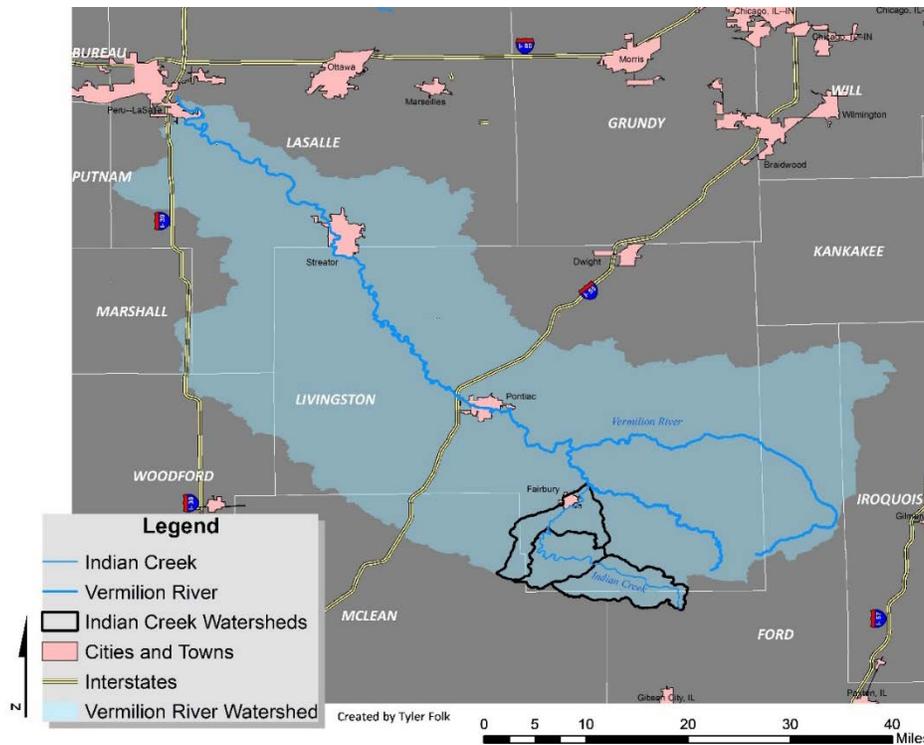
In brief, the Indian Creek watershed project is led by the Conservation Technology Information Center (CTIC) and in partnership with the Livingston County Soil and Water Conservation District (SWCD), the Illinois Environmental Protection Agency (IL EPA), USDA Natural Resources Conservation Service (NRCS), and many other conservation agencies and organizations, local citizens and farmers. The project focuses on improving water quality in a small agricultural watershed in central Illinois. It targets education and outreach, as well as cost-share funding, to encourage the voluntary adoption of conservation practices and systems that are known to improve on-farm nutrient use efficiency. The project goals were to treat 50 percent of farmed acreage in the watershed with conservation practices and systems, and measure water quality in Indian Creek to determine if voluntary adoption of such practices and systems, at this scale, can improve water quality.

The project has been funded in large part by a Section 319 nonpoint source pollution abatement grant from IL EPA. The project evaluation and report were funded by the Illinois Soybean Association.

Indian Creek watershed, Illinois



Vermilion River watershed, Illinois



Context

- The Indian Creek watershed is located primarily in Livingston County, Illinois. It is a 51,243 acre drainage area with agriculture as its primary land use, made up of three HUC12 watersheds.
- Indian Creek itself is not a 303(d) listed stream, however it flows into the Vermilion River which is listed as impaired.
- CTIC, the USDA Natural Resource Conservation Service (NRCS), and Livingston County Soil and Water Conservation District (SWCD) were able to secure two important funding sources for the Indian Creek watershed project:
 - The Livingston County SWCD secured Mississippi River Basin Healthy Watersheds Initiative (MRBI) funding from the State NRCS. MRBI funding is a reservation of NRCS Farm Bill program funds from the Conservation Stewardship Program (CSP) and Environmental Quality Incentives Program (EQIP), which are used to incentivize the use of conservation practices on agricultural lands. These program funds were targeted specifically to producers in the Indian Creek watershed. The SWCD worked with the newly formed Indian Creek Steering Committee to submit an application to NRCS for these funds.
 - Section 319 funding is funding that comes from Section 319 of the Clean Water Act. These funds are given to US EPA and allocated to projects by State water quality agencies. In Illinois, this agency is the IL EPA. CTIC applied for, and received, Section 319 funds from IL EPA to implement the outreach, demonstration, and education portions of the Indian Creek project.

Project details

- Through MRBI cost-share contracts, producers implemented various conservation projects that centered upon nutrient management, including different approaches to nitrogen application focused on the elements of the 4R Nutrient Stewardship framework, tissue testing, the use of precision technology for nutrient management, and writing a nutrient management plan. Other popular practices included the implementation of cover crops, conservation crop rotation, grassed waterways, and residue and tillage management.
- Section 319 funding was secured and utilized by CTIC to hire agronomists Dr. Harold Reetz (Reetz Agronomics) and Mr. Tim Smith (CropSmith, Inc.) to work with producers to help them implement nutrient use efficiency demonstration plots on their farms. The demonstrations provided local data to producers who implemented the demonstrations and to the community at large.
- The Section 319 grant also funded one winter/annual meeting per year and one summer field day event per year. Demonstration plot data results were disseminated at these events, as well as information that educated producers on connections between agricultural practices, water quality, and soil health. In addition, the events were networking opportunities for producers to discuss demonstration plot data and experiences with conservation practice implementation with other producers.
- Local leadership in the NRCS and SWCD was an important aspect of the project. Terry Bachtold, SWCD resource conservationist, met face-to-face with every producer in the watershed to inform them about the Indian Creek watershed project and the cost-share programs available. Eric McTaggart, NRCS district conservationist, provided technical support to interested producers and recommended the program best suited to the producers' needs.
- The Indian Creek watershed project had a hands-on, empowerment focus. The project put information into producers' hands through their experimentation with changes in farm management, through the implementation of demonstration plot testing of nutrient management strategies, and through the dissemination of demonstration results and lessons learned at project sponsored meetings and events.

Project partners

- CTIC: CTIC is the backbone of this project. Chad Watts, CTIC project director, leads this effort and has been instrumental in coordinating the social and information sharing components of the project (e.g., quarterly steering committee meetings, annual meetings, field days, media contacts, and making presentations to groups about the project). He, along with CTIC project coordinator, Sue Tull, is also in charge of getting the word out about the project through email updates, newsletters, and media relations. Sue Tull also ensures that the project is on schedule and on budget. CTIC has been instrumental in bringing in additional funding for initiatives and projects that complement the ongoing conservation work in the Indian Creek watershed. As will be shown, project outreach provided by CTIC (and made possible through Section 319 funding) is an important aspect of this project's success.

- Livingston County Soil and Water Conservation District (SWCD): While the local SWCD office also provides coordination support for steering committee meetings, annual meetings, and field days, this agency provides the on-the-ground effort to gain project participation. Terry Bachtold, resource conservationist, is the face of the project. He hand-picked the steering committee, asking producers who were well regarded in the community and who were also motivated to implement conservation practices, as well as all local agriculture retailers and the Mayor of Fairbury, to participate. In addition to pulling together this core group, Terry Bachtold visited face-to-face with every producer in the watershed to tell them about cost-share and demonstration plot opportunities available through the project. Terry Bachtold is a trusted member of the community, to whom other people listen. He is a farmer himself and his family has lived in the community for generations. He is quiet and not pushy, yet passionate about conservation. Terry Bachtold's standing in this community, his demeanor, and his passion about this watershed project, have been instrumental for producer participation.
- USDA Natural Resource Conservation Service (NRCS) staff: Eric McTaggart, district conservationist in the local NRCS office, administers the cost-share program contracts and provides on-farm technical assistance to help match producers with appropriate conservation measures for their farms. After Terry Bachtold recruited producer participants, Eric McTaggart and Livingston County NRCS staff helped producers identify priority conservation practices and systems that could address each farm's needs. They then explored appropriate program options to help farmers defray the cost of the practices and systems. Eric McTaggart would meet with producers at their farms, in the NRCS office, or during open houses, to recommend the program best suited to the producers' needs, and walk them through the applicable paperwork. Like Terry Bachtold, Eric McTaggart's demeanor is not pushy, which contributes to the trust of local staff in successfully contracting with producers in the watershed.
- Steering Committee: The steering committee was put into place prior to applying for NRCS MRBI funding. The current steering committee is made up of local SWCD and NRCS staff, local producers, local agricultural retailers, local agricultural lenders, interested citizens, and agronomists Harold Reetz and Tim Smith. The meetings are open and anyone is welcome to attend; for example, representatives from American Farmland Trust, The Nature Conservancy, and the Illinois Soybean Association have attended in the past. Many of the project sponsors, who represent agricultural industry leaders, also often attended steering committee meetings to participate in discussions, and to offer insights and expertise. These meetings serve several functions; the meetings are: 1) a place for the committee to discuss conservation practices and demonstration plots and determine which projects to include on the practice and demonstration menu; 2) a setting for the committee to recommend specific events and speakers for Annual Meetings and Field Days and then plan (and volunteer) for specific aspects of each event; 3) an informal venue for information sharing amongst all participants.

Project goals

- Implement conservation practices on 50 percent or more of the Indian Creek watershed's farmed acreage.
- Measure water quality in Indian Creek to determine whether voluntary implementation of priority conservation systems on at least 50 percent of the land in the watershed, over the six year timeframe of the project, is a sufficient implementation scale and timeframe to impact water quality.
- Provide educational assistance to watershed producers in order to make overall improvements to water quality in Indian Creek through the utilization of the 4R Nutrient Stewardship framework.

Evaluation method

The primary source of our data were 35 semi-structured interviews conducted between February and March of 2015 in Livingston County, Illinois and over the phone. Our first step in this process was to contact and interview key project staff¹ in order to understand the overall Indian Creek watershed project intent, process, and perceived achievements. Livingston County Soil and Water Conservation District staff then provided us with an initial list of producers (those participating in cost-share programs and those who did not participate) and steering committee members. As we learned more about the project's reach through interviews, attending meetings, and reading reports and news articles, we identified additional people, external to the project², to interview. The breakdown of our interviews is as follows:

- **12 producers (10 households)**
 - 8 participant
 - 4 non-participant
- **7 steering committee members**
 - Agronomists
 - Agricultural retailers
 - Agricultural advisors
- **6 key project and agency staff**
 - Conservation Technology Information Center (CTIC)
 - Livingston County NRCS and SWCD
 - Illinois EPA
 - Illinois Department of Agriculture
- **10 external to project**
 - Other County NRCS staff
 - Illinois America Water
 - Engineers
 - Non-profit conservation organizations

Perceived goals

- Overall, interviewee perceptions of the project goals corresponded with the actual intent of the project.
- The majority of the people interviewed discussed **improving water quality through changes in farming practices** that included reduced tillage practices and nutrient management practices and systems that encouraged nutrient use efficiency as project goals.
- One additional common goal that emerged was **education and information dissemination** to enable producers to apply new knowledge to their own farms.

¹ CTIC, NRCS, and SWCD staff.

² Contact information was found through public information available on the internet.

Perceived successes

- Interviewee perceptions of successes did not align with their perceptions of project goals.
- When asked about the project's successes, improved water quality was not mentioned.
- The most commonly expressed success was that the project **increased producer awareness** of how agricultural practices impact local water quality.
 - Implementation of conservation practices and utilization of the 4R Nutrient Stewardship framework can have positive influences on yields, profits, and water quality.
 - Increased awareness led some producers to pay more attention to agriculture's impact on local water quality and their farm's soil health, and to think about their own farm management practices in a different way.
- Another major theme that emerged was the perception that the project **increased public awareness** of producer efforts toward helping to improve water quality.
 - Many of the people interviewed spoke about the "public" in the context of **policy and regulation**. The Indian Creek watershed project was seen as an example of what can be achieved without regulation. This seemed particularly salient as the Illinois Nutrient Loss Reduction Strategy was in the process of rolling out.
- **Changes in behavior** were also specifically mentioned as a success.
 - Changes to when and how nitrogen was applied to crops (e.g., moving from fall application of nitrogen to a spring application and side-dress system).
 - Participation in cost-share programs in the watershed, including CSP renewals.

Learning

- Producers valued **networking** opportunities with other producers in order to discuss lessons learned from various different conservation practices and demonstration plots.
- Meetings where **nutrient use efficiency data** were presented and new technologies were demonstrated were important to producers.
- Going through the **CSP process** allowed producers to step back and think about their overall farming operations and question their farm management habits.
- **Hands-on implementation** of conservation practices on producers' own land allowed them to see, first hand, how the practice would or would not benefit their own farm operations.

Key takeaways

- One overall message expressed in interviews was the **sense of community** in this watershed; particularly that the community came together to work toward a common goal to test and implement conservation practices in order to improve water quality in Indian Creek that eventually impacted drinking water extracted from the Vermilion River.
- This community approach included **local leadership** from the SCWD and NRCS offices; people who were respected, trusted, who knew the producers in the watershed and could work well with them.
- The people interviewed said that it is important to **involve local producer leaders** in the project. These producers should be people who are **respected** in the community and whom others watch to see how they manage their farms. The leaders should be **willing to commit** to implementing conservation practices and/or demonstration plots and to **speak** about their experiences and farm management data.

- The value of **partnerships within the steering committee** was another key takeaway that emerged. While the Livingston County SWCD resource conservationist hand-picked the initial committee, the committee has an open door policy for participation. The committee is locally led, the producers have a strong voice, and the diversity of the people involved played to the strengths of each group. Not one single person or entity carried the committee. Rather, it was the strength of the whole.
- Participation of **local agricultural retailers** on the steering committee was seen by many as a key aspect of project success.
- Many of the people interviewed noted that **funding** was an important part of the project's success. **Cost-share funding** served as an incentive for producers to try new conservation practices, while 319 funds and sponsorship money were secured and utilized by CTIC to lead **outreach efforts, fund demonstration plots, and cover costs associated with marketing and communication**. These funding sources worked hand in hand to get producers to the table, to fund numerous cost-share projects, and to utilize demonstration plot data in outreach meetings to help producers think about different ways of managing nutrients on their own farms.

Challenges and improvements

- Interview data revealed that there is a disconnect between the intended goal of improved water quality and the perceived reality that improvements were detected. Although the people interviewed understood that improvements to water quality can take many years, they expressed a desire to see **more water data** in order to understand whether changes in farm management practices had a positive impact on water quality. Moreover, there was a concern over a **lack of baseline data** in Indian Creek prior to the project's start. Not having this baseline made measuring the water quality impact of the acreage enrolled in various conservation practices difficult.
- Another issue that emerged was a concern over the **intensity of resources (time and funding)** needed to implement the Indian Creek watershed project. It was recognized that the funding needed to cover cost-share programs and outreach components of the project would be **difficult to replicate or scale-up nationwide**.
- At the farm level, several interviewees mentioned that the **high price of corn** during the watershed project allowed them to feel more comfortable in trying new conservation practices, particularly in **alleviating financial risk** associated with establishing cover crops. As commodity prices decline, producers may feel that experimenting with conservation practices or new nutrient management strategies entails too much financial risk to pursue.
- Another issue conveyed was the Conservation Stewardship Program **contract process** with requirements that were seen as burdensome for three reasons: 1) For some producers, filling out the contract paperwork was perceived not to be worth their time in relation to potential benefits they might receive, along with the risk that the project may not even be accepted, 2) A few landlords did not want to be locked in a contract with one producer for a 5-year time period, and 3) One producer said that they wanted more flexibility in meeting their yield goals than a contract would allow.

Discussion and recommendations

Structure of the project

- **Local leadership** who knew the community, were trusted, and worked well with local producers, was a key component of producer participation in the Indian Creek watershed project.

We recommend identifying dedicated local leadership, in some capacity, within potential conservation project communities. Ideally this person (or persons) should know/understand the community, work well with producers, be seen as knowledgeable and trustworthy, and be willing to be a visible part of the project and dedicated to working through challenges and barriers in order to achieve project goals.

- The project was community driven and locally led. Local leadership convened a **steering committee of diverse partnerships** prior to the project's inception, in order to apply for government funding. The partnerships developed on the steering committee helped move the project forward, kept it going for five years, and gave the project a sense of legitimacy. There is currently a sense from the steering committee members that they will continue to meet after the project officially ends, even if it is not as often.

We recommend a similar approach to future conservation projects. Ideally the steering committee would be made up of all representatives of the agricultural community, including community members, in order to bring all stakeholder voices and strengths into decision making processes. Including local agricultural retailers should be considered an important component of the makeup of the steering committee, as these are the people who routinely advise producers – producers and retailers can work together toward the implementation of on-farm conservation practices.

Common goals

- Indian Creek flows through the Fairbury community and runs into the Vermilion River, which provides drinking water for the neighboring communities of Pontiac and Streator. Many producers were concerned that their practices might have an influence on their downstream neighbors. This **local goal** perhaps means more than an abstract problem hundreds of miles away in the Gulf of Mexico, as the producers we interviewed wished to help their **neighbors** and **community** at large.

We suggest that incorporating local/community issues be considered in conservation project communities. Whether this is concern over fish, taking a float trip, providing drinking water, or improving the long-term sustainability and viability of local/personal farmland, community identity and local concern can be better conceptualized than problems many miles away.

- The **regulatory environment** provided another common goal for the producers in this area. The Illinois Nutrient Loss Reduction Strategy offered a convenient framework for producers in the Livingston County area to show that they take water quality seriously, and are working toward better farm management for the greater good as well as their own farm viability over time. One of the successful aspects of the Indian Creek watershed project, expressed by the people we interviewed, was that producers could try different practices in order to see what worked best for their own farms; this trial and error process was perceived to be more successful and beneficial than strict mandates on what to do when or how much fertilizer to use, etc. Producer motivations to implement conservation practices is of concern in any conservation project. Motivators such as farm stewardship, improving neighbors' drinking water quality, or a sense of off-farm environmental responsibility may be a more sustainable way to influence farm management practices over the long-term. However, "fear" of regulation is very real. We suggest that **linking voluntary conservation measures with State-wide programs** such as the Illinois Nutrient Loss Reduction Strategy, can put conservation projects, and what project leaders are asking producers to do, in a larger context.

In this case, because of the regulatory context, many producers expressed that they were working together as a community to show “regulators” that they can address environmental quality issues on their own. This sense of community and pride should not be underestimated. We recommend that conservation project communities identify their own issues that might foster a sense of community to work toward a common goal.

Awareness building among producers

- The project entailed **hands-on learning** by producers, thereby allowing them to see which conservation practices made most sense on their own farms. The project educated producers on alternative ways of managing their farms, as well as the impact of agriculture on water quality and soil health. Achieved through their own **experiments and data shared by other producers**, the education and outreach process contributed to producers’ **awareness** that there are environmental problems (both on and off farm), and that different management practices can improve their own efficiencies while improving environmental quality.

If producers are not aware of a problem, or don’t believe the sources that say there is a problem, then they cannot or will not change their farming practices and routines – there is no need to fix something that works. The education on water quality and soil health provided at various meetings and field days, the hands-on nature of conservation practice implementation, and the sharing of nutrient management data was key to building awareness of agriculture’s various impacts on the environment and various solutions to those impacts. This awareness then led to more curiosity and more effort to read and learn. We therefore recommend this multifaceted approach to learning and change for future conservation projects.

Watershed scale

- The people we interviewed told us that they felt the scale of the watershed was small enough to reach every farmer, yet big enough that there were enough producers to make enrolling 50 percent of the watershed’s farmed acreage feasible. We were told that, because of this project, land enrolled in this project is now being managed in a different way. The success of this project has the potential to impact producers in neighboring counties and watersheds through data and information sharing. Indeed, the Indian Creek project partners have secured MRBI funding to expand into Vermilion River watershed headwaters.

We suggest that future conservation projects consider the scale of the watershed as an important factor in choice of project context/location. The scale should carefully correspond with project goals.

Goals and data

- Many producers spoke of water quality as being a primary goal of Indian Creek watershed project. Despite this, almost everyone had questions about whether their efforts were making a difference toward improved water quality.

We suggest that if water quality goals are an explicit aspect of a watershed project, it is important to provide transparent water data, as well as connections between agricultural practices and water quality. This data must be trusted and transparent, with little room to question the legitimacy of stated problems and goals. If such transparency is not possible, then other goals should be brought to the forefront of the conversation (e.g., soil health, long-term farm viability, etc.).