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On the Frontier: Impact-Oriented Multidisciplinary Research

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This paper discusses how to make multidisciplinary research more effective at influencing policies related to deforestation. It reviews previous experiences with multidisciplinary farming systems research and the difficulties bringing together researchers from different disciplines. Leadership, value added, timeliness, targeted communications, and work at multiple scales are identified as important characteristics of policy-effective research. Three examples of effective multidisciplinary research are presented: IPAM's research on deforestation for soybeans and beef in the Brazilian Amazon, CIFOR's research on pulp and paper in Indonesia, and IPAM's research on logging concessions in Brazil.

KEYWORDS multidisciplinary, deforestation, Amazon, Indonesia, Brazil

THE CHALLENGE OF PRODUCING IMPACT-ORIENTED RESEARCH

Addressing the huge pressures farmers, ranchers, and loggers put on forests is one of the most important challenges of our generation. As researchers, we need to think hard about how to meet that challenge. What is our role and how should we go about it?

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This article is based on the keynote address given at the conference titled "Conservation and the Agricultural Frontier: Integrating Forests and Agriculture in the Tropics," organized by the International Society of Tropical Foresters, Yale University Chapter, on April 7–8, 2006 at the Yale University School of Forestry and Environmental Studies in New Haven, Connecticut, USA.

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When the Conference Organizing Committee first suggested I give a talk about multidisciplinary research, I was skeptical. Who am I to tell you about research? But the more I thought about it, the more I realized I do have some strong views on the topic and this is a good place to share them. As such, my intent here is not to suggest that the Center for International Forestry Research (CIFOR) has found the solution to the problems related to multidisciplinary research, but rather to discuss some challenges we and our partners have faced in hope they might offer insight to others. This article focuses on multidisciplinary research as it applies to the dynamics of tropical agricultural and forest frontier areas.

Let me make clear from the beginning that I don't believe research always has to have impact. Much research is designed to simply tell us how things work and if it achieves that it is good enough. Basic research is crucial for universities, which need to think well into the future and make the big breakthroughs that change the ways that we as practitioners think about things, and conduct our work. Furthermore, basic research is essential for a teaching environment that produces world leaders. So to reiterate, I am not speaking against basic research.

On the other hand, I find research that is supposedly designed to change policies and practices—but that really is not—to be entirely worthy of critique. Unfortunately, there is a lot of this kind of research out there. To avoid that pitfall, applied research must have a clear and credible vision of how it will get people to do things differently. That vision is likely to evolve over time, but it is still crucial to cultivate it from the outset.

A vision for moving from knowledge to impact doesn't mean researchers must do everything. Other groups can carry out training, lobbying, and adaptation activities needed to bring new research findings to fruition. However, applied researchers should never say, "Our research is good but politicians don't listen" or "Someone has to do it but it's not my job." It *is* the applied scientists' job to figure out how to reach farmers and politicians and how to turn theory into practice. If that is where the bottlenecks lie, those are the research questions they should be thinking about most seriously.

Admittedly, even a clear vision doesn't guarantee success. Sustainable resource management is a difficult business, and conserving frontier forests is an uphill battle. People destroy forests to make money, and most governments can't or won't stop them. Although "green alternatives" are frequently proposed as solutions, even these strategies have lots of shortcomings.

So by way of encouragement, if you succeed even a small part of the time you're doing pretty well, but the only way to have any real shot at all at success is to do your homework. That means choosing your topics, sites, approaches, and partners very carefully; and finding those rare cases where research really can make a difference. Otherwise your chances will be so small that it won't be worth the effort. With these observations in mind, what I'd like to offer are some suggestions on principles that are helpful to producing impact-oriented research.

SUGGESTIONS FOR IMPROVING MULTIDISCIPLINARY RESEARCH AND IMPLEMENTATION

In agriculture, when people talk about multidisciplinary research, they're usually thinking about farming systems research. This term refers to an approach that brought together agronomists, economists, and anthropologists in a single team (Merril-Sands, Ewell, Biggs, & McAllister, 1989). In these cases, the social scientists spent most of their time studying why farmers didn't listen to agronomists. Frequently, these social scientists found out agronomists promoted things that didn't taste good, were too risky or labor-intensive, or raised yields without raising profits.

Although the agronomists weren't too thrilled, these observations provided impressive contributions to an overall understanding of why more people hadn't realized the benefits of previous agricultural research. However, the shortcoming of these observations is that they only identified reasons for things that didn't work; they didn't say what *would* make a difference.

The question these shortcomings raise, both for agricultural and conservation purposes, is "what comes after assessment?" In forestry and environmental work, "multidisciplinary" often translates into big teams assessing a region or management unit and producing vast quantities of impact studies, management plans, and edited books. While these activities generate new descriptions of the conservation target, they usually don't get you much further toward answering the pressing "how-to" questions.

On the more practical side, the approaches typically referred to as "Integrated Conservation and Development" represent efforts to integrate a multidisciplinary approach into implementation. These projects, as they translate to on-the-ground work, typically consist of biologists counting species within park boundaries while social scientists, agronomists, and foresters interact with communities and resource management around the edges. By segmenting the work geographically and by discipline, they often miss the opportunity to produce an integrated conservation effort that is greater than the sum of its parts.

The Center for International Forestry Research (CIFOR) has approached this problem by using visioning tools, maps, and simulations to bring these groups together (see, for example, CIFOR, 2009). We have had some success with these techniques, but as discussed below, we still think we have a long way to go. What's in a Discipline? World Views, Ethics, and Types of Personalities

One thing that caught my attention in CIFOR's work in Indonesia is how easy it is for conflicts between interest groups to end up as conflicts between disciplines. In Malinau, East Kalimantan, we have been trying to develop an integrated approach involving foresters, ecologists, anthropologists, and economists for a decade. In that context I have observed that frequently conflicts between communities, companies, and conservation—and between national and local governments—are reflected within the CIFOR team itself, and have made it that much harder to work as a single integrated team. The foresters sympathize with the companies; ecologists see things like Non Governmental Organizations (NGOs); anthropologists don't like loggers or politicians; and researchers working with governments usually think like the governments do. In a sense, as they say, "where you sit is where you stand." People think like the groups they work with and the relations between disciplines reflect these allegiances.

Disciplines also attract different kinds of people. One anecdote that always comes to mind when I think about this issue is from an evaluation I did some time ago of an integrated pest management project in the Panamerican School of Agriculture in Honduras (Escuela Agrícola Panamericana Zamorano; http://www.zamorano.edu). During my interviews there the director mentioned that his scientists didn't want to work with farmers; and that in fact one of the reasons they studied entomology in the first place was so they wouldn't have to talk to anyone bigger than 2 inches tall.

When we talk about multidisciplinarity it is important to realize that disciplines are not just topics. The differences in disciplinary training are not limited to the fact that one person studies bugs and another studies law. People from different disciplines are trained to think differently—a distinction limited not just to what they focus on but also extending to what they care about and how they look at the world.

Lately I have been working with an ecologist on an article for an ecology journal. This interaction has made me realize that unless social scientists consider biologists' conservation ethic, we are going to talk right past them, and never reach an effective common ground. My biologist colleague has been taught that nature has an intrinsic value, and that even if this value cannot be justified economically, preserving it for future generations is humans' ethical responsibility. As an economist, that's been pretty rough for me to swallow. In my discipline, I was taught that whatever preferences people express through their economic choices are essentially ethical and or at the very least that economists should not mess with market principles just because the outcomes somehow seem unethical. Alternatively, if I had studied law, I might have been taught that the decisions of individuals, corporations, and governments need to meet some minimum standard of what is legal, but that ethical concerns beyond these minimum standards are nothing for governments to get involved in. Comparing these three perspectives, there is a disparity not just between what ethics consist of, but also the mechanism by which moral and ethical standards are applied. Where such disparities in perspective exist, sitting around the same table and "learning each other's language" will not guarantee a healthy middle ground. A greater depth of understanding of these differences—accompanied by a real willingness to compromise—is necessary to bridge these divides.

In generating this depth of understanding, some of CIFOR's own best experiences have been with individuals who are themselves multidisciplinary. Over the last few years, people have been asking us whether CIFOR still had enough foresters and ecologists or had gone too far toward the social sciences. When we actually looked at the numbers, it turned out roughly one third of our professionals were social scientists working on social issues; one third were foresters and biologists working on natural science issues; and one third were natural scientists working on the social side. The last of these groups—those whose work overlaps disciplines—has been particularly important to improving our ability to do multidisciplinary work.

When a Multidisciplinary Approach Isn't Enough

Finally, I would like to offer my thoughts on what to do when, despite best attempts, multi-disciplinary approaches don't produce the desired results. Some time ago, Ruben Echeverria and Carl Pray did an interesting study comparing public and private research on agriculture (Echeverria & Pray, 1990). What they found was not that privately sponsored research was more successful than publicly sponsored work; in fact, in both cases, projects usually failed. The big difference between the two sectors lay in the fact that when things went nowhere with a research project, private companies pulled the plug relatively early, while the public sector just kept going.

As the director of a research institution, I know how hard it is to say it's time to stop, but I also believe we need to have some system that fills this function. I don't necessarily think that can be accomplished by formal priority setting, nor am I terribly thrilled about the way most peer review systems work. Nonetheless, for impact-oriented research to be successful, someone must be in a position to ask the hard questions, and be willing to put a stop to projects that don't add up.

KEY CHARACTERISTICS OF RESEARCH WITH IMPACT

Now, I'd like to say a few words about five things I often find in research with impact: leadership, added value, good timing, targeted communications, and work at several scales.

Leadership

In almost every case of high-impact research of which I am aware, one or two people provided leadership and vision. Simply putting a bunch of people in a room to draw up proposals is not a formula for good science or significant impact. That approach usually generates a mishmash of pet projects, which may be even less coherent if multiple institutions are involved. Typically the main concern driving such meetings is how to divide up the budget.

By pointing this out, I do not want to imply people should give up on collaborative or participatory research and do things alone; if they did, it wouldn't be multidisciplinary. Nonetheless, for projects to successfully and coherently arrive from start to finish, someone has to guide the process and figure out which inputs enrich the output and which do not. In a pinch, a little charisma never hurts.

Value Added

Although the trend toward acknowledging local knowledge in environmental research in recent years has had many positive outcomes, the resulting reluctance to emphasize the expertise that formally trained scientists possess is not always entirely positive. Participation and indigenous knowledge are absolutely fundamental, and no outside researcher should ever think they know more than the locals. However, to have impact, research must bring new ideas, products, or information, not just, as my CIFOR colleague Trish Shanley has said, "borrow peoples' watches to tell them the time." It is important to feed back what we learn when people share their information, but it is also necessary to make sure we tell them things they don't already know.

Timing Is Everything

While we're on the subject of watches, we should also talk about timing. The opportunities for research on frontier-area resources and practices to have a real impact don't last very long. They usually come when: (a) booms or busts convince farmers to change; (b) disease, disasters, or devaluations put change on national and local agendas; or (c) reformists come to power looking for new ideas. Without the right message at the right moment researchers miss the boat. This may be a particularly difficult observation to drive home to scientists because in academia this year is as good as the next. However, the window of opportunity is much shorter outside academia.

Research by its nature is and always will be a slow process; most good work takes years to mature. Nonetheless, researchers need to recognize important opportunities when they see them and be flexible enough to catch the wave. Projects and journals don't usually work that way, but good applied research does. This is one of our biggest challenges.

Targeted Communications

CIFOR's ex-board chair Jag Maini always used to complain to me about research being addressed "to whom it may concern." It is amazing to see how many researchers simply assume that results will move miraculously from obscure journals to decision-makers' desks, and that policymakers will read reports and do things better accordingly.

This notion is wrong, and the sooner we discard it the better off we will be. To get people to change, you have to think very hard about who they are, what they want, and how to deliver messages that mean something to them. If you want to influence debt negotiations in Indonesia, you had better be on the financial page. On the other end of the spectrum, if you want to build grassroots networks in Mexico, you should be generating simple materials in local languages that organizers will want to read. It would help a lot if each time researchers published something for generic audiences it came back "return to sender, address unknown."

Working at Multiple Scales

One promising advance in conservation these days is that conservation targets are now conceived of in terms of "landscapes" and "eco-regions." This represents an important move forward in that it suggests we've finally figured out that parks are not enough. Geographic Information Systems (GIS) and other spatial tools have helped researchers generate greater understandings of the scale(s) at which ecological and human resource management processes occur. (For examples in this compilation, see Martínez de Anguita et al., Rivera et al., Arce-Nazario, and Toillier et al.)

What remains to be considered in much greater depth is how researchers' work at one scale could strengthen their impact at others. Some of the best multidisciplinary policy research uses local material to shape national, regional, or global debates, or informs local people about wider trends (for examples in this compilation, see Russell et al., Shriar, and Cohn and O'Rourke). Working with national politicians, donors or the media can unlock doors local efforts could never open, while strong data from the field is powerful in national and global debates. It can be easy for people focusing on only one of these scales to forget the importance of the others.

This doesn't mean every researcher needs to work at every scale. Some people get along well with villagers but struggle to communicate with donors or the media. For others, it's the opposite. Because people have different strengths, it is crucial to have individuals in an organization or working group who can serve as bridges and synthesizers, communicating ideas and information back and forth.

EXAMPLES OF RESEARCH WITH IMPACT

To make these ideas more concrete, I'd like to give a few examples. I have deliberately chosen three cases that involve big players and global markets, because these elements are fundamental to successful forest conservation in the present moment. Typically, concerns about the forces driving deforestation have focused on small-scale farmers practicing "slash and burn" agriculture, but in Southeast Asia and Latin America, larger-scale forces are driving most forest destruction (e.g., Curran et al., 2004; Nepstad et al., 1999).

Persuading loggers, ranchers, soybean farmers, and palm plantations to change their behavior is a whole new challenge, unlike what conservationists have done in the past. The same goes for changing the behaviors of the banks that fund these actors and the market chains that absorb their goods. These groups are much more powerful and far less transparent than *campesinos* or swidden agriculturalists, but they are also more vulnerable to bad publicity and regulation, and can change much faster if they want to. These three cases represent significant steps forward in working with larger-scale actors.

Using Markets to Slow the Frontier: Soybeans and Beef in the Amazon (IPAM)

My first example is IPAM, the Amazonian Environmental Research Institute. For the last 6 years they've been working in Mato Grosso, near the Cuiabá– Santarem highway, to get ranchers and soybean farmers to improve their agricultural practices and leave forests alone.

A while ago, IPAM decided the best way to achieve this goal would be to certify whole districts where all the farmers adopted specific practices and complied with environmental laws. They hope that the certified districts will be granted better access to Europe's markets and that will provide an incentive for farmers not only to comply with these standards themselves but also to encourage their neighbors to stay in compliance.

To negotiate a deal that both conservationists and farmers will accept, however, requires good research that shows which changes really matter and what they cost. To produce that research, IPAM has assembled a team of over 30 researchers from a wide variety of institutions. This group already includes hydrologists, limnologists, ecologists, economists, environmental engineers, and GIS specialists, and they hope to add a few agronomists. Each of these individuals looks at just one piece of the jigsaw puzzle, but a few leaders with a grasp of the big picture put the pieces together and make sure the end result will encourage forest conservation. Once they have the pieces, IPAM shares them with the farmers' association and an NGO called the Socio-Environmental Institute (ISA). Together the three groups try to turn the research results into a feasible and meaningful implementation plan. As may be obvious by the number and variety of groups IPAM has drawn into its efforts, this initiative will take more than science. The government will have to change its regulations, and markets will have to shift to demand goods produced in an environmentally friendly fashion. One reason IPAM chose ISA to work with is that they respect ISA's ability to promote government- and market-based activities that favor social and environmental outcomes.

The key here is that the research component is more than isolated studies. It is part of a conscious strategy, which includes all the groups necessary to make concrete change. Not all the researchers understand the full strategy, but it underlies all their work. To succeed, IPAM will have to be active at various scales, ranging from the Xingu watershed to the retail markets of Europe.

Taking on the Corporations: Pulp and Paper in Indonesia

Another example from CIFOR's own research has been our work on pulp and paper in Sumatra. In this case, a handful of big companies went out and borrowed billions of dollars and promised banks and the government that would get their fiber from plantations. In reality, much of the money was pocketed, and the mills were fed on natural forests.

When CIFOR became aware of this situation, we put together a team with a forester, a sociologist, and a financial analyst. The forester studied the mills and the plantations; the analyst studied the companies' debt; and the sociologist worked on understanding corporate strategies and making contacts with banks, NGOs, governments, and the press. The team also brought in other people when they needed them. They used a biologist's research to show the forests being destroyed had valuable diversity. A legal expert helped find out how to use money-laundering laws to attract the attention of banks. CIFOR's ecologists and economists worked directly with the companies to keep biodiversity in their plantations and reduce fires and conflicts with communities.

Putting all these results together, this team has been able to make a compelling case for forest conservation, and to make sure all the key actors know the details of this case and where they stand within it. They've combined research in central Sumatra with work in Jakarta, Washington, and Brussels, as well as links to global media. Together, these efforts have forced the companies to start to change their practices.

Brazil Makes Concessions to Logging (IMAZON)

My third example is the Amazon Man and Environment Institute (IMAZON). They were the intellectual authors behind Brazil's new forestry law, and

have played a major role in developing a new concession system for state and national forests.

How has IMAZON done this? First, they developed strong credibility by collecting data no one else had about forests and forestry, and making it widely available. Second, they made a name for themselves in forest management, but then shifted to policy work once they took management as far as it could go. Third, their teams include foresters, economists, ecologists, remote sensing experts, and lawyers. IMAZON's six programs are organized largely by discipline, but most publications have authors from several programs, and all six programs discuss each project before it is approved. Fourth, as in the previous two cases, a handful of senior researchers with good contacts in the media, government, and donor agencies, actively promote their results and make sure the implications are clear to the right people in positions of power.

Forests Meet Conflicts and Health: A New Direction for Multidisciplinary Research

Finally, I'd like to use one additional example to suggest one other role for multidisciplinary research: building bridges with new constituencies. Over the last few years we've seen a big drop in interest in forests and forestry globally. One way to rebuild that interest is to show people how forests relate to other issues that have come to the forefront during this time.

To this end, CIFOR is increasingly working on topics like forests and human health, and violent conflict in forested regions. This work brings in new disciplines such as public health, epidemiology, and political science. Hopefully, by creating linkages with issues that have traditionally interested those disciplines, we can encourage them to become interested in our issues as well.

CONCLUSION

To reiterate, faced with an unprecedented destruction of tropical forests, researchers have both a role and a responsibility to help combat negative environmental outcomes. Nonetheless, you can't simply stumble into having an impact. That requires clear strategies and alliances with other groups. Ideas and information are very powerful things, but even their power does not justify relying on chance.

To come up with good solutions, we will need to put representatives of all sorts of disciplines to work on these problems. Foresters, ecologists, economists, anthropologists, GIS experts, doctors, lawyers, political scientists, and MBAs all have roles to play. But the point is not simply to throw these groups together and get them to talk to each other. Rather, the trick is to find ways to ensure they all do their part to make efforts succeed.

In my experience, it usually takes at least 6 or 7 years for this kind of team to make anything happen, a time frame which also requires flexible enough funding to allow for a shift in course as the project evolves. It is important to have someone to stop projects that do not have a credible story, but it's also important to find someone willing to fund the ones that do.

These assertions may seem strange to academics. Academia awards promotions for publishing in journals and speaking to others within a discipline. There is nothing fundamentally wrong with this, but to engage in impactoriented research, you can't stop there. You must reach wider audiences and let them know what your research shows. Academics have credibility, and academics visit places and see things other people do not. If academia doesn't speak out, who will? Science can be a powerful force for change, but only if, as scientists and researchers, we look beyond the *what* of the research and start to think in greater depth about *how* to make change happen.

REFERENCES

- Center for International Forestry Research (CIFOR). (2009). *Local People, Devolution, and Adaptive Collaborative Management Program: ACM and beyond*. Retrieved March 14, 2010, from http://www.cifor.cgiar.org/acm/beyond/
- Curran, L. M., Trigg, S., McDonald, A., Astiani, D., Hardiono, Y. M., Siregar, P., et al. (2004). Lowland forest loss in protected areas of Indonesian Borneo. *Science*, 303, 1000–1003.
- Echeverria, R., & Pray, C. (1990). Private sector agricultural research and technology transfer links in developing countries. In D. Kaimowitz (Ed.), *Making the link, agricultural research and technology transfer in developing countries* (pp. 197– 226). Boulder, CO: Westview Press.
- Merril-Sands, D., Ewell, P., Biggs, S., & McAllister, J. (1989). *Issues in institutionalizing on-farm client oriented research: A review of experiences from nine national agricultural research systems.* The Hague: The Netherlands: International Service for National Agricultural Research.
- Nepstad, D, A., Veríssimo, A., Alencar, C., Nobre, P., Lefebvre, P., Schlesinger, C., et al. (1999). Large-scale impoverishment of Amazonian forests by logging and fire. *Nature*, 398, 505–508.