Beyond Technical Solutions: A Dynamic Approach to Problem Solving in an Era of Multifunctional Agriculture and Post-modern Extension Work.

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Abstract

In the post modern world, solutions to many problems in Extension and agriculture demand formulations that go beyond the obvious technical solutions, i.e., solutions that depend solely on the prescriptions of the disciplines that support practice in the particular area where the problem is manifested. Formulating a solution is further complicated because there are several stakeholders with a vested interest in these issues and problems; they, along with scientists and professionals from disparate disciplines, bring differing views and competing interests to the problem solving effort. The challenge for Extension will be to assist stakeholders use problem structuring techniques to work with these differing views to define the “right problem.” In this paper, we propose a problem formulation model that Extension staff could adopt to collect, analyze, and interpret situation data at county/multi-county/state levels in a critical manner and more precisely formulate “real” problems that need to be addressed in the complex, dynamic environment that prevails today.
Introduction

The twentieth century spawned several technological breakthroughs, which have catalyzed significant social and economic changes in all spheres of human endeavor. In this context of profound change, the Extension Committee on Organization and Policy (2002) acknowledges that Extension must understand and adjust to the new era of constant change and a protean work environment if it is to thrive and remain relevant. What is this new reality defining Extension’s new operating context? Globalization is one (Tweeten, & Zulauf, 1998). The evolution of a customer-driven and high-value economy is another. A third is the emergence of knowledge as a critical factor of production (Hammer, 2001). Devolution is a fourth challenge. Collectively, these phenomena have increased the complexity of the problems and issues that Extension needs to address to improve the quality of life for rural residents and potential non-traditional clients in urban areas. Complexity in this context refers to the number and diversity of groups with a vested interest in an issue/problem and the many competing definitions of the problem or interpretation of the issue. In postmodern extension work, ECOP (2002) acknowledges that Extension must be prepared to address the issues and problems of non-traditional clients and build new partnerships if it is to thrive in the emerging reality of the postmodern era.

As Extension prepares to expand its sphere of operation the challenge is to develop approaches to successfully deal with: (a) increasingly diverse client groups and their associated interest groups competing to have their view of the problem or issue legitimized; (b) utilizing the full range and capacity of the university’s expertise to address complex issues or problems; and (c) forging new partnerships to address emerging needs of traditional and non-traditional clients. It is clear that if Extension is to tackle these challenges it must increasingly involve many diverse groups in the search for creative solutions to a complex set of emerging problems. It is noted that the expertise required to address many of these emerging issues is not readily available to Extension in colleges of agriculture. For example, community workforce development, food safety, the challenge posed for communities by the mobility of capital and technology, global competition, and urban renewal. Therefore, to define these problems Extension must draw on expertise from disparate disciplines across the university. This further accentuates the need for Extension to use the group process in problem formulation. It has been observed, “…as the accumulation and fractionalization of knowledge increases, creative solutions to complex problems will increasingly involve group processes.” (Van de Ven & Delbecq, 1971, p 204).

Given the emerging nature of postmodern extension work, Extension must develop new approaches to work with diverse groups that hold competing views or definitions of the real problem. Or, faced with a complex problem, Extension’s responsibility will be to facilitate the generation of several alternate definitions from which a selection can be made for further consideration in formulating the problem. Formulating the right problem is a critical first step in developing a solution. As Dunn (1994) points out, too frequently the rush to generate solutions often leads to the wrong definition of the problem. Recognizing this flawed approach, Ackoff writes “We fail more often because we solve the wrong problem than because we get the wrong solution to the right problem” (quoted in Dunn, 1994, p137). Thus, the critical first step in solving complex problems is to concentrate on identifying the real problem in order to avoid making a Type I error - solving the wrong problem.
Central Thesis of Paper

The central thesis of this paper is that as Extension pursues its new vision and mission as outlined by ECOP (2002), it will engage many diverse groups with vested self-interests and call on a wide range of expertise to solve the complex, collective action problems it is likely to encounter. Because each interest group and discipline will likely offer its own perspective on the problem, collective-action problems require collaboration, negotiation, careful definition, and structuring to synthesize an acceptable and feasible formulation of the problem from several competing definitions. The crucial task for Extension, therefore, is to identify and define the right collective-action problem. Too often the rush to formulate a solution leads to a Type III error - solving the wrong problem. This is usually because too much emphasis is placed on generating a solution without first identifying the right problem. We propose an integrated problem formulation model (PFM) that could be useful to Extension in addressing complex collective-action problems as it forms new alliances and involves diverse communities of place and interest in solving these problems. We believe the model will reduce the likelihood of making a Type III error and will foster collaboration in solving complex, collective-action problems.

The remainder of the paper presents a general theoretical framework for our analyses along with examples of how the model may be used in an Extension futuring exercise in Louisiana. We will also show how the model can be applied to explain a posteriori a case study of efforts to establish a federal style commission to address persistent poverty in the Black Belt region of Southeastern United States. Finally, we propose a methodology for validating the problem formulation model (PFM).

Conceptual Framework

Many new and complex issues have arisen as a result of the emergence of the knowledge-based economy, rapid technological change, and globalization. Hood and Boyle (1990) argue that many of these new issues, such as community workforce development, food safety, the challenge posed for communities by the mobility of capital and technology, global competition, family and social economic well being, water quality, natural resource management, environmental justice, and human nutrition, require expertise that must be drawn from several disciplines. Additionally, Extension must work with interest groups holding varying views or definitions of these problems to formulate solutions. The crucial first step in this process is defining the right problem. It involves facilitating a process by which alternative views or definitions held by each group and/or discipline are selected for further consideration in arriving at a formulation of the problem. It may also involve facilitating a process for generating alternative views from which a formulation can be derived later on.

Extension’s overarching goal is to improve the quality life for rural and urban residents and members of vulnerable communities. Essentially, this involves solving social problems embedded in an environment where several factors interact to produce outcomes with varying impacts across time and space (dynamic complexity). Social problems by definition are collective-action problems: feasible solutions are best arrived at through
extensive search, negotiation, and collaboration. This is because a social problem only becomes manifest when an observer interacts with a "problem situation." That is, a problem is socially constructed from a problem situation [Vakki, 1994; Dunn, 1994]. A natural corollary of this proposition is that individual observers will view the same problem situation differently because of differences in experience, culture, education, and values; there will be as many representations of the problem as there are stakeholders associated with a "problem situation." This corollary lies at the heart of defining and devising an acceptable solution to a collective-action problem.

Problematic situations lie on a continuum (Wooley & Pidd, 1981): at one end are well-defined problems with goals that can be clearly identified along with methods for determining satisfactory solutions; at the other end are messy situations. According to Ackoff (1974), messy problems are typified by interrelated problems that interact among each other; as a result, they are not separable into simpler problems. These problems have conflicting goals and it is difficult to tell when a satisfactory solution to the problem has been produced (Vakki, 1994). Between these two extreme situations are what Churchman (1967) calls "wicked problems". In these situations, problems might not have conflicting goals but it is not possible to conceptualize them in a unique manner, and they do not have well-defined solution conditions or well specified procedures for finding a solution (Dunn, 1994; Vakki, 1994). The collective-action problems that Extension will be faced with fall in either the wicked or messy category. For example, problems identified by Hood and Boyle (1990) and the efforts to address persistent poverty in the Black Belt (University of Georgia Carl Vinson Institute of Government, 2002; East Carolina University Regional Development Institute, 2001; Tuskegee University, 2002).

A distinguishing feature of a complex problem that is worthy of note is that the more complex a problem is the more ways it is likely to be represented or defined by those experiencing the problem situation. Representation in this sense involves both conceptualization and perception. As a result, the representation that is proffered by groups involved in the formulation process may be incorrect, incomplete, or inappropriate (Vakki, 1994). According to Vakki, an incorrect representation of a problem fails to recognize any of the elements making up the problem, (poverty is caused by religious beliefs); an incomplete representation ignores several elements (poverty is caused by laziness); an inappropriate representation fails to consider elements important to the stakeholders (poverty is caused by lack of political savvy). Thus, because Extension will be dealing with complex, collective-action problems it must ensure that the critical first step of problem formulation is complete, correct, and appropriate.

We argued earlier that the forces of globalization, devolution, customer driven and high value-economy are shaping a new reality. The needs and problems that Extension must address arise from the interaction of organizations, communities, and diverse stakeholders with this emerging reality. This being the case, the corollary posited above suggests that there will be as many views of what a problem is as there are stakeholders, organizations, and communities. These interpretations are not the problem. They are signals that there is a problem (Dunn, 1994). The challenge for Extension in this situation is to devise a heuristic device that will engage diverse groups in sorting through these perceptions of the problem to
identify and develop the best representation of the “real problem.” A static snapshot such as a survey or focus group only captures a view from a very narrow window of time of what the problem might be. These are approaches for capturing signals; they do not have the information carrying capacity to permit the level of interaction required to structure a collective action problem in the context of dynamic complexity. In a manner of speaking, their “band width” is too narrow. Therefore, the focus needs to be shifted to problem structuring—using dialectic methodologies to define the substantive problem. Below we propose a problem solving heuristic that will enable Extension to reduce the probability of solving the wrong problem. To accomplish this goal, we propose the problem formulation model (PFM) shown in Figure 1.

As depicted in Figure 1, structuring a collective action problem is a five-step process: data collection, problem sensing, problem search, problem definition, and problem specification. The output of each phase is information, the problem situation, meta-problem, substantive problem, and the formal problem respectively. The process starts with data collection to ascertain the problem situation. It uses the methods that would normally be employed in a situation analysis, i.e., surveys, focus groups and listening sessions to develop a sense of the problem situation. The next step involves sensing the problem, or, in other words, identifying the problem situation. This yields many problems (a meta-problem—a problem of problems) as viewed from the perspectives of several stakeholders participating in the process. The methodology proposed in the model employs dialectical techniques: nominal group technique, brainstorming, assumptional analysis, hierarchy analysis, synectics, and multiple perspective analysis among others to identify the “real problem.” The search and definition processes demand a lot of time, effort, resources, and skills in negotiation and collaboration (transaction costs) to produce quality results. It is here that social capital in the form of trust, commitment to the collective good, and strong community organizational support will have a positive effect in reducing transaction costs. Implicit in the model is the participation of stakeholders. The new professional protocol accepts that beneficiaries of development are important contributors to the process—they possess unique insight on the problems affecting them. The model sees them as the object and agent of the development process. The next step involves developing a formal specification of the problem. Since it is difficult or impossible to capture the real problem from a complex dynamic social milieu, results from implementation of the solution developed from the formal specification of the problem is fed back into the process. This allows the process to be repeated, beginning from the sensing of new information through redefinition and re-specification of the problem, in order to accommodate the changes that are likely to arise in a dynamic environment.

Dunn (1994) indicates that complex problems do not remain solved; so, any formal specification is temporary. Constant change characterizes the current socio-economic context, which makes it necessary to repeat the process of reformulating the problem as new data from evaluation and sensing indicate the problem situation has evolved, spawning new perceptions and definitions of a problem.
Applications to Multifunctional Agriculture

Multifunctional Agriculture, as a concept and practice, will bring several stakeholders with competing interest into the realm of post-modern extension work, which increases the complexity of defining and solving problems. Further, multifunctional agriculture creates the need for dynamic, forward looking systems thinking if we are to connect primary production activities to all the possible secondary and tertiary value adding (or value depreciating) consequences of the initial primary production activity. The PFM will facilitate the generation of multiple perspectives which will improve the likelihood of identifying positive as well as negative externalities resulting from implementation of agricultural projects.

Using the Problem Formulation Model to Explain the Process of Establishing a Federal Commission to Address Persistent Poverty in the Black Belt Region of Southeastern United States

Since 2001, The Poverty Initiative in the Black Belt South (PIBBS) (Carl Vinson Institute of Government, 2002) has been working to establish a federal style commission to address persistent poverty in the region. The initiative involves five stakeholders: the University of Georgia (UGA) leading 1862 Land Grants; Tuskegee University (TU) leading 1890 Land Grants and community based organizations (CBO) coalition; members of Congress and the Senate; Eastern North Carolina University (ECU); and the Governors’ offices of the region. The UGA and TU collected data (stage 1 of the PFM) that led to sensing of the problem (stage 2, PFM) and recognition of a problem situation (stage 3, PFM). With this many diverse stakeholders and the complexity of the problem of “persistent poverty” several competing definition of the problem were proffered (stage 4, PFM). The PIBBS is now faced with a meta-problem (stage 5, PFM). At this stage, the PIBBS failed to employ any of the established group processes for defining the real problem from the meta problem (problem of problems) produced in prior stages; as a result, the process fell apart and each stakeholder resorted to pursuing its own addenda. Currently, UGA, ECU, and Tuskegee, representing different coalitions of stakeholders, working with their congressional
representatives, have proposed three pieces of legislation in Congress, reflecting the views of each coalition.

In the case described above, our model predicts that each stakeholder perceives the problem differently even if there are objective data describing the problem. Here, the problem is not what the data suggests but rather the subjective and value based interpretation imposed by stakeholders. Leaders of PIBBS, if they followed our model would have engaged group members more fully in the search and problem definition process to generate a substantive problem from the meta-problem that could be supported by the stakeholders. Instead, the process was truncated and the definition and specification of the problem fell into the hands of policy makers (politicians). The application of our model to this process would have empowered stakeholders to control the process of defining and specifying a problem, which is of utmost importance to them.

Several scholars (Dunn, 1994; Vakki, 1994; Lyles & Mitroff, 1980) suggest that the more appropriate methods for defining ill-structured (complex, collective-action problems of the “wicked and messy” typology) would be the Kantian and Hegelian methods. In the Hegelian approach two opposing views are held of the problem, but there is strong debate involved in arriving at a definition; in the Kantian method, there are several perspectives about the nature of the problem and efforts are made to combine them in arriving at a definition. Nutt (1984) and Lyles and Mitroff (1980) find that problem formulation in organizations does not use the normative models proposed in the literature. Vakki (1994) expresses surprise at this finding given the evidence, however limited, that approaches such as the PFM can improve problem-solving performance. Given the equivocal nature of the evidence regarding the effectiveness of these problem-solving approaches, more research is needed to determine the effectiveness of these methods and the factors that hinder or promote their use. Even though the model is premised on strong intuitive logic, its efficacy needs to be established through rigorous empirical testing. We have an opportunity to do just this in a research project that will commence implementation shortly. This project entitled “Promoting Collaboration among CBOs, 1890 Institutions, Businesses, and Government Agencies in the Black Belt” will examine problems of collaboration among CBOs, 1890 institutions, businesses, and government agencies. It will provide an opportunity to test the validity of the PFM as an approach by allowing us to compare PFM with other approaches used to structure complex problems.

**Using the Problem Formulation Model in Extension Problem Determination**

This section illustrates how the PFM might be used to strengthen problem determination in the Louisiana Cooperative Extension Service (LCES). This will be done by describing a futuring process which was used by the LCES to identify community issues and problems which then formed the basis of its most recent long-range strategic plan (2001-2004), followed by a discussion of how the model would serve as a follow-up for the next round of futuring/planning.
Background to the Futuring Process

In 1988, following the federal government mandate that state extension services address emerging complex and multi-faceted economic, social, environmental, and technological issues from an inter-disciplinary perspective, “issues programming” was introduced into the extension programming mix. The LCES adopted this strategy along with several other states. Issues programming required a broader swath of stakeholder involvement, than had been practiced hitherto, in issues identification, prioritization, and planning for addressing sub-sets of problems contained in these issues. In addition to traditional Extension client groups, representatives of non-traditional groups and interests were involved in open, town-hall type meetings to identify issues facing local communities. Local issues identified in this manner were screened for criticality, prevalence, and resource- and solution- feasibility before inclusion in the state extension service’s long-range program objectives and action strategies. The general disinclination of organizations and individuals to change, and the fear of alienating powerful and influential stakeholders stymied this effort and the organization reverted to its previous programming mode.

Futuring Through County-Level Open Forums

In 2000, pressured by the demand for program accountability by funding agencies and empowered by the vision of an insightful, bold leadership team, the LCES endorsed a new strategic planning effort. It was similar to the issues programming effort ten years earlier in terms of inviting broad stakeholder input at county level. It was different in that instead of one town-hall meeting, as in the earlier effort, two meetings were held. One meeting was “an open forum” of traditional and non-traditional interests, which surfaced a variety of perceived issues. This was followed by a “focus forum” meeting at which the data from the open forum was presented for participants to discuss, vote, and decide which issues should be addressed in the next five years. Another difference was the systematic way in which the meetings were conducted, using trained facilitators and the nominal group technique to engender discussion and secure consensus. The result of this effort was the development of a four-year state strategic plan (2001-2004) specifying the major issues to be addressed and the initiatives to be undertaken by LCES to address the issues. Each county also had a strategic plan focusing on its unique issues and initiatives. Issues were screened to see if the extension service should be responsible for addressing them. Screening criteria included Extension’s legal-educational mandate, resource availability, and feasibility of accomplishment. For those issues that fell outside these criteria, such as infrastructure (roads, highways, etc.) development and poverty alleviation, LCES committed to being responsive to their resolution using such strategies as facilitating, coordinating, and negotiating with relevant and concerned agencies and groups.

Using the Program Formulation Model with the Next Futuring Effort

The basic question in considering the application of the PFM to the futuring/planning effort is: Could the model be realistically applied to the futuring effort and, if so, what would be required to ensure that the results are meaningful and worthwhile, and that we are confident that real (not wrong) problems are identified?
A fundamental assumption is that the PFM is based on sound logic and will enable users to identify the right problems if the model is rigorously applied. Proceeding on this assumption, if one were to overlay PFM on LCES’ futuring process we see some inherent difficulties to operationalize it at the same time as the futuring process is being conducted. Philosophically, the forums are intended to involve community residents in issues identification and prioritization. No data are collected (as suggested in step 1 of the PFM) for use by participants in problem sensing, search, and definition (steps 2, 3, and 4). In the absence of such data, problems that surface are intuitive rather than definitive, experience-based rather than supported by information, and broad statements rather than specific descriptions. Since the forum discussions are compressed into two 2-hour meetings, there is no time for in-depth analysis and critical discussion of meta problems to enable substantive problems to emerge and to formally specify the real problem (step 5). For example, the previous forums identified “Quality of Life in the Community” as one of the seven broad issues or areas of concern of community residents around the state, and “Foster a safe community, free from drugs and crime” as one of the important needs that should be addressed to improve the situation. In the absence of data on drugs and crime, participants cannot accurately define meta problems and the real problem from among these, and eventually specify and formalize the problem(s) that the community should address. Obviously, given the purpose, format, and process of the forums, and the time allocated, in-depth analysis and problem formulation cannot be added to the futuring process. It would appear that the model could be used as a follow-up of the futuring process using an appropriate structure and process to accomplish the task. Extension staff (at state and/or local level, as appropriate) would be responsible for the follow-up, which would include the procedures indicated below. As each step of the PFM is discussed, the issue “Foster a safe community, free from drugs and crime” under the “Quality of Life in the Community” concern mentioned above will be used to show what would be involved at each step. The example is discussed for county level application. Multi-county or state-level applications would vary in scope and operational details; essentially, though, the process would be similar.

1. A formal, county-based task force is established for each major issue. All issue-relevant and interested stakeholder groups, organizations, and agencies (public, private, non-profit, etc.) are identified. They are then contacted for selecting and recruiting knowledgeable and interested persons to the task force. Influential elected and appointed officials are also included on the task force.

Example Issue: Foster a safe community, free from drugs and crime. Relevant stakeholder groups for this issue might include county-level social service agencies, housing authorities and housing projects, vocational education institutions, law enforcement offices, the judicial system (adult and juvenile), faculty and administrations of public and private schools, local governing councils, faith-based organizations, ethnic groups, gangs, businesses (chamber of commerce), anti-crime/drugs neighborhood/county wide groups, etc. Once a list is developed, extension staff would contact strategic individuals (head or other) in these groups, explain the issue and the task force assignment, and request that a person who can bring expertise and commitment to the task be recommended. Alternatively, the extension
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staff may know of and choose suitable persons with whom they might have worked with in the past. Each person so chosen would then be contacted with necessary information on the nature and scope of the task to solicit their consent.

2. The task force is oriented to its charge at a formal meeting. The charge is to take the issue identified in the futuring process through the steps of the PFM. The task force is provided with an explanation of the model, its steps, what members will commit to (time, expertise, their organization’s resources, etc. as needed), not only in the initial problem formulation but also feedback of results from the implementation, evaluation of progress and outcomes, and reformulation of the problem at the end of the planned period of implementation. Once the task force has an idea of the tasks involved in the process, it can begin to address the different steps of the model.

Example Issue: Foster a safe community, free from drugs and crime. The task force that is eventually established may have as many as 20 persons who have committed to serve for the stipulated time, say 1 year, to address this issue and seek solution strategies for implementation. The agenda for the orientation meeting of the task force which would be organized by the Extension staff could cover (a) information about the open forums at which the issue was identified as a major concern, (b) the charge of the task force, (c) an explanation of the PFM as a follow-up to the futuring process, and how it would be applied, and (e) what the task force would do with regard to application of the model, and (f) what outcomes could be expected as a result of the task force’s efforts and how that would benefit the community in terms of the issue at hand.

3. Step 1, Data Collection. The task force decides what kinds of data are relevant to the issue and where these data are available, and/or how they will be gathered if not available. The task force can assist in data collection, analysis, interpretation, and report preparation. Extension staff plays a coordinating and motivating role and provide resources and expertise as needed.

Example Issue: Foster a safe community, free from drugs and crime. The task force determines what data are available and the sources from where these may be obtained. For instance, available relevant data might include the incidence of various forms of criminal activity and drug abuse, names of neighborhoods and communities with a history of such activity, figures describing the apprehension, disposition, and demographics of offenders, the kinds of on-going preventive and educational activities, which groups and organizations are engaged in fighting the problem, etc. Sources of these data may include records and informants in the police, judicial, and correctional systems, concerned anti-crime and anti-drug groups and organizations, etc. If some kinds of needed data are not available, the task force may decide to gather the data and select the methods it will use to do so, and proceed with the data collection.

4. Steps 2 and 3, Problem Sensing and Meta Problems. The task force analyzes the situation report that results from the data collection effort to get a general feel for or sense of the problem situation and the several problems that may be embedded in the situation. It is important for stakeholders to appreciate one another’s perspective with regard to the problem
situation and what specific problem(s) they read from the situation. These meta problems need to be brought to the discussion table for a holistic understanding of the issue at hand as well as in preparation for the concessions and negotiations that the task force will engage in to decide what the real problem is, and specify it precisely at later stages of the problem formulation process.

Example Issue: Foster a safe community, free from drugs and crime. Different stakeholders on the task force will have different perspectives of the problems in the problem situation that is described in the task force report. Drugs and crime are symptoms of the problem. Causes are hidden in family-community life and in the functioning of social institutions, which will need to be bared and addressed. Hopefully, members of the task force will identify causes as meta problems from their individual “readings” of the situation. A whole array of meta problems could emerge from these perspectives including the breakdown of family structures, values, and relationships, lack of parental control, discipline, and guidance, adverse influence of the media, excessive leisure time and temptations for young people, availability of drugs in schools, and neighborhoods, lenient punishments for offenders, poor economic circumstances, etc.

5. Step 4, Problem Definition. This is a critical step. From the many meta problems discovered in the previous steps, the task force now defines the “real” problem to be addressed. In doing this, questions such as the following would be helpful to answer: Which people or groups in the community are more adversely affected and to what extent? Which locations (neighborhoods, towns, cities, etc) are more adversely affected and to what extent? What is the relative severity of crime? Drugs? Among affected groups/locations? Are drugs/crime (and the anticipated solution) more widespread/severe among certain ethnic groups? Which anti-crime/drug interventions (education, preventive, punitive) might be effective? Feasible? Stakeholders with different perspectives (and agendas) will try to advocate their point of view and a good deal of negotiation and collaboration will be required. What needs to emerge from this step is the real problem and, if possible, optimum consensus among the group.

Example Issue: Foster a safe community, free of drugs and crime. After reviewing the relative severity/importance of the meta problems and the likely impact of solution strategies, the task force decides that the substantive problem is family- and community-related and that better discipline, guidance, control, and teaching of young children with regard to crime and drugs in families, schools, and communities would be the best long-term solution strategy. The task force also decides that a parallel substantive problem to be addressed in the short term is to reduce the incidence of crime and drugs by greater police vigilance, elimination of gangs, more severe punishments for offenders, etc. In each case, concerned stakeholders would have to buy into the proposed problems and solution strategies.

6. Step 5, Formal Problem Specification. It is difficult to formally specify the real problem because the results of implementing the solution strategies for the substantive problems defined by the task force will be available only after some time elapses. When these results become available, they can be fed to the task force to specify the formal problem, post-hoc.
Example Issue: Foster a safe community, free of drugs and crime. As indicated, the real problem which the task force will acknowledge and formally specify will have to wait on the results of implementation efforts on the two substantive problems indicated in Step 4 above.

Conclusions

As illustrated in the case of PIBBS, the PFM has the potential, if applied, to assist diverse groups work through their different perspectives on important problems to arrive at a definition all could accept. It also has the potential to empower groups through the use of participatory processes to become owners of the process of problem formulation. In the case of the LCES, the PFM can be adapted as a follow-up tool in the open forums futuring process to specify in a systematic way real problems embedded in the issues identified in the forums. Extension staff could adopt the procedures suggested above to collect, analyze, and interpret situation data at county/multi-county/state levels in a critical manner and more precisely formulate “real” problems that need to addressed in the complex, dynamic environment that prevails today. This would be a stronger process than the current procedure of needs/problems identification, which yields intuitive, personal-experience based, and broad problems.

References