

# The Common Property Resource Digest

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This issue of the CPR Digest is all about **game theory** and its utility as a tool for understanding common pool resource issues. The CPR Forum begins with a strong argument by *Lore M. Ruttan* for why game theory is a useful tool - in fact so useful that if we can't have a unifying CPR theory, game theory at least provides us with a unifying tool. *Rick K Wilson* agrees that game theory can be a unifying tool, but has many concerns about the theoretical changes needed if it is going to be able to adequately predict behavior in the bargaining situations which are so central to CPR management. *Emmanuel Bon*, while remaining essentially within the game theory / rational choice world view raises some real questions about the limits of assuming rationality and the problems of social construction and power. *Doug Wilson* continues and expands upon the social construction theme, taking a viewpoint external to game theory or any other theory based on the behavior of individual actors. He is skeptical of the degree to which game theory can be a unifying tool in relation to the theoretical concerns he finds important.

This issue also contains our second Regional Beat which is brought to us by *Juan Camilo Cárdenas*, our Regional Editor for Latin America. Rather than finding a specifically Latin American theme, Juan Camilo decided to link the Regional Beat directly to the issue's CPR Forum. He translated Lore Ruttan's commentary into Spanish and invited *Alpina Begossi* from Brazil and *Leticia Merino* from Mexico to join him in commenting on the role of game theory. We are also happy to welcome a Latin American Practitioners' Profile from Christophe Albaladejo and his colleagues of a sustainable agriculture and forestry program based on an Argentinian-Brazilian-French partnership. **Enjoy!**

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## CPR FORUM COMMENTARY

### Games and the CPR Toolkit

**Lore M. Ruttan**

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Numerous stream synthesizers at our recent meetings noted that case studies dominated the presentations. It is true that we have amassed an incredible collection of data and logged thousands of hours in the field documenting the successes of community management of fishes, forests, pastures, waters, and many other resources. In focusing on refuting Hardin, our members have collectively bludgeoned the myth of a universal tragedy of the commons into submission. We know for a fact that under some conditions, collective management of resources is feasible and enduring.

What we still lack is a coherent theory to explain those successes and failures. It is true we have design principles as articulated in Elinor Ostrom's Governing the Commons, and numerous researchers have carefully collected the data needed to test the validity of these. We find that many of the principles do correlate with sustained CPR management and thus provide useful indicators. At the same time, because we have not specified the causal processes that lead to these correlations we lack real predictive power, particularly in situations of economic and ecological change i.e. today's world. Moreover, without understanding those underlying mechanisms we cannot even specify how many of the principles must hold for success to occur; do we need all of them, two thirds, always the first and sometimes the second? If organizations like the World Bank are going to put their money behind community management, we must be able to predict how collective action fares under dynamic conditions. I argue here that game theory provides us with a tool for understanding the strategic nature of collective resource manage-

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ment and for predicting the outcome of institutional change. Cookbook reliance on principles will not suffice.

I should make it clear that my aim here is not to criticize the design principles per se. This approach was an extremely important first cut at developing our theory of collective resource management, but to paraphrase Bonnie McCay from one of her talks at the meetings, "I'm sure Lin never meant the work to stop there" (and Lin's own work certainly hasn't!). Rather, the problem is that theorists and empiricists seem to be heading in opposite directions. This is due in part to the accessible style of [Governing the Commons](#), it provided a clear agenda for field research. However, much subsequent theory does not have the field researcher in mind and often retreats into abstractions of little use to those working in the real world. On the other hand, many non-theorists seem quick to reject explanatory theory as inherently reductionist and thus, insufficient for illuminating the workings of real communities and the relations of real people embedded in those communities. They are right insofar as many models are culturally and socially disembodied. In the past, economic models have usually ignored socially constructed values that play an important part in influencing people's propensity to act collectively, and that bind rational instincts. When empirical findings refute theory, it has been all too common to question the data rather than the assumptions of the model. Yet this is changing and it is changing in ways that are very relevant to the study of CPR management. The remainder of this essay is thus as much a call for renewed dialogue between theorists and empiricists as a primer on current applications of game theory to CPR management. Having said this, I should note that some of the best attended sessions at the 2000 meetings were, in fact, those devoted to a synthesis of current theory. These sessions were sponsored by the Human Dimensions of Global Change Committee at the National Research Council.

The 1990's were a period of renewed growth and excitement in game theory, largely because of the influence of evolutionary theory on economists. One outgrowth of this has been a greater

acceptance of the limits of strict rationality. By this I mean that many authors now accept that rationality is constrained by limits to information, by evolved norms and mental capacities, and that often preferences aren't simply for monetary rewards, but despite this, actors are still expected to optimize outcomes subject to these constraints. During the first of the synthesis sessions, papers by Armin, Fehr and Fischbacher, and by Kopelman, Weber and Messick each presented some of the latest findings on the limits to rationality as explored through experimental economics and psychology respectively. The ensuing, very lively discussion was a wonderful example of dialogue that can occur when theorists and empiricists, academics and policy makers really engage. In another synthesis session, Richerson and Boyd, also argued that individuals do not behave in a strictly self-interested manner but instead conform to group norms. However, as they envision it, the processes of cultural evolution that produce such norms are no different than those that produce self-interested behavior. In other words, they are able to account for characteristics of communities without abandoning the processual, explanatory reasoning that game theory is predicated on. On the empirical front, it was very encouraging to find that some field researchers are in fact adopting the tool of games with boundedly rational players. Gaspart and Seki presented a fascinating study of Japanese shrimp fishers in which they first used a game theoretic analysis to predict how social norms of duty and fairness alter the incentive structure faced by fishers. By comparing these predictions against the actual strategic choices made by fishers in three villages they were able to come to a better understanding of the institutional incentives that shape behavior. This is precisely the type of work that can help address some of the concerns about disembodied theory. It is to be hoped that the next decades see further collaboration along these lines.

A second relevant area of growth in game theory has been in games between players who are heterogeneous in some respect, either economically or socio-culturally (although most have focused on the former because it is more tractable). Field workers all know that internal politics are terribly important in the equation of success but since little effort had been made to put an analytical handle on asymmetries in interest, most studies that use formal theory have effectively treated communities as uniform in their preference for collective action. This is an extremely problematic assumption when it comes to actually devolving power to local communities. As Dayton-Johnson and Bardhan argued in their presentation, heterogeneities can either facilitate or hinder collective action depending on the specifics of the case. They identify a variety of asymmetries in economic attributes such as resource endowments, exit options, and access to credit, technological features such as the existence of fixed costs in production, and variable levels of social cohesion (social endowments) as being of particular importance. The conclusion is that unthinkingly applying community management to all commons can lead to resource failure, and/or exacerbate inequities in resource distribution.

I have presented these examples in order to illustrate the ways in which game theoretic analyses are developing in response to the predictive failure of earlier models, and to argue that a rap-

# CPR FORUM RESPONSE

## Games, Behavior and Theory

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Lore Ruttan in "Games and the CPR Toolkit" argues, in part, that game theory constitutes a unifying *tool* for the study of CPRs. I fully agree. Game theory is a useful tool for dissecting strategic behavior, specifying clear institutional processes and for generating useful hypotheses. However, game theory faces a crisis. It does a poor job predicting behavior in bargaining and negotiation settings and this is the stuff of interest in most CPRs. Actors in CPRs face the difficult task of negotiating limits on consuming a resource and ensuring that any deal is credible for everyone involved.

One of the problem has to do with standard formulations of Nash equilibrium. Colin Camerer, among others, notes that there are a host of problems endemic to humans that interfere with standard game theoretic predictions. These fall in two categories. The first are problems of judgement when making choices and the second are problems tied to strategic behavior. While simplified models of human choice are very useful for generating new hypotheses, those models also ought to take into account quirks that are common in humans. For example, it has been well demonstrated that individuals are sensitive to "framing effects" in that an identical decision problem, when described in two different ways can elicit two different responses from the

prochement between those who study the details of communities and those who abstract from them is possible. Furthermore, I would like to reiterate a claim made by many others that game theory is the unifying tool for developing this dialogue between theory and empiricism. An understanding of success or failure at the community level must come from a better understanding of the micro-level processes that govern individual behavior and the manner in which the social and biological environment channels those processes into higher order phenomenon, i.e. institutions. Game theory provides a means of generating hypotheses about such causal links between strategic choices of individuals and the institutional outcome of those choices; hypotheses which field workers can then test. Such analyses can yield very concrete predictions as to how resource types, extraction technologies and institutional settings modify payoff functions and the resulting strategic responses by players. If empirical examples indicate that our theory is right, we can say something about when we should see successes and failures. If the real world contradicts our theory well then its back to the drawing board. At this point, critics invariably complain that the model has been modified to fit the data and thus the argument is circular. The point, however, is not to reify a model. Rather the model and empirical data should be used in a dialectical fashion to improve one's understanding of the assumptions that are being made.

The problem of establishing a fruitful dialogue is of course not new, nor is it unique to CPR studies. But just as the strength of the IASCP is its cross-disciplinary, cross-cultural, cross-professional membership it is also its weakness. Inter-disciplinary work is hard and the barriers to real exchange can be very high; one is required to know the literature and the jargon in multiple fields. I argue that in game theory we at least have a unifying *tool*. As to a unifying and consilient *theory*, the synthesis sessions at the meetings were certainly an exciting beginning.

I would like to thank Elinor Ostrom for her thoughtful comments on the distinctions between her past work, present work and the uses made of her work. I would also like to thank Monique Borgerhoff Mulder for the inspiration for this title.

Further Readings on Game Theory and CPRs

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same individual. This implies human decisions are not invariant to the content of the description. In a different vein, individuals show overconfidence in their own abilities and in rating positive events. Like Garrison Keillor's mythical village, Lake Wobegone, in which all of the children are above average, individuals tend to overrate their own capacities as above average. Whether this is a "self-serving bias" or simply a result of poor information about the environment, it results in individuals tending to be more optimistic about events over which they feel they have some control. Such problems attendant with decision theory call into question the capacity of simple models of maximizing behavior to capture much of the behavior in the world.

If individual choice is problematic, the picture is worsened when considering strategic behavior. Here individuals not only look inwardly about how to behave, but have to take into account how others will behave. The essence of a CPR is that actors understand that their private incentives clash with collective outcomes and negotiating the problem requires considerable strategizing. Game theory is precisely about strategic reasoning and for CPRs the news is not good – unilateral overuse is the predicted behavior and destruction of the CPR is expected. But, a number of common observations about behavior question whether standard game theoretic models get us very far in generating interesting hypotheses. Individuals often rely on heuristics, such as focal points, in order to quickly solve complex strategic decisions. These focal points might be institutionally or culturally derived, but they lie outside most game theoretic models. Among other problems are the ways in which games are solved – either through iterated dominance or backward induction. In the former individuals lay out the possible strategies of a counterpart, determine which are dominated and then remove them. While this is a simplifying device for solving many games, people rarely think about all possible strategies and even when confronted with simple, well-structured games, they rarely go through the procedure. Consistent findings show that people do not look very far ahead and they do not make the kinds of systematic comparisons that are predicted by game theory. However, without resorting to techniques resembling standard decision theory, people usually make strategic choices that are beneficial and they make them in systematic ways.

Even though I agree with Ruttan about the value of game theory, I suggest that the assumptions underlying standard game theory do not take us very far for analyzing many CPR problems. We need to reconceptualize several of those assumptions in order to make progress. To this end I suggest that scholars pay attention to the intersection between evolutionary psychology and cognitive neuroscience. These two streams of research are coming together in interesting ways that point to boundaries on human cognition and have important implications for the ways in which strategic behavior is realized in most institutional settings.

Evolutionary psychology, as articulated in the manifesto by Tooby and Cosmides, claims that humans have not escaped evolutionary pressures. The human brain has evolved to handle a variety of problems ranging from communication to reading the intentions of conspecifics. The environment in which humans evolved between 10,000 and 100,000 years ago placed

a premium on individuals negotiating a complex social and political space. Anticipating whether others are potential partners or rivals, discerning whether others could be trusted, and remembering who was indebted and who was owed are all social activities that require large cognitive investments. That humans evolved with brains that are specialized to perform these tasks seems quite likely.

Cognitive neuroscience is now demonstrating how the brain is functionally designed to handle many types of social behaviors. While the design gives humans extraordinary capacity -- for example to remember the facial expressions of many different people -- there are important limits on what humans can do. Neuroscientists are illustrating the extent to which memories are limited, the amount of information that can be processed, the ways in which emotions interfere with or augment decision making, and how the behavioral anomalies noted above are related to constraints on cognitive capacity. More often than not these limitations are clearly viewed as adaptive for humans in the not-so-distant past (of course, whether these conjectures are correct remains a matter open for empirical test rather than conjectural assertion).

Considering human capacity, as handed to us under evolutionary constraints, provides a useful unifying construct for thinking about how to model human strategic behavior. Game theory as usually practiced misses important aspects of human cognition. Once we understand the boundaries on human behavior, then we will be in a position to better apply the CPR toolkit. This is not an impossible task. Many of our current modeling efforts give us excellent insight into what will happen when institutions meet behavior. Paying attention to what evolutionary psychology and cognitive neuroscience are saying about human behavior can only make us better institutionalists.

Further Reading on Behavioral Game Theory, Evolutionary Psychology and Cognitive Neuroscience.

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# CPR FORUM RESPONSE

## Towards Social & Institutional Darwinism in CPR Theory?

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We collectively owe our understanding of the very nature of CPRs problems and social dilemmas, i.e. strategic human interactions, to the game theoretic approach and rational choice theory. Indeed, games provides us with a cross-disciplinary tool of formalisation (a meta-language) which enables "shared-visions" to emerge between disciplines. Beyond this consensus, internal and external criticism to both rational choice theory and game theoretic approach consist in:

1. Putting the emphasis on the outcome, i.e. the pay-off, rather than on the enabling process itself. In this way, social relations of power are made static. However, it should be understood that if game theory wants to generate relevant local-level predictions, it should make explicit (a) the production function that accounts for the pay-off values and hierarchy (b) the response of the resource to the pressure of exploitation.

2. Representing issues of collective action as though agents were acting in a completely decentralised setting whereas an extensive collection of case studies attests the resilience of village institutions that head in opposite direction with the use of non co-operative game theory.

This is so because game theory *a priori* assumes, but does not demonstrate, the universality of substantive rationality. Consequently economic efficiency is the main impetus used by the theory to explain both individual propensity to co-operate and institutional changes. But this form of rationality obscures as much as clarifies. What can one make of those individuals and institutions that did not, do not or will not perform the theoretic optimal outcome? Doing so, "the theory makes itself unable to properly account for suboptimal evolutionary patterns [which] reflect the fact that forces other than efficiency may be at work in human societies" (Baland and Platteau, 1998 : 647).

A second criticism, external to game theoretic approach, has to do with disembodied theories. I argue here that we have to handle the social and cultural construction of values. While it is now widely accepted that heterogeneous players and asymmetrical relations are the rule rather than the exception in real world situations, heterogeneity with respect to social status is seldom questioned. Indeed, it is less tractable insofar as the rational choice theory provides an inadequate framework to analyse social relations of power. In spite of this, social status and power relations might be key variables in the field of community-based resource management, i.e. resource appropriation modes.

Last but not least, this gap in CPR theory may also account for both the retreat of theorists and practitioners into formal theory, capacity building or advocacy as well as for its lack of local-level predictive power.

Hence, the primacy of social status and positions might explain why an optimal outcome (as we defined it in economic and ecological terms) might not always be wished for, nor legitimised, by rights holders at the expense of non-rights holders. The resetting of socio-political powers resulting from any round of interaction (i.e. the distributional effects of institutional changes) is as important at the micro and meso levels, as the economic and ecological outcomes we consider at an aggregate level. Indeed, it is often the respective positions between eligible parties that matter rather than the unequivocal relation between players and the outcome of the game.

Beyond any specific patterns of interaction about resources, one should look out for an overall coherence of socio-political nature instead of focusing on the formal characteristics of any particular rules or typology of rights. Since actors weigh differently and play upon it, such socio-political regulation cannot be carried out on a mechanist or formalistic mode according to a dominant logic and intangible rules. Thus, socio-political ends justify rules, rights and duties, to be continuously renegotiated so as to maintain viable social relations and networks. To some extent, this reversal of perspectives and priorities might explain why we fail to grasp the internal politics and functional logics of communities and local institutions.

Finally, it is surprising to me that people do think economic efficiency is a source of justification. They are mistaken. To progress further, we should look out for the social construction of rationality, identity and heritage.

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# CPR FORUM RESPONSE

## Better Rich than Unified

**Doug Wilson**

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Institutions are funny things for scientists to try to figure out. They are just shared meanings, insubstantial stuff one cannot see, measure, put boundaries around, or even precisely define, so finding ways to rigorously understand them is a major puzzle. Game theory provides us with a coherent narrative about institutions that allows many of their aspects to be better understood. I don't think game theory provides us with a unifying tool, though, because other approaches (ones I often use, of course) can deal with aspects of institutions that are beyond game theory's reach.

Another approach to institutions that is a favourite of mine, and which I think actually has a more extensively described and detailed empirical basis than game theory, is the phenomenological one. In this perspective institutions confront individuals as a given reality beyond their power to change. In this confrontation the individuals are only able to understand this reality by observing and interpreting

the speech and behavior of those other people that are available to them. This interpretation, moreover, is based on shared definitions and concepts that the institution itself provides. When the individuals thus confronted respond to the institution then their behavior, and how they account for this behavior, becomes part of the background against which others, and their future selves, interpret and respond to the institution. They have continued the institution through time as iteratively reproduced shared meanings, while at the same time the institution has been infinitesimally, marginally, or rarely more than marginally, changed.

Taking this perspective on institutions helps illuminate some of the reductions which game theory makes. From this angle, the reductionism of game theory is not simply, as Lore Ruttan suggests, that “economic models have usually ignored socially constructed values that play an important part in influencing people’s propensity to act collectively, and that bind rational instincts” although that is certainly true. The reductionism of game theory goes further because “a better understanding of the micro-level processes that govern individual behavior” will not, as she suggests, result in an understanding of “the manner in which the social and biological environment channels those processes into higher order phenomena, i.e. institutions.” Game theory shares the general weakness of atomistic approaches, by which I mean approaches that begin with assumptions about individual behavior rather with the characteristics of relationships between individuals. Game theory begins with the individual, seeks to understand individual behavior in terms of some set of constraints, and then derives an understanding of institutions by assuming that individual behaviors are “channelled” into “higher order phenomenon.” (Again quoting Lore Ruttan’s piece.) The helpful attempts by game theorists to avoid reduction focus on a broader incorporation of the constraints individuals face. This still leaves out important aspects of institutions. Institutions are not simply the aggregation of individual actions but are iteratively reproduced meanings. Institutions are not based on behavior as such, but on interpretations of behavior that draw upon concepts that are themselves shared aspects of the institution. These iterative reproductions cannot be adequately modelled as repeated games because a) repeated games reflect behaviors and not their interpretation and b) repeating games is usually not empirically justifiable. “Games” in the world often don’t “repeat” because the ways people define the situation change from one “round” to the next.

Economists and game theorists have these or similar arguments before. If you are going to have a useful social science you have to reduce somewhere. The more discursive and phenomenological approaches with their emphasis on shared meanings can also be validly and strongly criticized, particularly for their weakness in predicting people’s behavior. (But seriously folks, do we really want to learn to predict people’s behavior??? Who would we give that knowledge to? Who would actually use it? Another Forum sometime!) But they do point out some limitations and even dangers in the reductions of game theory that would be good to keep in mind.

A limitation is that the dependence of game theory on aggregating behaviors means that it leaves out critical institutional level variables when those variables are independent of individual decisions. I am thinking here of functional aspects of institutions which individual responses leave unchanged because they go to basic aspects of institutional design. Yes, I confess, I am drawing to some extent on functionalism here. Cultural embeddedness is a good example of such a variable. Markets, especially those that operate over long

distances, are largely disembodied from cultural meanings because they have to be. You can put many cultural nuances on “take it or leave it” but in the end the deal gets made and even parties with totally different backgrounds understand what happened much the same way. At the other extreme, a culturally disembodied dance academy would be a sorry institution indeed. Embeddedness has emerged in the CPR literature as a very important institutional variable, yet I would argue that it is in important respects independent of the behavior of individuals responding to the institution. Here game theory must rely on completely different theoretical approaches to augment its description of the situation. This is not because it cannot in principle at least model the embeddedness as a kind constraint. It is because it cannot explain the degree of embeddedness through aggregating behaviors.

A danger, (OK, it may be just a pet peeve of mine, I’m really not sure) is that assumptions are metaphors that can become heuristics - heuristics that lack all the qualifications that the theorists made around the original assumptions. Rational maximizers exist but are rare. When you meet one you want little to do with him (definitely, probably a guy) and you might even want to put him away somewhere so he wouldn’t hurt himself and others. Economists know this. But the models based on the assumption that we are all rational maximizers work because: a) within markets people behave like rational maximizers for normative reasons like educating their kids, being responsible to those who have entrusted them with capital and so on ; and b) markets and many other effective institutions are designed to produce a common good through participants acting like rational maximizers within some constraints. The problem is that an illusion develops that the models work because the metaphorical assumption underlying them is true. Rational maximizers may be rare, but the idea has become a basic heuristic that people use to predict how a stranger will act. It is a classic self-fulfilling prophesy. A century ago, writings from the period suggest, people assumed that others would act according to community standards until proven otherwise. Today, while we know that “we” will behave in complex and often moral ways, we think that we had best assume that others are rational maximizers. I don’t think this has been good for us.

The game theory metaphor seems to me to carry a similar danger. People trying to work out a modus vivendi on how they are going to share a common pool resource are not playing games. They are addressing a very serious business and their responses to the situation are based on a complex mixture of values of which “strategic” is only one. I am not suggesting that game theorists don’t know this, but I would prefer that we social scientists be careful about encouraging people in these negotiations to think of other participants as people who are playing games.

Hence, I disagree with Lore Ruttan that game theory can be a unifying tool in CPR research. The division I see is not between “empiricists” and “theorists.” We are all both. Theorists who do not have empirical referents are philosophers, not social scientists, and nobody does field research or starts a management program without some theories to guide them. I see people with differing theoretical perspectives, albeit differences that may well be influenced by the amount of time spent in the field. The most helpful interactions between these perspectives are to listen to one another’s insights and criticisms and build a rich rather than a unified understanding of the nature of the institutions that manage common pool resources.

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# REGIONAL BEAT

## Latin America

Our second Regional Beat, edited by Juan Camilo Cárdenas, takes the form of Spanish and Portuguese Responses to Lore Ruttan's Forum commentary. We are also pleased to present a Latin American Practitioners Profile from an agriculture and forestry program in Argentina and Brazil.

## CPR FORUM COMMENTARY

### Teoría de Juegos y Herramientas acerca de los Recursos de Uso Comunitario

Lore M. Ruttan

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Varios relatores temáticos en nuestro reciente congreso anotaron que los estudios de caso dominaron en las presentaciones. Es cierto que hemos amasado una increíble colección de datos y acumulado miles de horas en el campo documentando el éxito del manejo comunitario de la pesca, bosques, pastos, aguas, y tantos otros recursos. Al concentrarnos en refutar a Hardin, nuestros miembros han sometido colectivamente el mito de una tragedia universal de los bienes comunes a su rendición. Sabemos por los hechos que bajo ciertas condiciones, el manejo colectivo de recursos es posible y duradero.

Lo que aun nos hace falta es una teoría coherente que explique aquellos éxitos y fracasos. Es cierto que tenemos los principios de diseño que articuló Elinor Ostrom en su libro *Governing the Commons*, y numerosos investigadores han recogido cuidadosamente información necesaria para verificar su validez. Hemos encontrado que muchos de los principios si están correlacionados con un manejo sostenido de recursos de uso comunitario, y como tales, nos proveen con indicadores útiles. A la vez, ya que no hemos especificado los procesos causales que llevaron a estas correlaciones, requerimos una capacidad real de predicción, particularmente en situaciones de cambio ecológico y económico, i.e. el mundo de hoy. Mas aun, sin comprender esos mecanismos subyacentes, no podemos siquiera especificar cuántos de los principios deben existir para que se de el éxito, los necesitamos todos, 2 terceras partes, siempre el primero y a veces el segundo? Si organizaciones como el Banco Mundial van a colocar sus recursos financieros detrás del manejo comunitario, debemos ser capaces de predecir como se dará la acción colectiva bajo condiciones dinámicas. Mi argumento aquí es que la teoría de juegos nos provee con una herramienta para comprender la naturaleza estratégica del manejo colectivo de recursos y para predecir el resultado del cambio institucional. Apoyarse únicamente en la receta de los principios no será suficiente.

Debo aclarar en este punto que mi objetivo no es criticar los principios de diseño per se. Este enfoque fue un primer corte extremadamente importante para desarrollar nuestra teoría del

manejo colectivo de recursos, pero para parafrasear a Bonnie McCay en una de sus alocuciones en la reunión, "Estoy segura que Lin nunca pensó en que el trabajo parara ahí" (y ciertamente el trabajo de Lin no ha parado!). Mas bien, el problema es que los teóricos y empíricos parecieran ir en direcciones opuestas. Esto es en parte debido a que el estilo accesible de *Governing the Commons* contribuyó a definir una agenda muy clara para el trabajo de campo. Sin embargo, gran parte de la teoría que emergió no tiene al investigador de campo en mente y frecuentemente se refugia en sus abstracciones, de poca utilidad para aquellos trabajando en el mundo real. Por otra parte, muchos no-teóricos parecieran muy ágiles rechazando teorías explicativas por su reduccionismo inherente y por lo tanto insuficiente para iluminar sobre el funcionamiento de comunidades reales y de las relaciones de la gente real inmersa en esas comunidades. Ellos tienen razón en cuanto muchos modelos están desarticulados del contexto cultural y social. En el pasado los modelos económicos usualmente han ignorado los valores socialmente construidos que juegan un papel importante en influenciar la propensidad de las personas a actuar colectivamente y que restringen los instintos racionales. Cuando los resultados empíricos refutan a la teoría, es muy común cuestionar los datos en lugar de los supuestos del modelo. Sin embargo esto está cambiando, y lo está haciendo de maneras que son muy relevantes para el estudio del manejo de recursos comunitarios. El resto de este ensayo entonces es tanto un llamado a renovar el diálogo entre teóricos y empíricos como una guía y apertura a las aplicaciones actuales de la teoría de juegos al manejo de recursos de uso comunitario. Habiendo dicho esto, yo debería anotar que algunas de las mejoras sesiones en el congreso del 2000 fueron, de hecho, aquellas dedicadas a la síntesis de la actual teoría. Estas sesiones fueron auspiciadas por el Comité de Dimensiones Humanas de Cambio Global (Human Dimensions of Global Change Committee) del National Research Council.

Los años noventas fueron un período de renovado crecimiento y entusiasmo en la teoría de juegos, en gran parte por la influencia de teorías evolucionarias en los economistas. Un resultado de esto ha sido una aceptación mas amplia de los límites de la racionalidad estricta. Con esto me refiero a que hoy muchos autores aceptan que la racionalidad está restringida por los límites de información, por normas y capacidades mentales que evolucionan, y que muchas veces las preferencias no son simplemente ganancias monetarias, pero que a pesar de ello, se espera que los actores aun optimicen resultados sujetos a estas restricciones. Durante la primera de las sesiones de síntesis, los escritos de Armin, Fehr y Fischbacher, y de Kopelman, Weber y Messick presentaron cada uno los resultados mas recientes sobre los límites de la racionalidad explorados a través de la economía y psicología experimental respectivamente. La muy activa discusión que siguió fue un excelente ejemplo del diálogo que puede ocurrir cuando teóricos y empíricos, académicos y diseñadores de política interactúan. En otra sesión Richerson y Boyd también argumentaban como los individuos no se comportan de una manera estrictamente basada en el interés propio sino que en cambio en conformidad a las normas del grupo. Sin embargo, de la manera que ellos lo ven, los procesos de evolución

cultural que producen dichas normas son nada diferentes a los procesos que producen el comportamiento individualista. En otras palabras, ellos son capaces de explicar las características de comunidades sin abandonar el razonamiento y procesos que se pueden explicar desde la teoría de juegos. En el frente empírico, genera mucho entusiasmo encontrar que algunos investigadores de campo están de hecho adoptando las herramientas de la teoría de juegos con agentes que presentan una racionalidad restringida. Gaspart y Seki presentaron un fascinante estudio de pescadores de camarón en Japón en donde primero usaron un análisis con teoría de juegos para predecir cómo las normas sociales de deber y justicia alteran la estructura de incentivos que enfrentan los pescadores. Al comparar estas predicciones contra las decisiones estratégicas reales hechas por los pescadores en tres aldeas, ellos pudieron llegar a un mejor entendimiento de los incentivos institucionales que moldean el comportamiento. Esto es precisamente el tipo de trabajo que ayuda a enfrentar las preocupaciones acerca de las teorías abstractas. Es de esperarse que las próximas décadas vean mas colaboraciones en este mismo sentido.

Una segunda área de crecimiento en la teoría de juegos ha sido en juegos entre jugadores que son heterogéneos de alguna manera, bien económica o socio-culturalmente (aunque la mayoría se ha concentrado mas en los primeros ya que permite mayor seguimiento). Todos quienes trabajan en el campo saben que la política interna es terriblemente importante en la ecuación de éxito pero que ya que muy poco esfuerzo se ha hecho para incluir elementos analíticos concretos a las asimetrías de interés, la mayoría de estudios usan teorías formales que efectivamente tratan las comunidades como uniformes en sus preferencias hacia la acción colectiva. Este es un supuesto extremadamente problemático cuando se habla de devolver el poder a las comunidades locales. Como argumentaron Dayton-Johnson y Bardhan en su presentación, las heterogeneidades pueden facilitar o restringir la acción colectiva dependiendo de elementos específicos del caso. Ellos identificaron una variedad de asimetrías en atributos económicos tales como cantidad disponible del recurso, opciones o alternativas diferentes, y acceso al crédito, aspectos tecnológicos como la existencia de costos fijos en la producción, y niveles variables de cohesión social (recursos sociales) como de particular importancia. La conclusión es que aplicar el manejo comunitario a todos los recursos de uso comunitario puede llevar el recurso al fracaso, y/o exacerbar desigualdades en la distribución del recurso.

Yo he presentado estos ejemplos con el fin de ilustrar las formas en que los análisis desde la teoría de juegos se han desarrollado en respuesta a las fallas en el poder de predicción de modelos anteriores, y con el fin de argumentar que un reencuentro entre quienes estudian los detalles de las comunidades y quienes hacen abstracción de ellos es posible. Mas aún, yo quisiera reiterar una aseveración hecha por muchos otros que la teoría de juegos es la herramienta unificadora para desarrollar este diálogo entre la teoría y el trabajo empírico. La comprensión del éxito o fracaso al nivel comunitario debe provenir de un mejor entendimiento de los procesos a nivel micro que gobiernan el comportamiento individual y la manera como los entornos sociales y biológicos canalizan esos procesos en fenómenos de un orden superior, i.e. las instituciones. La teoría

de juegos provee los medios para generar hipótesis acerca de las relaciones causales entre decisiones estratégicas de los individuos y el resultado institucional de esas decisiones; hipótesis que pueden probar quienes trabajan en el campo. Tales análisis pueden generar predicciones muy concretas sobre cómo los tipos de recursos, tecnologías de extracción y entornos institucionales modifican las funciones de ganancias y las resultantes respuestas estratégicas de los jugadores. Si los ejemplos empíricos indican que nuestra teoría es correcta, podemos entonces decir algo acerca de cuándo deberíamos esperar éxitos o fracasos. Si el mundo real contradice nuestra teoría entonces hay que regresar al tablero de diseño. Actualmente los críticos se quejan invariablemente de que el modelo ha sido modificado para acomodarse mejor a los datos y así el argumento es circular. El punto, sin embargo, no invalidar el modelo. Mas bien, el modelo y los datos empíricos deberán ser usados de manera dialéctica para mejorar la comprensión de los supuestos que se están haciendo.

El problema de establecer un diálogo fructífero no es obviamente nuevo, ni es exclusivo de los estudios de los recursos de uso comunitario. Pero así como la fortaleza de la IASCP está en sus miembros de diferentes disciplinas, culturas y profesiones, ello constituye también su debilidad. El trabajo inter-disciplinario es difícil y las barreras para un intercambio real pueden ser muy altas; se requiere que cada uno conozca la literatura y el lenguaje de múltiples campos. Lo que yo argumento es que en la teoría de juegos tenemos al menos una herramienta unificadora. Y en cuanto a una *teoría* unificadora y conciliadora, las sesiones de síntesis en el congreso fueron ciertamente un excitante comienzo.

Lecturas para profundizar en Teoría de Juegos y Recursos de Uso Comunitario:

Baland, J.-M. and J.-P. Platteau. 1996. Halting Degradation of Natural Resources: Is There a Role for Rural Communities? Oxford: Food and Agricultural Organization and Oxford University Press.

Gintis, H. 2000. Game Theory Evolving: A Problem Centered Introduction to Modeling Strategic Interaction. Princeton, New Jersey: Princeton University Press.

Ostrom, E., Gardner, R., and J. Walker. 1994. Rules, Games, & Common-Pool Resources. Ann Arbor, MI: University of Michigan Press.

Quisiera agradecer a Elinor Ostrom por sus valiosos comentarios sobre las distinciones entre su trabajo pasado y presente, y el uso que se ha hecho de sus aportes. También quisiera agradecer a Monique Borgerhoff Mulder por la inspiración para este título.



# CPR FORUM RESPONSE

## Ampliando o CPR toolkit

Alpina Begossi

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Há pontos importantes levantados por Ruttan em “Games and the CPR toolkit”, como: a) precisamos entender e especificar os processos causais relacionados aos princípios correlacionados com o manejo sustentado do CPR; b) muitos desses princípios podem ser usados como indicadores e c) devemos definir quais e quantos são os princípios válidos para que haja sucesso. Em associação com esses aspectos, Ruttan chama para um diálogo novo entre pesquisadores teóricos e empíricos, especialmente através do uso da teoria de jogos, como uma ferramenta para entender o manejo coletivo e as mudanças institucionais direcionadas ao manejo de CPR. O resto do texto versa sobre a utilidade e importância da teoria de jogos como ferramenta e como modelo analítico.

“Até aqui, tudo bem”. O que Ruttan não mencionou é que o conflito entre “usuários” e “não-usuários” de ferramentas quantitativas (ou de processos de modelagens) representa um debate antigo entre cientistas biológicos e sociais e não um ponto específico de debate dentro do CPR. Esse debate tem incluído assuntos como comportamento humano, processos humanos de subsistência e cooperação humana, entre outros. Concordo totalmente sobre a necessidade de diálogo entre o que ela chamou de teóricos e empíricos, mas também estou ciente de que esse não é um ponto específico de debate no CPR, mas representa sim um debate geral com profundas implicações na teoria e aplicações do CPR. Vamos para a segunda parte da história, ou seja, a utilidade dos modelos para a teoria e aplicações do CPR.

Quanto ao uso de ferramentas quantitativas e de processos de modelagens é útil no sentido de construir, ou de alcançar, um CPR sustentável? Concordo totalmente que modelos nos permitem especificar princípios, determinar e entender as relações entre esses princípios e identificar prioridades. De acordo com Ruttan, a teoria de jogos fornece meios de gerar hipóteses sobre relações causais, como por exemplo entre as escolhas estratégicas dos indivíduos e os resultados institucionais dessas escolhas. Sim, a teoria de jogos é uma ferramenta analítica robusta mas não é a única ferramenta analítica ‘em resposta à falência da capacidade de fazer previsões de modelos anteriores’ (conforme mencionado por Ruttan). O texto não especificou como e quais os modelos que falharam.

Eu colocaria as coisas de uma forma diferente: a teoria de jogos nos traz um dos caminhos analíticos para os estudos de CPR. Há outros caminhos iluminados por outras ferramentas e modelos ainda válidos e úteis para formular hipóteses e para fazer previsões sobre o comportamento. Exemplos são o forrageio ótimo, processos de construção de modelos com Stella e inferências Bayesianas.

No sentido de prever estratégias para o manejo de recursos, a teoria do forrageio ótimo é provavelmente mais limitada que a teoria de jogos, especialmente porque os processos de decisão, no

forrageio ótimo, são em geral aplicados à níveis populacionais. Essa teoria é muito usada para entender decisões dos indivíduos sobre subsistência em termos de forrageio relacionado à escolha de alimento (presas) e locais de consumo do alimento ou de coleta (escolha de manchas), dentre outras decisões. A teoria do forrageio ótimo pode ser, entretanto, uma ferramenta útil quando se trata de decidir sobre a interação entre os indivíduos e os recursos numa área que será de manejo coletivo, como uma reserva extrativista no Brasil ou um ejido no México. Exemplos sobre o uso da teoria de forrageio ótimo foram particularmente comuns nos anos oitenta e noventa (exemplos são encontrados no periódico *Human Ecology*).

O processo de construção de modelos com Stella pode ser usado para comparar comportamentos esperados e observados, bem como para comparar processos diferentes em diversos níveis ou escalas. O processo de modelagem com Stella nos permite determinar uma estratégia e analisar os diferentes processos ou táticas relativas à essa estratégia. Por exemplo, ao determinar uma estratégia que seja resiliente de forma ecológica e institucional sobre uma área de manejo coletivo, diferentes aspectos ecológicos e sociais podem ser desenhados e podem ter o seu comportamento observado durante o processo de modelagem. Através do processo de modelagem em Stella o pesquisador pode definir um problema e testar hipóteses, permitindo que conjuntos diferentes de variáveis oriundas de fontes diferentes possam ser modeladas. Stella tem sido uma ferramenta usada em economia ecológica e exemplos são encontrados em artigos de periódicos como *Ecological Modeling* e *Ecological Economics*.

Nos últimos anos, inferências baseadas em modelos Bayesianos tem sido mais presentes em ecologia. Incluindo meios diferentes de abordar os dados, a abordagem Bayesiana leva em conta as probabilidades anteriores baseadas em informações atuais. A abordagem Bayesiana deve ser considerada como uma ferramenta, especialmente porque essa abordagem tem mostrado aplicações na ecologia atual, apesar de não haver ainda dados sobre a sua utilidade para estudos de CPR (artigos em periódicos como *Ecological Applications* e *Conservation Ecology*).

Concluindo, considero que precisamos de ferramentas que possam nos auxiliar a relacionar ou integrar as ciências biológicas e sociais. Precisamos de ferramentas com poder de previsão permitindo a geração de hipóteses através de escalas diferentes (indivíduos-instituições). Finalmente, precisamos de ferramentas para lidar com um mundo em constante mudança no sentido ecológico, econômico e social, e para auxiliar nas respostas às questões associadas com o manejo de recursos e suas instituições. Junto com as outras ferramentas mencionadas, a teoria de jogos é uma ferramenta útil. A decisão sobre usar um, dois ou qualquer outro modelo vai depender da escala que necessitamos percorrer e da questão específica sobre o manejo e as instituições de CPR. Apesar da teoria de jogos ser uma ferramenta robusta e útil para as ciências biológicas e sociais não devemos menosprezar os outros modelos mencionados. Em um estudo de CPR, a decisão sobre que modelos devemos usar vai depender da questão específica que tivermos. Antes do modelo, temos a questão. Considerei muito salutar a sugestão de metodologias no “CPR toolkit”, que podem ajudar a trazer um novo entendimento e talvez uma teoria “consiliente” para o manejo de CPR.

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# CPR FORUM RESPONSE

## Comentario al texto de Lore M. Ruttan

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Coincido con la propuesta central del texto de Ruttan, que el diálogo entre la teoría de juegos y la investigación de campo puede resultar productivo. Sin embargo disiento con varias de sus tesis. Una primera diferencia tiene que ver con los fines de la teoría. Considero que la predicción es solo uno de sus posibles fines. La comprensión de los procesos y la posibilidad de incidir mediante el diseño de políticas son fines centrales del quehacer académico.

El texto sugiere como propósito de la investigación de campo la validación de hipótesis (la de Hardin p.e) y no la construcción de respuestas a preguntas complejas, que implican análisis más allá del estrecho marco de las hipótesis, respuestas que a su vez permitan formular nuevas preguntas. En este sentido la percepción del trabajo de Ostrom de Ruttan resulta simplista. Más allá de la crítica al reduccionismo de las propuestas de Hardin, la obra de Lin permite conocer y analizar los distintos factores, cuya conjunción determina la fortaleza o debilidad de las instituciones comunitarias. Al referirse al trabajo de investigación a partir de los principios de diseño institucional “numerosos investigadores han recogido cuidadosamente información necesaria para verificar su validez”, se expresa la misma concepción. En la investigación realizada en México, los principios han sido utilizados como líneas de investigación, pero también como instrumentos analíticos en la reconstrucción conceptual de los procesos. Este ejercicio ha permitido conocer algunos de los elementos determinantes de los resultados de las experiencias de gestión de comunidades forestales, su impacto sobre los sistemas de recursos, y los impactos que las políticas públicas han tenido sobre ellos.

Más adelante, cuando el autor cuestiona “¿cuántos de los principios deben existir para que se de el éxito, los necesitamos todos, 2 terceras partes, siempre el primero y a veces el segundo?”, pareciera que el conocimiento sustantivo sobre realidades particulares puede sustituirse por relaciones formales. (Ruttan, 2000). Los principios son vistos como entidades abstractas, no como cualidades dinámicas de procesos sociales, condiciones que no actúan de manera aislada, sino que se interrelacionan, creando sinergias en el desarrollo de los sistemas. No es la de Ostrom la primera teoría que se utiliza como reseta, la tendencia a la simplificación es una constante en la historia de las ideas, pero tal uso de los conceptos responde a las limitaciones epistemológicas y metodológicas de los usuarios.

Recientemente el tema de la heterogeneidad ha sido asumido en trabajos que realizan experimentos de teoría de juegos en campo. El resto de los “atributos de los usuarios”, propuestos

por Lin, de los que constituyen factores de identidad (visión común, confianza y reciprocidad, experiencia organizativa), y de los que se refieren a la relación de los grupos con el sistema de recursos y el sistema socio-político amplio (dependencia, tasa de descuento, autonomía) son también potencialmente importantes temas del diálogo entre el laboratorio y el campo. Los resultados de este trabajo pueden generar herramientas, no solo para proponer a las agencias bilaterales o de gobierno si conceder o no recursos o control a las comunidades locales, sino para comprender cuando y como hacerlo, o bien que medidas y/o procesos desarrollar para llegar a hacerlo.

El texto hace pensar que para su autor la única teoría digna de tal nombre es la teoría de juegos. La investigación de campo es vista solo como una extensión instrumental de la teoría a la que corresponde probar las hipótesis que el laboratorio produce. La distinción entre teóricos y empíricos es tajante: unos y otros son agentes que desarrollan actividades distintas y poseen lógicas contrarias. Desde esta óptica difícilmente puede establecerse un diálogo productivo entre una y otro nivel de investigación.

Como última crítica quisiera referirme a la oposición entre “instintos racionales” (y naturales en tanto instintos) y valores socialmente aprendidos. Esta oposición retoma la vieja y estéril dicotomía entre sociedad y naturaleza, sugiriendo que la racionalidad económica tiene mayor peso en las decisiones de los individuos por ser natural. En realidad la diferencia entre uno y otro tipo de conductas resulta mucho más compleja: las conductas “racionales” son aprendidas en buena medida, y los valores sociales (identidad, confianza, reciprocidad) hunden sus raíces en experiencias muy tempranas, que se construyen a partir del “equipamiento neurológico” propio de la especie.

El diálogo entre teoría de juegos e investigación de campo es sin duda una rica veta, sin embargo profundizarlo implica:

- una mejor comprensión de la naturaleza y alcances de la investigación empírica y de su capacidad de generar teoría.
- criticar la noción estrecha de racionalidad económica de forma que permita internalizar valores, considerando que los individuos reaccionan tanto moral como racionalmente al entorno económico.

Coincido con el planteamiento de que “la comprensión del éxito o fracaso al nivel comunitario debe provenir de un mejor entendimiento de los procesos a nivel micro que gobiernan el comportamiento individual” pero considero que las realidades sociales no son completamente reductibles a la dimensión individual. Tan o más urgente es una mayor atención al “principio de anidamiento” de Ostrom, que permitiera conocer las formas en que las políticas públicas y los mercados inciden en las instituciones comunitarias modificando los incentivos y valores en que los individuos y los grupos basan sus opciones.

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# CPR FORUM RESPONSE

## Elementos Teóricos y de Campo para una Caja de Herramientas Llamada Teoría De Juegos

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La teoría de juegos (TJ) ha contribuido enormemente a modelar relaciones y dilemas sociales, como bien lo resalta Ruttan, en esta misma edición, y ofrece amplios potenciales para estudiar las relaciones sociedad-naturaleza. Dos importantes fortalezas de la TJ son la posibilidad de modelar i) el carácter estratégico de las decisiones entre agentes que interactúan a partir de una racionalidad determinada, y ii) las interdependencias sociales y ecológicas de muchos de los problemas ambientales, y en particular de los Recursos de Uso Comunitario (RUC).

Partamos de una definición de juego (Gardner, 1995: 4) como "...*cualquier situación gobernada por reglas con un resultado bien definido caracterizado por una interdependencia estratégica*". Un juego consta de jugadores o agentes que toman decisiones o acciones basados en ciertas normas o preferencias de comportamiento; las acciones posibles para cada jugador están restringidas por las reglas (formales y no formales) del juego mismo, por la tecnología o relaciones entre acciones y resultados, y por la información disponible para cada jugador acerca de estos. Las acciones individuales y la interdependencia entre estas determina entonces los resultados y por tanto los aumentos o reducciones del bienestar de cada jugador.

Es muy fácil entonces mirar el dilema de explotar o conservar los RUC desde el lente de estos conceptos: los usuarios del ecosistema, basados en una serie de beneficios y costos, tangibles e intangibles, directos e indirectos, deciden el nivel de extracción de algún recurso y responden estratégicamente a ciertas restricciones impuestas por reglas definidas por el grupo, el estado, o el mercado sufriendo las consecuencias de la sobre explotación cuando dichas reglas no son efectivas, o beneficiándose de la conservación en caso opuesto. Cada uno de los componentes subrayados arriba ha sido objeto de una u otra manera del análisis de los RUC en la literatura teórica y empírica (Ostrom, 1990). En este sentido, la TJ ofrece la posibilidad de modelar y analizar de manera mas sistemática el conjunto de estos elementos, y el efecto de cambios en alguno(s) de ellos en los resultados sociales y ambientales.

Modelar cuantitativamente relaciones sociales y naturales es importante, y es útil, aunque la tradición académica de países como los Latino Americanos, lo ha visto con ojos mas cautelosos, tal vez influenciada por paradigmas que subvaloran el individualismo metodológico (lo micro), y que

sobre valoran las explicaciones estructuralistas (lo macro) del problema ambiental. Precisamente la TJ puede re-unir las visiones micro y estructurales del problema, al poder modelar cómo se determinan mutuamente las instituciones sociales y el comportamiento individual.

La contribución de la TJ a estudiar los RUC, tiene sin embargo antecedentes anteriores a los que se cree. El mismo artículo seminal de Hardin es en principio una lectura de decisiones estratégicas de agentes que tienen un incentivo racional de corto plazo de sobre explotar un recurso cuya extracción agregada reduce el bienestar individual de cada usuario. En este sentido la predicción de la tragedia no resulta de un análisis errado de esa decisión estratégica, sino de ignorar otros componentes del juego, que llamamos instituciones, y que introducen una serie de costos o beneficios individuales adicionales e intangibles en algunos casos, y que podrían inducir al agente a escoger racionalmente el no sobre explotar el RUC. Otro camino es el de redefinir los supuestos acerca de las conjeturas que los agentes hacen acerca de los demás jugadores, como lo modelaron hace casi dos décadas Cornes y Sandler (1983), cuando refutaron teóricamente a Hardin.

Sin embargo la TJ en su versión mas convencional presenta aún limitantes, y como menciona Begossi en su comentario de esta edición existen algunos caminos alternativos a la TJ para enriquecer el análisis. Mientras, al interior de la TJ han aparecido sofisticaciones de las técnicas utilizadas, como el caso de la teoría de juegos evolucionaria y los modelos dinámicos y adaptativos en general (Gintis, 2000).

Por otra parte están los avances empíricos para probar las hipótesis y predicciones que surgen de la aplicación de la TJ a problemas de dilemas colectivos. Ruttan destaca la inmensa contribución de los Principios de Diseño propuestos por Elinor Ostrom , y hace referencia a cómo ella no pretendía parar allí. Pues bien, Ostrom continuó abriendo ventanas para la validación empírica y sistemática al probar con la ayuda de la economía experimental varias hipótesis acerca del fracaso y éxito de las instituciones que manejan RUC expandiendo nuevamente el espacio de estudio de los efectos de las instituciones sobre el manejo sostenible de RUC, en un comienzo en el laboratorio universitario con la participación de estudiantes como tomadores de decisiones. La aplicación de esta metodología experimental en el campo, con participantes que en su realidad usan RUC apenas comienza , y promete enriquecer el uso y validación de la TJ para estudiar estos dilemas sociales que nos ocupan.

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# PEREIL DE PRACTICANTES

## Investigación-formación y desarrollo para una agricultura familiar sustentable

Christophe Albaladejo, Bustos Cara Roberto, Cantamutto Miguel, Veiga Iran Jr.

### 1.¿De qué se ocupa su programa?

Proponemos formaciones de grado y de posgrado para ingenieros agrónomos y forestales así como geógrafos y socio-economistas que quieren dedicarse, o se dedican ya, a los oficios que acompañan el desarrollo de la agricultura familiar, principalmente en regiones ecológicamente frágiles como es el caso de la zona de transición entre la Pampa húmeda y seca, la Patagonia y la Amazona oriental. Nuestro programa tiene como características : ser interdisciplinario o sea enseñar a colaborar entre disciplinas una vez ellas inmersas en una situación concreta ; articular la formación inicial con la formación continua de profesionales y la capacitación ad hoc de agricultores portadores de proyectos ; enseñar a observar *in-situ* las prácticas de gestión del medio con la colaboración de los interesados en la interpretación ; disponer de dos o tres de proyectos de investigación de larga duración en colaboración con municipalidades, cooperativas o sindicatos, con el fin de realizar una investigación-acción profundizada sobre los procesos de cambio en el mundo rural y tener situaciones de formación de futuros profesionales del desarrollo.

### 2.¿Cómo comenzaron?

En 1995, con la participación de investigadores franceses en la formación de posgrado de geografía de la Universidad Nacional del Sur (UNS) en Argentina y en el Mestrado “Agricultura Familiar y Desarrollo Sustentável” de la Universidade Federal do Pará (UFPA). Ya desde 1992 estas universidades mandaron jóvenes a realizar en Francia (Toulouse) el DEA y el doctorado asesorados por los colegas franceses. Pero el proyecto se concretizó con la realización de cursos de posgrado con trabajo de terreno en común entre los departamentos de Geografía y de Agronomía. En Brasil existe desde 1989 un proyecto de Investigación-Formación y Desarrollo iniciado por una cooperación con l’Université Antilles-Guyane y el Groupe de Recherches et d’Echanges Technologiques de Francia.

### 3.¿Cuál es la composición de su grupo?

Se trata de una red. Está constituida por tres grupos universitarios de Francia (Université de Toulouse Le Mirail), Argentina (Universidad Nacional del Sur) y de Brasil (Universidade Federal do Pará). Participan los organismos nacionales de investigación agronómica (Institut National de la Recherche Agronomique Département de Recherches sur les Systèmes Agraires et le Développement e Institut de Recherche sur le Développement en Francia, Instituto Nacional de Tecnología Agropecuaria en Argentina y Empresa Brasileira de Pesquisas Agronômicas en Brasil).

### 4.¿Cuáles son sus mayores realizaciones?

La constitución de una red internacional de investigadores y universitarios que comparten una misma visión, basada en prácticas reales de intercambio entre gente que quiere trabajar juntos, y no una red armada por instituciones desde arriba como suele ocurrir. Asociar a esta red otros actores sociales sobre la base de proyectos concretos de investigación-acción, desarrollados con organizaciones (de agricultores) o con territorios (municipios en general).

Hacer legitimar esta red por las instituciones académicas a través de la aprobación de cursos de grado y posgrado que representan un cambio en las prácticas universitarias realizado desde adentro: capacitar los profesionales a través de un trabajo de investigación realizado “en situación”, con la participación activa y la interpretación de los actores involucrados.

### 5.¿Cuáles fueron los principales obstáculos y desafíos?

Administrar una doble legitimidad: la de los actores con los cuales trabajamos y la de las instituciones académicas. Por un lado un trabajo en situación, con los ritmos del aprendizaje colectivo y con criterios diferentes de validación de los conocimientos que no corresponden a los modos instituidos de evaluación de los trabajos científicos. Por otro lado, en el ámbito de trabajo, donde explotaciones familiares están muy castigadas por la situación socioeconómica y por la ecología, los agricultores quieren soluciones rápidas a sus problemas.

### 6.¿Que lecciones que aprendió piensa que sería útil para otros grupos o comunidades involucradas en manejo colectivo de recursos?

Tomar todo el tiempo necesario en los procesos de construcción de las colaboraciones, aun que los financiamientos conseguidos exigen generalmente plazos más acotados. Esto vale tanto para los dispositivos de trabajo con los actores sociales de los terrenos donde trabajamos como para la construcción de colaboraciones entre los diversos equipos que constituyen nuestra red.

Enseñar a observar y respetar las diferentes percepciones de los recursos y los diferentes sistemas de conocimiento con los cuales son administrados lleva también un tiempo muy largo, ya que tiene que ser basado en un aprendizaje experiencial, lo que está en juego en efecto son cambios en prácticas y hábitos.

### 7.¿Qué es lo que le gustaría aprender de las experiencias de los otros grupos CPR?

Estaríamos interesados en conocer otros grupos que enfocaron, como nosotros, la docencia desde el inicio del proyecto. ¿Cuáles son las relaciones orgánicas y cotidianas que consiguieron establecer entre la formación y la investigación? ¿Cómo la formación, cuando se trata de estudiar los diversos saberes de gestión de los recursos naturales y de articularlos, se transforma en un método de investigación y una herramienta de acción en pro de una agricultura más sustentable?

### 8.¿Cómo los lectores pueden contactarlo?

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## RECENT PUBLICATIONS

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# ANNOUNCEMENTS

## Engendering Eden: A Program of the International Famine Centre

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### Sustainability Indicators Course

The International Development Centre at the University of Reading is pleased to announce a six week, residential course on Sustainability Indicators in Development. The course is for all those involved in the creation, application and interpretation of Sustainability Indicators as a tool in development. The course is scheduled for 13 August - 21 September, 2001. For further information contact:

Mrs. Helen Stutley,  
International Development Centre  
The University of Reading  
PO Box 239  
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Phone: +44 (0) 118 931 8158 Fax: +44 (0) 118 975 6467  
Email: idc@reading.ac.uk <http://www.rdg.ac.uk/IDC>

Engendering Eden is a two year research program that aims at a better understanding of the linkages between 'gender' & Integrated Conservation and Development Projects (ICDPs) and to indicate ways to achieve a more equitable conservation and development process.

Comprehensive literature reviews will be carried out, together with in-depth analyses of case studies. These will be published as two regional reviews and one 'global' overview. The emphasis is on sharing of information for future application. A conference will be organized in the latter stages of the project.

To achieve this we request your assistance. The literature on gender in relation to ICDPs is limited. It tends to be grey literature produced by and for the organizations involved, or by independent universities and research institutes. We need to locate case studies of both projects that have and have not addressed gender issues and/or targeted women and other marginalized groups. We request you to:

1. Send us, or indicate the location of, any reports or assessments that you may have produced for your project or as independent research on ICDPs and social issues, especially those involving gender.
2. If you are involved in ICDP implementation or evaluation, please contact us for a questionnaire. Please indicate if you can offer your project as a case study, with or without financial assistance.

Contact person: Fiona Flintan, The International Famine Centre, UCC, 8 Grenville Place, Cork, Ireland F.Flintan@ucc.ie

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