

‘Unfolding’ Natural Resource-Use Information Systems: fieldwork in Botswana¹

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by

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My research examines the performance of natural resource-use information systems. I question why such systems, despite receiving substantial financial and human investment, appear to have a weak impact on projects, programmes and policy intended for rural poverty alleviation in developing countries. Drawing on my understanding of the ‘process of unfolding’ introduced by C. West-Churchman, and its particular relationship to Habermasian constitutive interests, I reflect on my experience of using the concept during fieldwork undertaken in Botswana. The concept is found useful on two fronts: firstly, it provides a purposeful guide for gathering and processing information/knowledge - what I have termed an epistemological intent; secondly, it provides a useful template for evaluating other information systems, and in particular the role of expertise - what I have termed an ontological intent. The process of unfolding, as I understand it, also provides an invitation for constructive (rather than self-indulgent) personal reflection; what might be termed a constitutive reflexive intent. By making information gathering and knowledge generation less mystical and a more transparent *social* activity, the conceptual and practical application of the process of unfolding can help towards retrieving inquiry as being a purposeful, openly political, and thereby less deceptive, engagement; features which I believe are found particularly wanting in the business of rural development information gathering

1 INTRODUCTION

Whilst there is some dispute amongst ‘experts’ in Botswana concerning the *precise* extent and depth of poverty in Botswana there is little doubt over the importance of rural poverty in what is a relatively wealthy country. Despite recording the fastest economic growth rate amongst developing countries in the world between independence in 1966 and the late 1980s (Harvey, 1992), the country has correspondingly one of the least enviable records of wealth distribution (UNDP, 1991-1996). There can also be little doubt over the less than impressive impact on rural poverty alleviation from a burgeoning industry in (renewable) natural resource-use appraisal that has emerged in the country since independence. Rapid national economic growth, based principally on diamond revenue, has been complemented by considerable donor support in financing the emergence of an expanding cadre of environmental expertise in government departments, tertiary level education agencies and other parastatals, the private consultancy sector, and both local and foreign based non-government organisations (NGOs). Since 1991, these efforts have been increasingly directed towards introducing participatory techniques, at the forefront of which is the internationally renowned *participatory rural appraisal* (PRA). Whereas PRA has

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commonly been associated with practitioners from the NGO sector (Chambers, 1993), the Government of Botswana has recently embarked upon a pioneering strategy for introducing PRA into the structural mainstream of government extension work.

My research evaluates the possibilities and limitations of participatory techniques in addressing the shortcomings of resource-use appraisal. I have found it useful to reach beyond mainstream critiques of resource-use appraisal, offered in large part by reflections of appraisal experts themselves, and to explore the potential of critical systems practice, and in particular, C. West Churchman's *process of unfolding*. My reworked sketch of 'unfolding' seeks to bring together several key themes in the literature, including; (a) influential tools developed under soft systems methodology (SSM) and critical systems heuristics (CSH) - both informed by Churchman's work, (b) constitutive interest theory of Habermas, and (c) concern for developing emancipatory practices.

2 RESOURCE-USE APPRAISAL AND THE POSSIBILITIES OF SYSTEMS THINKING

PRA, as a tool for information gathering and dissemination, comprises a set of primarily visual-based techniques designed to be user-friendly for resource-poor rural communities in developing countries. An underlying implication promoted particularly by Robert Chambers - the most celebrated protagonist of PRA - is that the techniques offer a source of 'empowerment' for the users (cf. Chambers, 1992; 1993, 1997). Although generally accepted as offering an improvement on conventional "baseline surveys" and "training & visit" schedules, PRA is not without its detractors. For the most part, the criticism has remained within established discourse on 'methodology'; where the validity and relevance is measured by the extent of rural peoples' participation. This line of reflection is best illustrated in texts setting out the 'agendas' of *Farmer First* (Chambers *et al.* 1989) and *Beyond Farmer First* (Scoones & Thompson, 1994). Whilst the former agenda focused on building up and refining a repertoire of techniques to enhance inclusiveness amongst different sections of rural communities, the latter agenda, as defined by the editors, attempts to provide a theoretical understanding to the complex problems of participatory approaches (ibid:3); drawing particularly on "post-positivist" insights from 'actor-oriented' approaches (cf. Long & Long, 1992).

Farrington (1994) criticises the *Beyond Farmer First* agenda on a number of grounds: the narrow focus on 'knowledge' as the only expression of power and authority; a focus on 'self-employed farming' as distinct from other income-generating pursuits; the caricature and implied dismissal of previous 'transfer of technology' programmes; and the lack of attention to the substantial budgetary demands of introducing participatory techniques. Farrington's criticism echoes Robert Tripp's (1989) concern that an emphasis on 'participation' distracts from issues of commitment and goals of the institutions involved with resource-use appraisal. Cherrett *et al.* (1995) suggest that such institutional reflection is particularly imperative amongst the growing number of environmental NGOs involved with resource-use appraisal in Africa. The implication here is that such institutions in promoting 'participation' as a response to demands from international agencies, have lost their sense of direction. Stephen Biggs (1995) argues that PRA, particularly as promoted amongst NGOs, now constitutes a 'participatory orthodoxy' which serves particular

institutions and interest groups in the political economy of development, who fear that criticism of PRA threatens the leverage developed by such groupings.

The practice of PRA has raised further issues, particularly in relation to the interests and intentions of those facilitating PRA - the 'experts'. David Mosse (1994), for example, examining PRA exercises in the Bhil tribal districts of western India cites Bourdieu's "officialising strategies" and Ardener's observation of "muteness" amongst subordinate groups in explaining incidences of local elite capture and cultural exclusion. Mosse alludes to the structural *institutionalised* aspects of PRA 'events' and particularly the effect on reinforcing oppressive gender relations. Similarly, Sarah White is concerned with the consensual drive in PRA exercises, "...if participation means that the voiceless gain a voice we should expect this to bring some conflict... the absence of conflict in many supposedly 'participatory' programs is something that should raise our suspicions.. change hurts!" (White, 1996:6). Jonathan Stadler further suggests that PRA inadvertently offers a strategy for "*managing* power dominance and divisive interests" (Stadler, 1995: 807). Both authors call for a greater reflectiveness amongst PRA facilitators. Simon Bell (1994) regards participatory appraisal techniques as a "tyranny of methods", and John Farrington (1994) observes that practitioners have the power to devise and popularise new names for participatory techniques. Both suggest an uncritical propensity amongst appraisal practitioners.

The need to extend the boundaries of assessment for resource-use appraisal beyond issues of method and towards institutional and political imperatives, have lead to my own foray into the world of critical systems studies. The idea of realising the potential of systems thinking for resource-use appraisal is not new. PRA itself, with its constituent tools of village and institutional mapping, debating and participative design bear a close resemblance to Peter Checkland's soft systems methodology (SSM) (Checkland, 1981).³ Ray Ison and other rural development specialists at the University of Western Sydney have pursued more explicitly the SSM tradition for natural resource use appraisal (Russell & Ison, 1991; Ison, 1993a, 1993b; Weber & Ison,1995).

Their work has, in the tradition of Checkland, identified the objectivist assumptions behind mainstream social inquiry, and has argued for a more *constructivist epistemology* which assumes that knowledge is the product of *social* activity. Constructivism implies that knowledge, being a product of specific social, cultural and historical processes, is inherently transient. That is, constructivism is associated with a *nominalist ontology*. This contrasts with the dominant *objectivist epistemology* informing social inquiry, which assumes a *realist ontology* implying that 'knowledge' is something to be discovered as if an objective reality exists 'out there' independent of human interests. Flood refers to Checkland's departure from objectivism as the "first epistemological break for modern systems inquiry" founded upon interpretivist social theory (cited in Flood and Ulrich, 1990:200). The second epistemological break is represented by Werner Ulrich's programme of *critical systems heuristics* (CSH) in which the author reconstructs the *critical* idea of systems as originally found in the works of Immanuel Kant. (Ulrich, 1983).

³ This is acknowledged, albeit in passing, by the editors of *Beyond Farmer First* (Scoones & Thompson, 1994:23)

However, this latter break into the world of critique has found little expression in discussion of resource-use appraisal.⁴

The explanation as I see it is not through want of a need for a critical dimension. The swelling body of documentation on concerns emerging from the application of participatory appraisal is testament to a growing demand.⁵ But rather there appears to be a perception of critical social theory as being, at best, 'illuminating' though providing little *practical* help in relation to concrete issues of *implementation*, and at worst, generating merely negative (de-constructive) exercises. Given the prevalence of this line of reasoning in systems literature itself, small wonder that the ideas of critical social theory have gained little currency amongst development practitioners in the busy and immediate world of combating poverty and environmental degradation. Yet the work of critical systems practitioners like C. West Churchman is driven unconditionally by a deep moral commitment to humanity (Flood, 1998...). Similarly for Werner Ulrich, a student of Churchman, the explicit intention of CSH, and stated point of departure from other critical systems literature, is to make systems practice critically *practical*. There are I believe three dimensions of criticism on the practical dimension of CSH:

1. CSH, whether practical or not, may have only limited relevance to those problem situations which might be identified and classified as being *coercive*; that is, in need of an *emancipatory* approach. This perspective was formalised in *Total Systems Intervention* (TSI) which included CSH as one of many systems approaches listed in a menu and classified according to their appropriateness to particular social situations (Flood & Jackson, 1991b).
2. Where CSH is deemed relevant - that is in coercive situations - there is an overriding problem of eliciting the co-operation of those in authority to actively participate in the exercise (Flood & Ulrich, 1990:201).
3. There remain difficulties in conveying and making intelligible complex ideas in the tradition of Kant, Habermas and, indeed, Churchman himself. Significantly this line of criticism is not often made explicit in texts (presumably for fear of exhibiting 'ignorance' - the prime 'enemy' of expertise).

The first line of criticism has been dismissed on several occasions by Ulrich himself because of its implication that there *are* non-coercive situations (rather than conceptualising these as being 'ideal-types'), and further, that such 'liberated' situations might be relatively easy to identify at the outset of intervention in order that an appropriate systems methodology might then be chosen (Ulrich, 1988a; 1988b; 1996). It would appear more reasonable at the outset of any social inquiry to assume the existence of coercive relations whether they are manifest or not.

⁴ Michael Drinkwater in a brief critique of actor oriented approaches is, as far as I am aware, one of the few to draw explicit reference to critical social theory in the field of rural development (Drinkwater, 1992)

⁵ In addition to the references on rural appraisal cited earlier, issue number 24 of *Participatory Learning and Action*, *Critical Reflections From Action Learning*, 1995, published by the International Institute for Environment and Development (IIED, 1988 to present) also provides a source of such concerns from practitioners in the field.

The problem of impracticality with regards to involving those in authority in coercive situations remains, and can in part be addressed by concentrating on the third line of criticism:

“A critical approach, although it cannot “force” the powerful to take account of the less powerful, can at least unveil this facade of rationality and objectivity” (Flood & Ulrich, 1990:201)

To “unveil this facade” it seems important to have some clear understanding of; (a) the distinction between expert objectivism and the constructive use of objectivist techniques (cf. through constructivism), (b) the message of deception implicit in objectivism, and (c) the emancipatory potential of objectivist tools implicit in constructivism. Let us turn to Churchman’s process of unfolding and assess its possible contribution to critical thinking?⁶

3 THE PROCESS OF UNFOLDING

C. West-Churchman in his book *The Design of Inquiring Systems* (Churchman, 1971) first introduced the idea, derived from his mentor Edgar A. Singer, that social systems are teleological or, in more common language, *purposeful*. Rather than considering systems as real entities existing ‘out there’ waiting to be identified Churchman considered social systems as ‘whole system *judgements*’; constructs imbued with human intentionality. For Churchman the description of a purposeful system therefore invites questions relating to the *social actors*.

Churchman’s characterisation of purposeful systems dealt initially with only those *involved* in the systems design. He identified nine conditions that must be fulfilled for a system to demonstrate purposefulness (Churchman, 1971: 43). Later in *The Systems Approach and its Enemies* he reordered these conditions into three groups of three categories; each group corresponding with a particular *social role* - client, decision maker, and planner (Churchman, 1979:79). Each category is associated with two allied categories which Ulrich later termed *role specific concerns* and *key problems* (see Table 1). Ulrich also identified each category group with a term reflecting the primary source of influence - *motivation, control, and expertise* - for client, decision maker, and planner respectively (Ulrich’s 1983:250).

Churchman suggests a role for those *affected* by systems design, and provides a self-reflective description of an additional three categories that centre around the role of *systems philosopher*; along with the two related categories, the *enemies of the systems approach* and *significance* (Churchman, 1979:80). It is Werner Ulrich however who takes on the task of distinguishing between those *involved* in a system’s design and those *affected* by a systems design and defining the latter role more systematically for social systems planning.⁷ The category of those affected, but not involved, with the systems design are

⁶ In part, this builds on the idea of “oblique methods” - described by Flood & Romm (1995) as a means of cajoling participation amongst recalcitrant stakeholders - though I see more potential in consolidating such methods more explicitly within Churchman’s overall framework.

⁷ Ulrich distinguishes between those who are *involved and affected* and those who are not involved but affected. The former category - for example, professional planners or experts who may have their reputation at stake - can, like those involved but otherwise not affected, at least voice their concerns. The latter category have to “live the social reality in question, and hence personally to bear at least some of the consequences of

designated by Ulrich as being the *witness*; those who in practical discourse will argue the case of the affected. The role specific concerns of the witness are conceptualised as those of *emancipation*; liberation from oppressive material conditions and false consciousness. The final ‘key problem’ category represents the possibilities of a conflict in *world views* (‘Weltanschauung’) - “different visions of what social reality and human life in it ought to be” (ibid) - between the involved and the affected. Consequently the “source of influence” for this category group is defined as the *source of legitimation*. Table 1 summarises the twelve categories.

Categories		Dimensions of intentionality		
1. <i>Client?</i>	(role)	Sources of motivation	Those involved	<i>The purposeful System of concern (or context of application) on which depends the meaning of ‘improvement</i>
2. Purpose?	(concerns)			
3. Measure of improvement?	(problems)			
4. <i>Decision Maker?</i>	(role)	Sources of control	Those involved	
5. Components?	(concerns)			
6. Environment?	(problems)			
7. <i>Planner?</i>	(role)	sources of expertise	Those affected	
8. Expertise?	(concerns)			
9. Guarantor?	(problems)			
10. <i>Witness?</i>	(role)	sources of legitimation	Those affected	
11. Emancipation?	(concerns)			
12. world view?	(problems)			

Table 1 Table of critical-heuristic categories.
(source: adapted from Ulrich, 1983:258; 1993:595 and 1996:43)

In examining his own twelve categories Churchman states “I’ll be more interested in their process of unfolding rather than in their definitions...(and).. in explaining the unfolding of meaning, I’ll use imagery, and specifically the imagery of striving-force and the opposite, passive-helplessness” (Churchman, 1979:80). Unfolding as a *dialectical* process comes closest to any form of definition offered by Churchman.

Ulrich interpreted the mapping out of the twelve categories (roles, concerns, problems) in the form of “boundary questions” in systems design as constituting a first of three dimensions of unfolding; the other two being “actual mapping vs ideal mapping” and “stakeholder participation” (Ulrich, 1988a:423-425). Below I summarise my own understanding of these three levels, borrowing additional ideas from SSM in application to rangeland management (Russell & Ison, 1991) and the exploration of critical systems thinking offered by Flood & Ulrich (1990). In reworking Churchman’s concept I hope to bring out the key dialectical themes which I see associated with each level.

the planning outcome” whilst not being able to voice their concerns (Ulrich, 1983:249). The term ‘affected’ is used by Ulrich in this latter sense.

1. Unfolding 1 - Systems idea: Formulating a critique from juxtaposing ‘social roles’ with ‘role concerns’. This first level is analogous to an initial process of *sweeping in* (using the terminology of Edgar A. Singer). Whilst this conjures up an endless quest for comprehensiveness, the process of unfolding might accurately be described as “the critical counterpart to the sweep-in process” (Ulrich, 1988a:423). The critical idea of sweeping in is to increase the awareness and understanding of systems’ dimensions and concerns from various perspectives (clients, decision makers, experts, and witnesses).

This first level of critique delineates for each of the four groups appropriate *roles* and *role concerns* and then identifying the *key problem* areas - the *crux* of the problem situation - associated with such concerns. As I understand it this third set of ‘key problems’ represents a dialectical expression between ‘social roles’ and ‘role-specific concerns’.⁸ In SSM terminology this level of unfolding corresponds to the process of formulating a “rich picture”.

2. Unfolding 2 - Systems critique: Formulating a critique from juxtaposing ‘actual’ with ‘ideal’ mapping. The dialectic here has two manifestations - one associated with SSM and the other with CSH - depending on the reading of ‘ideal’. In SSM terminology all ‘maps’ are ‘ideal’ in that they are phenomenal *re-presentations of the territory*, whether past, present or future, and are not to be confused with the *actual territory* (cf. “second order contextual science”, Russell & Ison, 1991:1051; “first epistemological break”, Flood & Ulrich, 1990:200). The dialectic is expressed through re-presenting maps (‘rich pictures’, ‘models’ etc.), constructed by experts with the assistance of other participants, to all *involved* in the systems design (who, by extension, constitute the domain of the ‘actual’) for constructive feedback; therein generating critique. In SSM, conceptual modeling is based on the CATWOE mnemonic (client, actor, transformation, world view, owner, and environment) and provides the expert planner with some guidelines to avoid what Churchman refers to as the “ecological fallacy” of not being critically comprehensive (Churchman, 1979:4-7).⁹

In the CSH manifestation, the actual/ideal dialectic is analogous to the commonsense notion of what ‘is’ the present state of circumstances in juxtaposition with what ‘ought’ to be some *future* state of circumstances. For Churchman and Ulrich the dialectic exists in an ‘is’/‘ought’ mode and is consequently associated in the first instance with the second category, *purpose* (Fig.1). The category unfolds into three subcategories representing levels of ‘goal’ planning, ‘objective’ planning, and ‘ideal’ planning (Churchman, 1979:82; Ulrich, 1988a:425). Since the ‘objective’ and ‘goal’ planners work respectively within stronger constraints of ‘given’ agendas (of what is feasible or “realistic”), they occupy more the domain of the “actual” or “is”, whereas ‘ideal’ planners have the privilege to

⁸ In contrast Ulrich considers the three sets as offering familial features for each group “[t]he first category of each group is basic, while the two others serve an auxilliary function” (Ulrich, 1983:258).

⁹ Peter Checkland explicitly uses Churchman’s nine conditions as a basis for formulating the CATWOE mnemonic (Checkland, 1981). Unlike Churchman and Ulrich, Checkland uses the conditions in a more functionalistic manner effectively contributing towards systems maintenance (Ulrich, 1983: 247, note 11). Churchman’s pervasive dialectical engagement with the conditions - encouraging an ‘is’/‘ought’ dialogue - and Ulrich’s subsequent development of the categories associated with the ‘affected’ (Churchman’s systems’ enemies) in juxtaposition with the ‘involved’ - delineates a key point of departure from Checkland’s SSM.

redefine and “challenge the soundness of the visions implied by “realistic purposes” (Ulrich, 1988a:426) thereby occupying the domain of the “ideal” or “ought”. In this manifestation of the ‘actual’/‘ideal’ dialectic it is the expert planners’ role through ‘actual’ mapping to assimilate empirical evidence of the constraints (material and ideological) of ‘given’ agendas. In other words, each of the twelve categories is considered to unfold by asking basic ethical questions concerning the *actuality* (‘is’ mode) of ‘real world’ roles, concerns and key problems associated with goal and objective planning, and perceived by experts through empirical evidence, in juxtaposition to the *ideals* (‘ought’ mode) generated from the essentially *non-expert* domain of moral judgement and vision (Ulrich, 1988a:424).

The experts’ role, whether associated with notions of ‘ideal’ (cf. SSM) or ‘actual’ (cf. CSH) mapping, is to engage in dialectical reflection. In the SSM meaning the dialectic is expressed primarily through a dialogical *process* between the experts and the others involved with the systems design. In the CSH meaning, the dialectic is expressed through both dialogical and monological (critical reflection) means relating to the substantive issues of constraints and possibilities. The overall purpose of mapping then should be “to lay open its perspective and scale, its selectivity and purpose, and should never allow itself to be taken for the territory” (Flood & Ulrich, 1990:200).

3. Unfolding 3 - Social critique: Formulating a critique from a dialogue between those *involved* (clients, decision makers, and experts) and those *affected* (through ‘witnesses’) by the systems design. This level of unfolding meets Churchman’s need for *securing* sustainable improvement (Churchman, 1971). More precisely it echoes Churchman’s later call for systems designers to invite response from the social life-worlds of the “enemies of the systems approach” - conceptualised as occupying the domain of politics, morality, religion, and aesthetics - as a general source of guarantor (Churchman, 1979).¹⁰ Here the systems rationality, as informed by a supposed ‘consensus’ of those involved in the systems design, is dialectically pitted against the systems irrationality (or social rationality) of those affected but not involved. Ideally this level of unfolding takes place in a dialogical setting (*in vivo*) as a function of democracy where the affected or their representative witnesses are given the opportunity to respond to systems plans. However, it should not be forgotten that any contribution made in a dialogical setting is shaped by economic, social, cultural, historical and political circumstances. There is a need on the part of the expert planner for a critical reflexive (monological) component to take account any effects of material conditions and incidences of false consciousness in the social domain which may reinforce coercion (Flood & Ulrich, 1990:202).

Each of the three levels provides a core dialectic: level 1 between *roles and role concerns*; level 2 between *actualities and ideals*; and level 3 between *the involved and the affected*. Each has a third constituent; what I would call a corresponding dialectical expression: respectively, *key problems*, *critique*, and *social transformation*. The whole process of unfolding itself might also be regarded as a dialectic between the power implicit in the systems idea (level 1) and the ideological imperatives of systems critique (level 2); the dialectical expression of which may result in either further manifestations of *coercion*

¹⁰ The general guarantor *idea* used here is not to be confused with the more specific guarantor *category* though, as Ulrich points out, the two are closely related (Ulrich, 1983:261)

(regulation or control), or alternatively, manifestations of *emancipation* from incidences of material impoverishment and false consciousness (level 3). There is another dialectical theme that pervades all three levels of unfolding; a dialectic between the *process* of information gathering - an epistemological intent - and the *product* of information gathering - an ontological intent. The significance of this dialectic for resource use appraisal, as I hope to show, is in delineating the responsibility of expertise in social inquiry.

4 'EPISTEMOLOGICAL' AND 'ONTOLOGICAL' SIGNIFICANCE

An appealing aspect of these three levels of 'unfolding' is in their correspondence to the three Habermasian constitutive interest categories formulated upon three invariant forms of human activity - namely labour, human interaction, and authority (or relations of power). The interests and associated types of rationality are: (1) technical/instrumental; (2) operational/strategic; and (3) emancipatory/communicative (Habermas, 1972). This taxonomy pervades much of the discourse on critical systems.¹¹ My own reading of Habermas' general influence on critical systems literature suggests there being two distinctly significant dimensions of using the interest categories; a general epistemological intent, and an ontological intent for 'map' design.

The active form of association relates to the *process* of unfolding; that is, as an *epistemological* intent. The three interest categories, though invariant, are significantly deemed insufficient on their own (Habermas, 1972:65). For Ulrich the corresponding triad is expressed through a translation of Kant's three quasi-transcendental ideas: *systems idea* (ideal of comprehensiveness); *moral idea* (ideal of moral perfection); and the *guarantor idea* (ideal of securing implementation of improvement) (Ulrich, 1983:262-263). Ulrich suggests other terms for the triad including respective *processes* of (1) 'unfolding', (2) 'ethics' (or C.J. Jung's 'individuation'), and (3) 'disillusionment' (or 'democratisation'). What is significant, as he sees it, is to maintain the dynamic between the three constituents: "[in] socially rational planning, the three processes converge in one and the same discursive process between the involved and the affected. For the sake of convenience, we shall usually speak of the "process of unfolding" in a wide sense that encompasses all three ideas" (ibid:263).¹²

Bob Flood and colleagues at Hull University, whilst not explicitly using either the 'process of unfolding' or Habermasian association with interest categories, nevertheless implicitly adopt the epistemological intentions. Total Systems Intervention (TSI), for example,

¹¹ John Oliga's examination of the dialectical relations of power and ideology, its manifestations in systems literature and practice, and the implications for issues of systems *control* and *transformation* (possibilities of emancipation) has a particular influence on my interpretation of Habermasian dialectics and its significance for resource appraisal (Oliga, 1988; 1990).

¹² Although Ulrich discusses Habermasian constitutive interests earlier in the book (Ulrich, 1983:131-134) he makes no further reference in later discussion of the process of unfolding (ibid:263) save making a precursory observation, almost in passing, that Kant's guarantor idea might in contemporary times take the form of the emancipatory interest (ibid:261). Elsewhere Ulrich uses these constitutive interests directly to establish a three level framework of rational systems practice, though again choosing not to make reference to the process of unfolding (1988b).

emphasises the inter-dynamic stages of *creativity*, *choice*, and *implementation*, with a further sub-phase of unfolding through *tasks*, *tools*, and *outcome* (Flood & Jackson, 1991). Oblique methods (Flood & Romm, 1995), Triple loop learning (Flood & Romm, 1996), and the 3 ‘d’s of problem solving (Flood, 1995) seem all to be variants of the epistemological process of unfolding (Table 2).¹³

Habermas (1972) knowledge constitutive interests (based upon...)	Technical Interest (work)	Practical Interest (interaction)	Emancipatory Interest (relations of power)
Ulrich (1983) process of unfolding-1	process of unfolding (systems idea)	ethical process (moral idea)	process of disillusionment (guarantor idea)
Ulrich (1988a) & Flood & Ulrich (1990) process of unfolding-2	boundary questions 12 systems categories <i>systems idea</i>	actual/ideal mapping is/ought dialectic <i>systems critique</i>	stakeholder participation ‘involved’ / ‘affected’ <i>social critique</i>
Flood & Jackson (1991) phases of TSI	creativity	choice	implementation
Flood (1995a) enhanced Total Systems Intervention	organisational processes and design	organisational culture	organisational politics
Flood (1995b) constituent research methods 3 ‘d’s	methods for designing	methods for debating	methods for disimprisoning
Flood & Romm (1995) Use of oblique methods to overcome coercive situations	use CSH categories for questioning where interests are/ought be around	evaluate current activities in relation to questions	help disadvantaged to get involved; eg. workshops organised along SSM procedures
Flood & Romm (1996) triple loop learning:	‘how’ should we do it? are we doing things right?	‘what’ should we do? are we doing the right things?	‘why’ design? who will benefit? is rightness buttressed by mightiness or vice versa?
Midgely (in Wilby, 1996) criteria to inform acts of judgement about intervention	methodological pluralism: appropriateness of methods used	critical awareness: critique embodied by measure of improvement	improvement: view of improvement proposed by intervention
Midgely (in Wilby, 1997a) key ideas informing research	expanding value base; system categories	debate	‘marginalisation’: stabilised debate sacred/profane

Table 2 Epistemological Intent of Using Constitutive Interests

The three constitutive interests are also used for *ontological* intent; as a template for classifying invariant characteristics of systems practice/thinking. Some examples include the mapping of methodological derivations - empiricism, hermeneutics, and critique (Olga 1988); and the mapping of social theories/paradigms - functionalist, interpretivist, and

¹³ Even Gerald Midgely’s “three ideas” - systems categories, debate, and marginalisation - despite placing CSH as a constituent part of the second phase of ideas, ‘debate’, nevertheless in composite seem strikingly similar to the three levels of unfolding (in Wilby, 1997a:44-53).

radical (Schechter, 1991 citing earlier work of Burrell & Morgan). In 1988 Ulrich detailed the now familiar expression of using the three constitutive interests as a template for delineating three traditions in systems practice: (1) ‘hard’ or operational systems management where *instrumental* reason dominates; (2) ‘soft’ or strategic systems management where strategic or *practical* reason dominates; and (3) ‘critical’ or normative systems management where critical or *communicative* reason dominates (Ulrich, 1988b:150-151, Table IV).

Within the framework of constructive epistemological intentions these templates provide a valuable tool for navigating the purposefulness of inquiry. ‘Hard’ and ‘soft’ systems practice - and by extension, ‘positivist’ and ‘interpretivist’ modes of inquiry - can be *valued* in the context of appropriate constructivist epistemological intentions. The process of identifying the two intentions underlying Habermasian constitutive theory serves as a useful archetype for appreciating the potential complementarity of different approaches to inquiry. Similarly, the three levels of unfolding, considered as an overall epistemological intent, has a need for an ontological constituent which might be variously expressed in terms of ‘rich pictures’, ‘root definitions’ or ‘conceptual models’ (in the terminology of SSM), or as utterances, transcripts, presentations, statements, maps, inventories, discussion documents, ‘submissions’, articles, chapters, books, or (appraisal) reports. The ontological intent when disembodied from the general epistemological framework loses its sense of *intent* and becomes a ‘passive’ or ‘residual’ constituent of inquiry represented by a ‘product’ typically located in the domain or business of ‘expertise’.

The epistemological and ontological intentions can be delineated for each of the three levels of unfolding (Table 3). The first level of unfolding is essentially an exploratory exercise in technically *extracting* information from a wide variety of sources in order to *formulate* a rich picture of the key problems. The ontological dimension to this level is provided by the sources of information (interview statements, documentation etc.). The second level is a “triggering” exercise of assessing the strengths and weaknesses of the impressions made.¹⁴ The ontological dimension is provided by the documented impressions (rich pictures, models, reports etc.). The third level is a critical monitoring and evaluation exercise of registering the *effects* of the inquiry. The ontological dimension is provided by expressions of successful implementation as well as disaffection and dissatisfaction; all of which might be registered through appropriate monitoring and evaluation reports that provide the ontological intent for initiating another first level of unfolding.

Level of Unfolding	Epistemological Intent: active/relational process-oriented - society driven	Ontological Intent: passive/residual product-oriented - expert driven
Unfolding-1: Dialectic between ‘roles’ and	<i>systems idea:</i> avoid ecological fallacy through continually (re)exploring boundary judgements and formulating ideas for a rich	<i>sources of information:</i> information on boundary judgements (‘problem situation’) is represented; eg. monitoring and evaluation reports, <i>terms of reference</i> for inquiry and

¹⁴ Cf. Russell & Ison (1991) and Weber & Ison (1995) - the authors cite the work of Varela & Maturana in adopting the concept of ‘triggering’

'concerns'	picture of key problems... <i>technical process of extracting information</i>	<i>verbal, visual & written representations</i> from stakeholders at initial stages
Unfolding-2: Dialectic between 'ideal' & 'actual'	<i>systems critique</i> : avoid any illusion of objectivity through (re)presenting impressions to those involved with systems design... <i>strategic process of partial validation of information</i>	<i>interpretations</i> : systems are represented either in the 'is' or 'ought' mode,; eg. <i>rich pictures</i> ('is' mode) & <i>conceptual models</i> in the form of internal <i>evaluations</i> ('is' mode) or draft <i>plans/recommendations</i> (presumed 'ought' mode); response to 'ideal' systems are represented
Unfolding-3: Dialectic between involved & affected	<i>social critique</i> : avoid establishing false sole guarantors like 'expertise' or participation counts, through monitoring (of <i>response-ability</i> amongst those involved and those affected) and "pluralistic evaluations" (Ulrich, 1988a:425)... <i>critical process of legitimising information</i>	<i>social responses</i> : effects of material conditions and incidence of false consciousness are represented; eg. invited and uninvited <i>feedback</i> , and other <i>expressions</i> of dissatisfaction that can be registered (<i>demonstrations or petitions of</i> : apathy, anger etc.)

Table 3 Dimensions of Intent in the Process of Unfolding

In this frame, a *constructivist epistemological* intent encompasses a *nominalist ontological* intent. The significance of expert reports is to 'objectify' or (re)present 'actual' (evaluations/rich pictures) or 'ideal' (plans/recommendations) reality in an ultimately imperfect and therefore critically iterative manner. The purpose is to trigger reflection and dialogue. This is in contrast to a *realist ontological* intent where reports are assumed to mirror actual or potential "real world" systems. For the process of unfolding to gain currency it seems to me important to take on board Checkland's concern - though not his settlement - and be clear about distinguishing between the nominalist and realist ontological intent of the systems concept (Checkland, 1991).¹⁵

In making this distinction a further important purpose is served through delineating an 'expertise' component (primarily the ontological intent) from the general inquiry process (epistemological intent). The significance for me is in making 'expertise' more transparent (less mystical), clearly deferential (to an epistemological intent), and thereby more socially responsible; in short, challenging the technocratic precepts of expert driven systems.

5 THE PROCESS OF UNFOLDING: ITS APPLICATION IN FIELDWORK

A good place to begin unfolding a fieldwork plan is with the second category of 'purpose' (Table1). The objective of my research, as stated in my invitations to prospective interviewees was: "to examine the possibilities of having a system of natural resource use appraisal which meets the requirements of natural resource policy making (and associated

¹⁵ Checkland suggests doing this by relinquishing the 'systems idea' to ontological realism and using a new concept of "holonic thinking" (Checkland, 1991). Apart from the pitfalls of indulging in yet more new terminology, the suggestion is more seriously flawed in relinquishing the essential critical idea of systems..

programme/project initiatives) whilst addressing the interests of more vulnerable groups in rural communities”. The objective unfolds to three sets of questions, each corresponding to a level of unfolding:

1. What agencies are involved with appraisal and what are the key concerns associated with these agencies in relation to appraisal performance?
2. To what extent might the present participatory approaches to rural appraisal assist in addressing the shortcomings and concerns identified amongst those involved with appraisal?
3. What opportunities and constraints (institutional, social and political) exist for resource-use appraisal in Botswana to secure an effective reduction in rural poverty?

The fieldwork strategy adopted to address these questions was guided principally by the format of SSM. Fieldwork was undertaken in two separate phases: *phase 1* between January and May ‘96, and *phase 2* between September ‘96 and January ‘97. A preliminary ‘rich picture’ of natural resource-use appraisal in Botswana was formulated during the fieldwork inter-phase period in Manchester and presented to interviewees in Botswana at the start of phase 2 of fieldwork. Second round interview schedules were designed on the basis of ‘conceptual models’ produced from initial responses to the ‘rich picture’ document. A final working paper was produced towards the end of phase 2 of fieldwork. This was presented at a public seminar at the University of Botswana.

Table 4 summarises the strategy in terms of the process of unfolding (with epistemological intent) allied with corresponding types of representation (ontological intent).

(a) General fieldwork strategy: epistemological intent

<i>Unfolding-1:</i>	Phase 1 & Inter-phase Period: exploratory phase <u>Interviews & Documentary analysis:</u> Identifying and selecting institutions and interviewees; designing semi-structured interview schedules; making appointments; maintaining a running diary of emerging themes and issues; semi-structured interviews. <u>Observations:</u> 5 day PRA training for extension officers and 7 day PRA pilot exercise in Lentsweletau as part of a national PRA Pilot Project; 4 day national symposium on the ‘Quality of Life in Botswana’; 5 day National District Development Conference (NDDC); attendance at Kweneg District Land Use Planning Unit (DLUPU) Meeting. <u>Formulating ideas:</u> rich picture formulation (including initial profiling of institutions involved with resource-use appraisal); preparation of PRA evaluation report; conceptual modelling for second round interview schedules
<i>Unfolding-2:</i>	Phase 2: (re)presentation of preliminary rich picture & conceptual models to interviewees; presentation of PRA evaluation report to inter-Ministerial Rural Extension Co-ordinating Committee Meeting; second round of interviews; collation & processing of responses
<i>Unfolding-3:</i>	Phase 2: public seminar presentation of preliminary evaluation report; invitation for, and processing of, responses; evaluation of fieldwork in terms of constraints and possibilities

(b) General fieldwork strategy: ontological intent

<i>Unfolding-1:</i>	Phase 1: three research questions being addressed; semi-structured interview schedule based on CATWOE mnemonic usually in the order of ATCOE-W; interview responses; ‘events’ including PRA, Symposium, NDDC and DLUPU meeting
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<i>Unfolding-2:</i>	Phase 2: sketch institutional profiles outlining the role, concerns and key problems of agencies associated with appraisal; rich picture in form of working paper; PRA evaluation report; second round semi-structured interview schedule based on conceptual models; responses to presentations; second working paper (for seminar)
<i>Unfolding-3:</i>	Phase 2: written and verbal responses to seminar paper; evaluation of fieldwork in terms of constraints and possibilities

Table 4 General Unfolding of Fieldwork

In addition to the two interview schedules, three working documents were presented for eliciting feedback during fieldwork: (1) PRA in Lentsweletau: discussion document and supplementary report for the national PRA Pilot Project presented on request from the inter-Ministerial Committee in fulfillment of agreement allowing me ‘observer’ status on one of four PRA exercises being piloted; (2) An Exploration of Natural Resource Use Appraisal in Botswana: Preliminary Report (‘rich picture’); and (3) Natural Resource-Use Appraisal in Botswana: a comparative critique of three projects with particular reference to the promotion of participatory techniques. These documents provided essential tools of ontological intent in the overall dialogical process of unfolding during fieldwork; that is, in eliciting feedback. The essential dialectic underlying the process of unfolding also informed the (more monological) process of designing these working documents (Table 5)

PRA Evaluation Report Format	
<i>Unfolding-1:</i>	Introductory statement outlining my own research objectives and how they relate to my impressions of the overall purpose of the PRA Pilot Project.
<i>Unfolding-2:</i>	Supplementary report: 4 phases of PRA -preparation, training, execution, and evaluation - documented in dialectic ‘ought/is’ format as an <i>annex</i> to core document; where the ‘ought’ is derived from stated objectives forming the terms of reference for the national PRA Pilot Project
<i>Unfolding-3:</i>	Substantive issues arising (from the dialectic offered in the annex) provided the <i>core text</i> of the document (critique). Invitation to respond.

Exploratory Report (rich picture) Format	
<i>Unfolding-1:</i>	Section 1: ‘inventory’; ie. general mapping of appraisal under 4 issues of motivation, control, expertise, & legitimacy
<i>Unfolding-2:</i>	Section 2: core concerns emerging from each issue; <ol style="list-style-type: none"> 1. (cross) purposes - confusion between ‘clients’ and ‘constituency’ 2. (in) visibility of authority - role of donors/govt./NGOs/academia/consultants 3. (non) learning scenarios - duplication of information 4. civic (un)representation - weak civic society
<i>Unfolding-3:</i>	Section 3: case study review of topical appraisal issue (Namibian-Okavango pipeline proposal) producing a trajectory of possible <i>effects</i> on the 4 stakeholder groups. Invitation to respond.

Natural Resource-Use Appraisal Evaluation Report Format	
<i>Unfolding-1:</i>	Introduction: focus on ‘purpose’ of resource use appraisal with respect to delineating 3 levels of demand, explanation given for selecting the 3 projects for critique
<i>Unfolding-2:</i>	Substantive text: each project critiqued in terms of ‘is/ought’ dialectic: <ol style="list-style-type: none"> 1. <i>PRA Pilot Project</i> in exemplifying administrative (operational) demand for resource-use information at the level of rural extension work: extension PRA vs ideal planning;

<p>2. <i>Natural Resource Management Project</i> in exemplifying management (strategic) demand for resource-use information at the level of community based natural resource management (CBNRM): CBNRM vs ideal planning;</p> <p>3. <i>Botswana Range Inventory & Monitoring Project</i> in exemplifying policy design (presumed ideal planning) demand for resource-use information at the level of ministerial policy advise: ‘master’ information systems vs ideal planning</p> <p><i>Unfolding-3:</i> Summary suggesting that at each level there are tendencies of resource-use appraisal systems being in effect a means of ‘surveillance’ rather than as open emancipatory information systems as professed through encouraging ‘participation’. Invitation to seminar participants to respond</p>

Table 5 Conceptual ‘Unfolding’ in Design of Working Documents

Post-fieldwork analysis builds on the responses both to this documentation and, through interview transcripts, the two phases of semi-structured interviews.¹⁶ Whilst it remains beyond the scope of this paper to detail such analysis, some indicators of the direction in which this work is moving to address the three research questions bears out some more influence of the unfolding process.

Question 1: “key problems”? The institutional profiling that was started during the fieldwork inter-phase period (Table 4) constitutes the substantive work for identifying the key problems. Institutional profiles are established for government & parastatal departments, donor agencies, consultancies, and NGOs - oriented respectively towards the four sources of influence associated with purposeful systems; motivation, control, expertise, and legitimation. Dialectical themes (roles and role concerns) along with associated key problems are identified. These are summarised below in Table 6.

Institution Type	Dialectical Theme		Key problems
	roles	vs	role concerns
Government department	tradition of centralised roles for extension officers (supply)	vs	decentralised imperatives for appraisal (demand)
Donor agency	Transferring ‘ownership’ (to national & local)	Vs	maintaining control over natural resource intervention
Consultancy	impartial production of knowledge	Vs	changing validity criteria for appraisal output
NGO	proclaimed <i>witnesses</i> to interests of ‘the poor’ & ‘future generations’	Vs	<i>constituency</i> of NGO is different ie. answerable primarily to government & donors

¹⁶ Second phase transcripts have, in part, the responses to the ‘rich picture’ document since this was issued prior to and as invitation for a second round of discussion.

Table 6 Unfolding Level 1: Institutional Profiles

Several cross-institutional issues emerged during the fieldwork which are centred around the dialectical theme of ‘alienation’ pervading the natural resource sector. This is manifest particularly in the widely held impression of an existing “rural social inertia” (a breakdown in the sense of self-reliance) brought about by what is considered an increase in “welfare dependence” (particularly associated with an otherwise acclaimed national drought relief programme). Alienation is also manifest in the widely perceived “uncoordinated” manner of rural development intervention. This is accentuated, in my opinion, by the strong ethos of ‘project’ implementation shared by both government and donors.

Question 2: “participatory techniques”? The concomitant solutions offered by government and non-government institutions alike- promoting participatory planning and effecting better co-ordination - seem to have accomplished little more than effecting what I have described as “consultation fatigue” and a “co-ordinating bandwagon” in the natural resource sector.

In conceptualising an *ideal* of natural resource-use appraisal, derived from the four repeatedly stated Tswana national ideals of democracy, development, self-reliance, and unity, and which serve policies - including economic and environmental - designed essentially for the promotion of rural welfare development, a benchmark is established to measure and evaluate *actual* practise of resource-use appraisal in Botswana. Three levels of demand for resource-use appraisal are identified - administrative (‘goal’ planning), management (‘objective’ planning), and policy design (presumed ‘ideal’ planning). Using case projects to exemplify each level (each carrying an explicit ‘participatory’ component), the analysis of an ideal/actual trajectory for each level reveals considerable limitations of participatory approaches in fulfilling an emancipatory ideal of rural welfare development.

Question 3: “social constraints & opportunities”? At each level of demand for information there is an accompanying monitoring and evaluation constituent; that is, an attempted *measure* of ‘actual’ performance in relation to an assumed ‘ideal’ performance. These are critically examined with respect to a dialectic between the involved and the affected. In the context of very weak civic representation in the country, and in the rural areas in particular, the effects of using proxy witnesses such as those community based organisations and NGOs established by government and donor agencies are critically examined.

6 SOME REFLECTIONS ON FIELDWORK

During the Forum One proceedings at Hull University in 1996 Orlando Fals-Borda and Simon Bell remarked on Chambers’ evident lack of ‘systems thinking’ in favour of ‘piecemeal planning’ (Wilby, 1997a:77-79). The observation has a wider implication for Schumacher’s ‘small is beautiful’ ethos that seems to have dominated much of the rhetoric and even practice in rural development since the early 1980s (cf. IIED, 1988-present; Chambers, 1993). The shift towards focusing on ‘the specific’ or minutiae of particular circumstances, evidenced by a growing emphasis on ‘complexity’, ‘chaos’, ‘diversity’, and

the importance of maintaining sensitivity towards ‘contingent’ circumstances, is a useful corrective to past excesses in over-generalisation and aggregation. The shift also carries a risk of particularism and relativism, and being blinkered against wider important issues regarding purpose.

The charge is similar to that laid by Churchman and Ulrich against *incrementalism* as a “practically attainable strategy of social inquiry and design... which assumes that comprehensive understanding of whole systems is not only impossible (which it is) but also unnecessary (which it is not)” (Ulrich, 1983:224). In rural development incrementalism is evident where implementation and planning are set up in dichotomy - with the privileging of ‘practice’ over ‘theory’ - rather than as a dialectic. Institutions involved with resource-use appraisal - government departments, donor agencies, consultancies, and NGOs - have their own agendas each driven by the need to be seen *doing something*. The result has been a surge of activity in acquiring information and eliciting participation at the local level but with scant attention to the effects outside respective institutional agendas.

The circumstances are mirrored at the local level where PRA exercises offer opportunities to village participants for critically exploring wider dimensions regarding their livelihoods. Significantly it is the role of the PRA facilitator - the expert - to guide and offer direction to participants; a role that is often undermined by a supposed need to appear ‘neutral’ yet often following a well-defined agenda. Experts’ role in facilitating an “actual/ideal” dialectic is often compromised by objectivist principles. Conventional resource-use appraisal using surveys and questionnaires typically produce reports claiming to represent ‘actual’ circumstances. Whilst this is perfectly legitimate, a systems critique requires such documentation to be scrutinised critically by others involved. In assuming that an appraisal is undertaken with terms of reference outlining the *objectives*, and sometimes even the *goals*, it might be expected that the report findings are measured in dialogue with the *ideals* or vision (from the non-expert domain) informing these objectives. Often it is more the case that an appraisal report is critiqued in effect through a monological exercise (experts only) under the self-referential ideological commitments towards objectivism. Thus reports either become the intellectual property of specialist journals or, as is often the case in Botswana, become lost, amongst a mass of similar commissioned documents, in various government departments.

In my observation of a 7 day PRA exercise in a village in Botswana, a key part played by the facilitators (extension officers) at the beginning of each day was to re-present information, generated from the previous day’s activities, on manilla sheets to all participants. These re-presentation sessions produced some of the most dynamic, illuminating and constructive moments in the whole exercise. However, it was clear during post-session evaluations amongst the facilitators that they were more discomforted by having to alter their carefully crafted manilla impressions than by the issues and concerns that emerged from the sessions. This highlighted the ontological intent of producing documentation at the expense of an epistemological exploration of its content. In other forms of conventional consultancy-based appraisal the same concerns are evident. What is the purpose of the vast amount of appraisal documentation? What trigger mechanisms

might be anticipated to be effected? What more purposeful role might be carved out by the appraisal expert?

The ‘polemical employment of boundary judgements’ is the term given by Ulrich to the heuristic tool for enabling lay citizens or their representatives (‘witnesses’) to question the ‘premises and promises’ of the planners. It is at this challenging level that Ulrich’s critics find full voice. Theoretically Ulrich is on firm ground. Based upon Kant’s *critical ideal of reason* “... no standpoint, not even the most comprehensive systems approach, is ever sufficient in itself to validate its own implications” (Ulrich, 1988b:157). Those ‘affected’ by a system, such as natural resource-use appraisal, can theoretically question the premises of experts in a polemical manner without assuming any expertise of their own. Of course, the practical limitations are centred around achieving meaningful dialogue between the ‘involved’ and the ‘affected’ in circumstances where the former is an unwilling player and the latter has little effective means of expression. In defence of this third level of unfolding: “... it pays careful and explicit attention not to presuppose that those in control of “decision power” are willing to take account of the views and interests of those affected, but only that they are interested in making their own views and interests appear to be defensible on rational grounds” (Flood & Ulrich, 1990:201). Clearly the challenge is to first make visible the objectivist rationality of expertise, and second to actively interrogate it.

The ineffective representation and expression of the affected in relation to natural resource use in developing countries provokes concern on two counts. First, there may be a generally weak sense of civil society in post-colonial countries, often accentuated in *rural* areas. Second, there is an emerging constituency of NGOs, often generously supported by donor agencies, with claims to represent various constituencies of ‘the affected’ (particularly the poor, women, and ethnic minorities), but also prevalent in the business of providing expertise for resource use appraisal. Whilst *ideally* these imperatives should not be contradictory, in *actual* circumstances expertise is often constrained by false guarantors associated with objectivism.

Natural resource-use appraisal, particularly as practised in developing countries, shows how expertise is becoming steadily more influential as a power base. The focus on micro-level political spheres, manifest through attention on PRA exercises, might be seen as symptomatic of a wider tendency towards distracting attention away from actual centres of authority and power in the development field. Critical heuristics provide a potentially useful counter because the third level of unfolding explores obstacles to the dialogue between the *involved* and the *affected* including the degree to which ‘experts’ in appraisal systems are willing to lay out their plans for wider social (as distinct from ‘systems’) scrutiny.

The point is illustrated with correspondence from one of my interviewees; a key player in the promotion of PRA in Botswana over the past 7 years. The remarks are addressed in response to the seminar paper that I presented on three high profile projects using natural resource-use appraisal with varying degrees of using “participatory planning”:

To: The Director, Institute for Development Policy and Management, Manchester

“As a large donor funded project (USAID \$22 million) we have collaborated with a great number of researchers in the last six years, principally from the UK, Canada and the USA... We do not expect to emerge unmarked from such experiences. Mr Reynolds ... lacks the courage to test his hypothesis in the cold waters of objective analysis”

(18/01/97)

To: Martin Reynolds

“...Unless you have a sampling strategy your paper remains no more than your own personal opinion and thus inappropriate for public presentation...”

(13/01/97)

My use of italics in the extracts highlight three key features of concern. First, the power sources and financial interests at stake are substantial. Natural resource-use appraisal in developing countries is big business. Contrary to expectation, evidence exists that *participatory* appraisal increases rather than reduces the costs of such exercises (Farrington, 1994).

Second, keeping information systems partially folded - confined to a systems critique - preserves the sanctity of disciplines and research traditions, often based upon an objectivist illusion. ‘Sampling strategies’ and ‘cold’ objective hypotheses testing undoubtedly have their place and value in the domain of investigation where factors might be duly ‘controlled’. Often other validity claims based upon principles of communication and dialogue are more appropriate and significant (cf. Levin, 1997). Resorting only to objectivist criteria of validation in the social sciences seems merely to facilitate a continual churning out of more (appraisal) reports which have a questionable impact other than defining a need for more of the same.

Finally, there is the related concern brought up regarding public presentation. This of course is ultimately a matter of judgement and responsibility which invites the question - what opportunities of response exist for those affected by inquiry? This invokes the literal sense of the term ‘response-ability’, and can be used I believe in the same sense as Churchman’s provocative though essential call to invite the systems’ enemies in a *dialectic* rather than an *incorporate* engagement (Churchman, 1979).

My seminar paper and presentation was undoubtedly a provocation to many of the project personnel. The discomfort expressed at having my paper publicly presented was anticipated. Ample time was provided prior to the presentation for the project managers and others to make a considered response. My decision to present what I knew to be contentious issues at a public seminar was based upon a principle of responsibility. Project managers in the natural resource sector have a privileged and responsible social positions in a country endowed with natural resources yet subject to oppressive levels of rural poverty. A key issue raised in the seminar was the extent to which appraisal experts might themselves be held response-able to those affected by their work. A claim made in my paper was that all too often the natural resource experts consider their work as ‘internal’ and ‘final’ products (documents or ontologies) rather than as part of a wider more purposeful (constructivist) epistemological endeavour. The manner of response to the issues raised in the paper belies a discomforting complacency. J.F.Gallier’s remarks on superordinate research made in 1980 have some relevance:

“... by alleging that certain methodologies are not scientific, one can ostensibly disallow the research on professional and intellectual grounds rather than admitting political reasons” (Galliher, 1980:301)

The political challenge of professional responsibility for those involved with information systems, whether in the field of action research, systems studies, or development intervention is, I would argue, to (re)present work in an intelligible (response-able) and purposeful frame. I will be the first to confess that my own efforts in this respect leave much to be desired. I would also suggest that this aspect needs more reflective critique inviting, as illustrated in Table 7, a third reflexivity intent.

Level of Unfolding	Constitutive Reflexivity Intent
Unfolding-1: systems idea	<i>personal responsibility:</i> create space for self-critical thinking
Unfolding-2: systems critique	<i>professional responsibility:</i> have narratives interrogated by those involved
Unfolding-3: social critique	<i>social/citizen responsibility:</i> have narratives interrogated by those affected (citizenry)

Table 7 Constitutive Reflexivity Intent in the Process of Unfolding

Steve Woolgar (1988) provides relevant ideas on a possible ‘radical constitutive reflexivity’. Having earlier studied the activity of science as a culture with its associated myths and rituals, Woolgar highlights the propensity of social science, in attempts at being reflexive through submitting an addendum like ‘fieldwork confessions’, to adopt a similar *disengagement* between researcher and the object/subject of research. Like science, the effect is of self-authorisation: “[t]he pretensions of social science to scientific ideals makes reflexivity seem, at best, a self-indulgent luxury; benign introspection - the disengaged reflections upon the use of observational methods - is tolerated as a way of improving research” (Woolgar, 1988:31). A constitutive reflexivity is suggested as a means of retrieving what he terms as the “similarity postulate”; a sustained critical perspective on research. Moreover, there is a wealth of feminist literature that invites the need for a critical reflexivity amongst information gatherers (cf. Finch, 1984; Marshall, 1986; Caplan, 1988a; 1988b; Devault, 1990; Oakley, 1992). The ideas expressed in these writings have I believe a considerable and fundamental bearing on the process of unfolding.

7 CONCLUDING REMARKS

Churchman makes a point of choosing to use the *imagery* of unfolding rather than defining his twelve categories (Churchman, 1979:80). He might be seen as fulfilling a constructivist epistemological intent in using the categories with appropriate nominalist ontological intent. For me the imagery of unfolding has two attributes useful for operating and evaluating information systems in development research. First it signifies a purposeful sense of direction. I would argue that development research in particular is often in need of such direction given the substantial resources under its command, the sometimes over-indulgence in matters of diversity, complexity and contingency which seem to imbue research recently, and the significant moral responsibility that the discipline has towards

poverty alleviation. Second, 'unfolding' conveys a useful though sometimes discomfiting sense of revelation. Again in the development industry which seems often to thrive on hidden agendas and concealed power bases, whether in the material domain of access to resources or the ideological domain of false consciousness the need for a process of unfolding appears imperative.

For my own work, the process of unfolding is proving to be a useful and challenging concept, both as an epistemological strategy for examining appraisal systems, and as an ontological template for gauging the 'actual' and 'possible' performances of appraisal in Botswana. Distinguishing between an epistemological intent and an ontological intent to unfolding has provided me with a means of (a) getting to grips with the idea of a *systemic* approach (defined as an overall epistemological pursuit), (b) facilitating the complementary use of valuable tools from SSM and CSH, and (c) delineating more clearly the role of 'expertise' within inquiry. On this last point, numerous difficulties were encountered: first, in appropriately (re)presenting issues *for feedback* (an often under-stated or even ignored problem in research); second, in gaining and maintaining credibility and support amongst researchers for the strategy adopted; and third, in dealing with the repercussions from the strategy adopted. An appropriate parallel strategy of critical reflexivity is helpful. Such a strategy might, I would argue, embrace 'discomfort' more positively as a counter to complacency rather than as a symptom of failure.

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