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**Title:** Equity-focused developmental evaluation using critical systems thinking

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### **Abstract**

Developmental evaluation questions the ethical basis of an intervention in terms of whether it's 'doing the right thing' rather than merely 'doing things right'. But developmental evaluation invites a space for exploring not only ethical but also political issues associated particularly with equity-focused evaluations. Drawing on ideas from critical systems thinking (CST) and critical systems heuristics, an evaluation framework with a pro-equity focus is suggested. The framework addresses issues of complex interrelationships, invites theory of change associated with philosophical ethics, and provides a means of surfacing, and potentially transforming, debilitating relations of power in a complex evaluand. A case study of the long-standing Narmada project in India is used to illustrate the workings of proposed framework. The paper describes how the underpinning methodological ideas of CST incorporating triple-loop learning can enhance the practice of developmental evaluation.

Keywords: developmental evaluation, ethics, critical systems thinking, critical systems heuristics, theory of change, triple-loop learning.

### **Introduction**

In evaluating questions of equity - access to resources (who gets what?) – attention is often diverted from related questions of power (who owns what?) and questions of knowledge (who does what?). Moreover these questions relate to important questions regarding legitimacy (who gets affected by what some people get?). Such ethical and political questions are not easy to grasp or work with in terms of an approach to equity-focused evaluations of interventions. Developmental evaluation provides one particular response (for example, see Paton, 2012). The present paper suggests ideas from a tradition of critical systems thinking (CST) which provide a complementary enhancement for the space suggested by developmental evaluation for addressing ethical issues. By way of illustration, the paper refers to a pro-equity evaluation of the Narmada dams project in India (originally presented in Reynolds and Williams, 2012).

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After providing a short description of the case study, the paper continues in three parts. The first explores two key methodological issues associated with evaluating the intervention – (i) *equity* as an ethical focus of evaluation and its expression through theory of change, and (ii) issues of *developmental* evaluation and its shortcomings, particularly as a learning process for dealing with political issues. The second part explores how CST may add value in dealing with issues of an equity-focused developmental evaluation. A dominant expression of CST is critical systems heuristics (CSH) - a toolbox of twelve questions helpful for evaluating complex situations from different stakeholder perspectives. The third part of the paper outlines the application of CSH for the equity-focused evaluation of the Narmada project.<sup>2</sup>

### **Case study: Narmada project**

The Narmada project in India was conceived in the 1940s by India's first Prime minister, Jawaharlal Nehru, but it was not until 1979 that the project took form. It is better described as a long-term programme involving many individual projects associated with the construction of dams along the Narmada River which forms the traditional barrier between North and South India.<sup>3</sup> The project involves the construction of 30 large, 135 medium and 3000 small dams to exploit the waters of the river and its tributaries. Of the 30 large dams, Sardar Sarovar is the largest and most controversial. In 1979, the Sardar Sarovar Project was proposed and attracted initial support from international financial institutions including the World Bank. But after much controversy and protest, particularly since the late 1980s, many financial institutions withdrew support. Protest was led by Narmada Bachao Andolan (NBA), a national coalition movement including people affected by the project, environmental and human rights activists, scientists and academics.

The construction of Sardar Sarovar dam itself was stopped in the mid-1990s. However, in October 2000, the Indian Supreme Court gave a go-ahead again for the construction of the dam. Other dams associated with the wider Narmada project have likewise been developing, come under criticism and have been the subject of protest.

Four general issues or dilemmas emerging from the Narmada project can be summarised:

- Water security: water access and quality (verses water-borne diseases from ensuing stagnant reservoir waters)
- Energy security: urban and rural economic development (verses displaced populations from rural areas)
- Food security: change in agricultural practices and shift towards large-scale irrigated farming (verses demise of small holdings)

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<sup>2</sup> Detail findings from the actual application of CSH to the Narmada project are not documented here but can be found in the corresponding paper (Reynolds and Williams, 2012) available as a free download from either the parent compilation published by [UNICEF](#) or as an [individual chapter](#).

<sup>3</sup> Ethical issues of the Narmada case study are discussed more fully in Reynolds, M. (2009) "Environmental Ethics" pp. 40-51 in *The Environmental Responsibility Reader*, edited by Martin Reynolds, Chris Blackmore and Mark Smith. London, New York Zed Books

- **Sustainability:** national prosperity (verses ecological impacts particularly the. loss of biodiversity in previously rich hydrological systems)

Equity issues loom large and potential and actual conflicts in an evaluation of such projects are formidable.

### **Two methodological issues**

An *equity-focused developmental* evaluation invites some clarification of two issues: the ethical focus and the developmental process.

### **Equity and ethics**

Equity is an ethic; a normative judgement regarding the distribution of ‘goods’ and ‘bads’ associated with an intervention. Pro-equity interventions – whether projects, programmes, or policy *directly*, or whether equity-focused evaluations *on* interventions – seek to redress uneven distribution. More precisely, a pro-equity intervention would seek to redress the imbalance of goods and bads commonly skewed against stakeholders along lines of socio-economic class, gender, sexuality, age, physical and mental capacities, geographic location (ranging from disadvantaged regions of the global South to impoverished local ghettos in any country), etc. Such groups are variously referred to as marginalised, disadvantaged, and/or vulnerable. In the UNICEF publication on ‘Evaluation for equitable development results’ they are generically termed “worst-off groups” (Bamberger and Segone, 2012 p.3).

Intuitively, ethics is about ‘being good’ or ‘doing the right thing’. So we might say that an ethic on equity is about not treating the worst-off groups badly or wrongfully. At its simplest, ethics concerns what ought to be, as opposed to what is. Joseph Des Jardins uses the terms **normative** and **philosophical** to distinguish between different ethical traditions (Des Jardins, 2001, pp. 18–19):

To make ethical judgements, give advice, and offer evaluations of what ought or should be is to engage with *normative ethics* [...] Normative judgements prescribe behaviour. ‘Pesticide use should be reduced.’ ‘Factories ought not pollute the air and water.’ ‘Endangered species ought to be protected.’ [...] Normative disputes can be frustrating when ethical discussions are left at this level, with disagreements and controversies abounding [...] *Philosophical ethics* [...] is a higher level of generality and abstraction in which we analyze and evaluate normative judgements and their supporting reasons. This is the level of the general concepts, principles, and theories to which we appeal in defending and explaining normative claims.

Normative ethics deal with value judgements. So for Narmada, some examples of normative judgements might be associated with each of the four key issues (Table 1).

**Table 1 Narmada project : normative value judgements on construction of dams**

<b>Issues of Narmada Project</b>	<b>Enhanced value</b> <i>arguments for construction</i>	<b>Diminished value</b> <i>arguments against construction</i>
<b>1 Water security</b>	Supply water to 30m people including drinking water facilities	Increase prospect of insect-borne diseases.
<b>2 Energy security</b>	Improve access to electricity in remote villages.	Dispossess large numbers of poor and underprivileged communities of their land as a source of livelihood
<b>3 Food security</b>	Modernise agricultural practices using irrigated farming	Lose skills in more sustainable farming practices
<b>4 Sustainability</b> (ecological)	Establish wildlife sanctuaries protecting rare species (e.g., Sloth Bear, Wild Ass etc)	Diminish biodiversity through monoculture irrigated farming

But what are the deeper theoretical stories – theories of change – underpinning these normative judgements? Philosophical ethics deal more with theoretical underpinnings associated with *doing* what’s good (consequentialist ethics) *doing* what’s right (deontological ethics) and *being* responsible (virtue-based ethics). Similarly, the three ethical traditions can be expressed in relation to an equity-focused evaluation of Narmada:

- (i) A *consequentialist ethic* (e.g. emphasising utilization) considers good and bad (harmful) to be drivers of ethical action. It is the consequences of an action that determine a response to the moral dilemma of whether it is right or wrong.

What are the particular issues that need attention and how might they be related with each other? What are the interrelationships and interdependencies amongst securities for water, energy and food and what particular impact do they have on worst-off groups?

- (ii) A *deontological ethic* (e.g. emphasising human rights) considers right and wrong to be independent of consequences. It focuses on the moral dilemma of duty – the rightness or wrongness of actions themselves – as opposed to the consequences of those actions.

How might the key issues be attended to and by whom? Is it just ‘them’ out there or is it also you/ me/ ‘us’? Whose perspectives are relevant to these issues and what realistic role might different stakeholders have in making their perspectives count? How for example may the views of vulnerable groups like pastoralist farmers or other less powerful, and often the most worst-off, members of displaced communities such as women, the disabled, and children, be given expression?

- (iii) A *virtue-based ethic* (e.g. emphasising social justice) considers character formation to be a determining factor in addition to either calculations of consequence or the rightness or wrongness of the action itself. It focuses on the moral dilemma of character – virtue or vice (being virtuous or vicious).

Why are some issues privileged more than others, and some ways of dealing with them prioritised over others? What opportunities are there for challenging mainstream ways of dealing with harmfulness and wrongdoing? What attributes of expert behaviour and expert-driven solutions to poverty-alleviation prevail?

Table 2 illustrates the consequentialist and deontological ethical aspects of the Narmada project and some particular virtues and vices associated with each of the four key issues.

**Table 2 Ethical issues in the Narmada project**

<b>Issues of Narmada Project</b>	<b>Doing what's good (not harmful)</b> Consequentialist ethic <i>Measures of success (impacts)</i>	<b>Doing what's right (not wrong)</b> Deontological ethic <i>Intentions and obligations (rights)</i>	<b>Being responsible</b> Virtue-based ethics <i>Virtues/Vices</i>
<b>1 Water security</b>	Improve quality of water and access to clean water (avoid disease and drought)	Provide universal access to clean water (not reinforcing or developing skewed access)	Justice/ Injustice
<b>2 Energy security</b>	Improve quality of life for citizens (avoid poverty and use of only economic indices)	Provide opportunity for all humans to flourish (not constraining humans from flourishing)	Moderation/ Greed
<b>3 Food security</b>	Improve range of productive capacities for farming (avoid loss of ecologically sustainable farming skills)	Provide expertise to support appropriate practice (not contriving a simplistic solution)	Humility/ Arrogance
<b>4 Sustainability (ecological)</b>	Improve quality of the natural environment (avoid ecological deterioration)	Provide protection against ecological destruction (not ignoring wider obligations to nature)	Compassion/ Recklessness

While equity is essentially a consequentialist ethic - its primary focus being on impact (distribution of goods/bads) - equity is also clearly related to the deontological ethic of human rights (who gets what?), and the virtue-based behavioural ethic of social justice (why should some get less?). An equity-focused evaluation requires attention to normative value judgements about what ought to be, and to underpinning assumptions associated with all three ethical theoretical traditions. So how might developmental evaluation provide guidance towards enabling this ethical focus?

### **Developmental evaluation**

Whilst evaluation is conventionally about *applying* value judgements, evaluation might also be considered as a contributor towards *developing* value judgements. From a *developmental* perspective equity is not regarded as some fixed point of

nirvana, subject to endless academic discourse on what constitutes its absolute essence, but rather a construct or emergent property in the making.<sup>4</sup>

Developmental evaluation was given expression in the 1990s by Michael Patton as an example of utilization-focused evaluations (Patton, 1994; 2010; 2012). The key idea behind developmental evaluation is that in dealing specifically with complex situations of change and uncertainty (involving unintended consequences and unforeseen events) there is a need for attending to emergent issues characteristic of complex interventions. Developmental evaluation itself might be regarded as having emergent qualities – the need to be adaptive to changing circumstances using different approaches – summative and formative – and applying different methods – quantitative and qualitative – relevant to the change in circumstances.

The focus in developmental evaluation is on how to change systems. Patton here makes particular reference to the importance of double-loop learning:

“Social innovators and social entrepreneurs, especially those working on issues of human rights and equity, are typically trying to bring about fundamental changes in systems to change the world. To do so, they have to understand how the system they want to change is operating and to make the changes that change the system itself, by getting beyond temporary and surface solutions [...] Making changes to improve immediate outcomes is single-loop learning; making changes to the system to prevent the problem or embed the solution in a changed system is double-loop learning” (Patton, 2012 p.105-106).

The contrast with single-loop learning is exemplified by Patton with the quick-fix scenario associated with linear ‘formative evaluation’ in problem-identification-correction processes. So in the case of the Narmada project, single-loop learning might be seen with a superficial viewing that long-standing problems of development are first identified with water security, energy security and food security. Building large-scale dams arguably provide some clear immediate solutions to correct each of the three ‘problems’. Whilst not being literally a ‘quick-fix’ solution there is an associated technical-fix to such thinking that makes such systems of intervention simple and appealing.

Another example of the pervasiveness and weakness of single-loop learning in the context of India is with long standing traditions of evaluating famine. Typically, symptomatic problems of famine are identified – for example, regarding famine in terms of food shortage - and corrected, in terms of, say, improving charitable supply and distribution of *more* food. The main issue with such evaluations is in not looking at the underlying multiple and deep rooted causes of famine. The Nobel Economist, Amartya Sen, provided an excellent equity-focused evaluation of the 1940s Bengal famine in India with his exploration of entitlements (Sen, 1981). Rather than regarding famine as a result of drought causing a shortage of food – a prevailing perspective on causality at the time - Sen signalled the deeper causes associated with

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<sup>4</sup> Here I extend the constructivist traditions in ethics as depicted by Michael Freeden (1991) in terms of deontological ‘rights’ development, and Amartya Sen (2009) in terms of a developmental idea of the virtue-based ethic of ‘justice’.

the political-economy of India and the lack of widespread democratic rights which affected peoples' sense of entitlement.

The profound learning from Sen is that famines cannot occur in democracies. The famine example raises questions about ways of enhancing developmental evaluation. Firstly, to what degree is developmental evaluation equipped to actually reveal the interrelationships of complex situations - why interventions work or not, to what effect, for whom, and in what circumstances? Secondly, how might developmental evaluation work with other evaluation tools associated with pro-equity evaluation including theory of change, programme theory, values-engaged evaluations, and systems thinking? Thirdly, and perhaps most significantly for pro-equity evaluation, to what degree might developmental evaluation challenge the relations of power that underpin interventions and indeed the evaluations of interventions?

Developmental evaluation is part of a wider set of utilization-focused evaluations where there is a risk of not questioning the purposes of an evaluation. The utility is often that mandated by the client alone. This is borne out in the claim that developmental evaluation is not relevant to all situations: "The ideal is to match the type of evaluation to the situation and the needs of the intended users to achieve their intended uses" (Patton, 2012 p.113). But it is often the stated purposes of clients that need questioning, particularly for an equity-focused evaluation of an existing intervention. So how might systems thinking, and particularly ideas from critical systems thinking, help with addressing such issues?

### **Critical systems thinking (CST)**

"The core aspects of systems thinking are gaining a bigger picture (going up a level of abstraction) and appreciating other people's perspectives" (Chapman 2004 p. 14)

Systems thinking is gaining currency in the evaluation field primarily to assess complex interventions. The emphasis has been on understanding how multiple factors and actors within situations behave in relation to each other. Developmental evaluation, for example, embraces a type of systems thinking associated with complex adaptive systems. Such systems are regarded as holistic entities representing what Jake Chapman refers to as 'a bigger picture'. However, systems from a critical systems thinking tradition provides two other attributes. One, as Chapman implies, involves engaging with multiple perspectives. The other requires critically reflecting on judgements made about system boundaries. Such boundary issues relate to potential ethical conflict and associated power relations amongst different entities and/or perspectives (Churchman, 1979; Ulrich, 1983).

Systems practitioners associated with the evaluation community have identified the influence of these three attributes as a confluence of three concepts - interrelationships, perspectives and boundaries (Midgley, 2007; Williams and Imam, 2007; and Williams and Hummulbrunner, 2010). Elsewhere I have reconfigured these three conceptual underpinnings in terms of a framework for supporting corporate responsibility:

“A critical systems framework constitutes three distinct though interrelated (sub)frameworks: firstly, a framework for understanding ...complex interrelationships and interdependencies; secondly, a framework for practice ... when engaging with different perspectives; and thirdly, a composite framework for responsibility [and reflection]... in dealing ethically [and politically] with inevitable limitations on being holistically ‘universe’ and pluralistically ‘multiverse’.” (Reynolds, 2008 p.385)

This framing of critical systems thinking (CST) with systems thinking has more recently been expressed in terms of a learning device; a systems thinking in practice heuristic (Reynolds, 2011). The heuristic can be more simply understood in terms of three purposeful orientations for the use of CST in any intervention:

- (i) *Understanding interrelationships* associated with a situation;
- (ii) *Engaging with contrasting perspectives* regarding a situation, and
- (iii) *Reflecting on boundaries* of such representations and interactions

Relating these activities to the Narmada project reveals how issues of ethics and developmental evaluation might be addressed.

### **Interrelationships**

Normative and associated theoretical ethical issues of doing ‘good’, doing ‘right’ and being virtuous, all with respect to worst-off groups associated with the Narmada project (Tables 1 and 2) can be reconfigured in terms of addressing three interrelated systemic stakeholder questions:

- (a) What is at stake? (...doing good)
- (b) Who are the stakeholders? (...doing right)
- (c) What possibilities exist for improving stakeholdings? (...being virtuous)

Questions on what’s at stake may focus on the four general issues (water, energy, and food security, and sustainability) and associated consequentialist issues regarding the impact of intervention – what should happen? Questions regarding agency and the key stakeholders, both involved and affected, relate to rights-based deontological issues – who should do what?

Related questions regarding stakeholding address wider behavioural changes manifest in either vicious or virtuous cycles. So for example, what fears might there be for perpetuating existing vicious cycles with entrenchment of inequities amongst different stakeholders, particularly with respect to disparate access to land and water resources? Conversely, what opportunities might there be for developing alternative virtuous systems that may challenge and change conventional ways of thinking about, say, issues of access to natural resources?

Stakes, stakeholders and stakeholdings interrelate. In Narmada for example, one thing at stake from, say, changes in agricultural practice through the construction of dams, could be traditional rural lifestyles. This will affect different stakeholders in different ways. From a national government bureaucratic stakeholder perspective, the

stakeholding could be related to the potential uneconomic nature of patchworks of small landholdings, whereas from an existing farmer-landlord stakeholder perspective, the stakeholding might be related to the non-commercial values of communal property resource management.

Similar interrelated systemic questions of political economy need addressing – questions relating to power, knowledge, and legitimacy. As with questions of ‘value’, questions of power, knowledge and legitimacy each need addressing issues of what’s at stake, who the stakeholders might be, and what opportunities and constraints exist for stakeholding development. In any mapping of interrelationships from a CST viewpoint, it is important to take on board and map out composite ethical and political relationships.

From a CST viewpoint, the resulting map is itself a system – a human construct – and should not be confused with the actual territory – the situation or evaluand being represented by the system’s map or model. Hence for CST ‘systems’ can be regarded as themselves representative of ‘perspectives’ on situations. This is a significant point of departure from viewing systems as real world entities as depicted through much of the developmental evaluation literature based on complexity theory as well as related ideas on ‘evaluating the complex’ (cf. Forss et al, 2011).

## **Perspectives**

Any one ‘big picture’ or systems map or model gained by an evaluator can only represent a partial perspective. Developmental evaluation appreciates this point by encouraging stakeholder participation in the evaluation process. From a ‘soft’ and ‘critical’ systems standpoint, such perspectives can be actively expressed, analysed and used as a discursive tool through separate systems modelling. Peter Checkland has been particularly influential in developing systems modelling for generating purposeful discussion involving multiple stakeholders (e.g., Checkland and Poulter, 2006). With this in mind he wanted to simplify the process of understanding different perspectives by using a shorthand form of conceptual systems modelling. Rosalind Armson develops Checkland’s systems modelling technique further in simplifying systems of perspective using Checkland’s three questions – what? how? and why? (Armson, 2011 pp.213-238). Armson recognises the issue of conflicting perspectives based upon different levels of perceiving the situation.

Taking one of many examples, reference is made to a proposed organisational restructuring intervention for the Police Forces in the UK, and the suggested formation of an American style Federal Bureau of Investigation (FBI). When Armson asks the question “to what problem is this a solution?” she is signalling a disconnect between a ‘what’ and a ‘why’. The ‘solution’ provides the ‘what’ at one lower systemic level, but at a higher level the ‘what’ in the question is actually asking for a ‘why’. Making these explicit can help to avoid ‘talking at cross-purposes’.

With the Narmada project we might for example identify 4 different systems according to particular national State interests and primary and secondary purposes (Table 3).

**Table 3 India State perspectives on the Narmada project**

*Gujaret*

‘what’	<i>Primary:</i> secure irrigation and drinking water <i>Secondary:</i> secure hydroelectric power
‘how’	Dam construction ; particularly Sardar Sarovar
‘why’	Very poor rainfall and need for more industrial development

*Madhya Pradesh*

‘what’	<i>Primary:</i> prevent water loss to neighbouring States <i>Secondary:</i> limit displacement of villages
‘how’	Limited and controlled dam construction with attention to appropriate just recompense measures for displacement
‘why’	River Narmada runs mostly through MP. 193 villages out of total of 245 would be submerged by Sardar Sarovar alone

*Maharashtra*

‘what’	<i>Primary:</i> secure hydroelectric power <i>Secondary:</i> limit displacement of villages
‘how’	Build higher dam wall at Sardar Sarovar with attention to appropriate just recompense measures for displacement
‘why’	Prominent industrial area but needing a check on rural to urban migration

*Rajasthan*

‘what’	<i>Primary:</i> secure irrigation supply <i>Secondary:</i> none (not directly in Narmada Valley)
‘how’	Build higher dam wall at Sardar Sarovar and build canal network
‘why’	Prominent agricultural area in South West but with very poor rainfall

The simple perspectives captured above are all ‘ideal’ expressions of different systems, each expressing explicit normative value judgements – ‘what ought to be’ – from particular State perspectives. Other normative positions might similarly be expressed from higher system levels; say, a national or even an international/ global perspective.

Whichever system level is in focus, viewpoints might be further disaggregated in accordance with particular stakeholder perspectives including those involved (intended clients, decision makers, experts) and those potentially affected negatively (typically, worst-off groups) by the intervention.

Still other perspectives might emerge from the more critical ‘factual’ descriptive analysis – ‘what is’. For an equity-focused evaluation the critique of ‘ought’ with ‘is’ may helpfully draw on philosophical ideas associated with the three ethical traditions – consequentialist, rights-based, and virtue-based.

## Boundaries

From a CST viewpoint, purposeful systems (as described above) are perspectives. As such they are variable and, as with all systems, subject to change. The ‘what’ and ‘why’ are not fixed (as in mechanical purposive systems) but rather emergent (as in all human purposeful systems). The emergence arises from system boundaries being continually - and healthily - subject to challenge and revision.

All systems are partial. Mapping out interrelationships and modelling perspectives are not neutral activities – someone somewhere decides where to place boundaries, and which of these bounded systems are most important. So any systems design is partial with respect to being both holistic (what’s in and left out in terms of endless interrelationships) and pluralistic (whose interests ‘count’ and whose are discounted in terms of multiple perspectives).

Defining boundaries is an essential part of systems thinking. A boundary differentiates between what is “in” and what is “out”, what is deemed “relevant” and “irrelevant”, what is important and what is unimportant, who “benefits” and who is “disadvantaged”. With systems thinking in practice heuristic boundaries are always provisional, and subject to change. It is in this sense, when applied to the process of evaluation, that reflective practice is most closely associated with developmental evaluation and particularly to ideas of double-loop learning. Patton goes on to describe developmental evaluation as triple-loop learning - learning how to learn (Patton, 2012, p.106). From a CST viewpoint, triple-loop learning deals more explicitly with relations of power.

Flood and Romm (1996) offer an explanation of triple-loop learning in the tradition of CST which captures the political extension of ethical issues. Whereas single-loop learning questions how existing activities can be done better – relating to the normative ethical dimension in asking *how* we should do what we do, double-loop learning goes one step further and questions whether those activities are the right thing to do – relating to the philosophical dimension of asking *what* things are best to do and why. Triple-loop learning takes a further analytical step and questions how we know what is the right thing to do. Is it primarily influenced by the power of decision makers – those in control of resources (mightiness), or is it influenced more by the power of academic argument (rightness)?

This gives rise to questions of politics; an examination of the relationship between power and knowledge, between ‘mightiness’ and ‘rightness’. So evaluators involved with triple-loop learning might gauge whether the ‘right thing’ is determined more by some source of coercion or authoritative power of government (sometimes referred to as ‘decisionism’) or determined by some power of authoritative knowledge, expertise and/or righteousness (sometimes referred to as expertocracy or technocentrism).

For example, in the Narmada project ethical questions might be raised with respect to the influence of large multinational companies involved with agribusiness in forcing decisions around dam construction using their leverage of financial power, even in the face of expert knowledge advising against intervention because of the ecological damage. Alternatively, expertise itself can be regarded as assuming excessive power. So in the Narmada situation, there is considerable expertise around dam construction,

particularly amongst multinational building contractors, as well as knowledge associated with other dam constructions. Such expertise can assume a technocentric power base of arrogant 'rightness' overriding the 'mightiness' of, say, ecological interests and vast numbers of people who stand to be adversely affected by dam construction in the Narmada Valley.

Ethics itself might be considered as providing an intuitive 'mightiness' in terms of unquestioned *normative* value judgements and perspectives accumulated and passed on through generations by cultural practices. The more formal side associated with *philosophical* ethics has provided an accumulated knowledge base of 'rightness'. Since the eighteenth-century Enlightenment in Western culture, deeper questions about being virtuous have been largely offset by more tangible questions regarding *doing* good and *doing* the right thing. Indeed, the term 'ethics' is often used in connection with professional codes of conduct, as with business and medical ethics. The multitude of ethical 'committees' that have sprung up in contemporary times are principally charged with providing guidance on action. This notion of *doing* ethics has been prevalent in the political space used for addressing issues of equity.

Platforms for deliberating on ethical issues can be found at all levels of society, from individual conversations to households, local communities and a wide variety of regional, national and other international forums. Political space can be of a less formal type that support, for example, non-violent direct action, or have more formalised manifestations, as with the establishment of mainstream local, national and international government bodies, private sector affiliations and NGOs. The Narmada Bachao Andolan (NBA) coalition provides a particularly significant space for alternative expressions of values, perspectives and ethical traditions.

## **Critical systems heuristics and CST**

Critical systems heuristics (CSH) represents one of two recognised strands of CST (Ulrich, 2003)<sup>5</sup>. CSH provides a reference system comprising a set of tools – twelve CSH questions – which can be used for any evaluation. The task for an evaluator is to translate the intervention being evaluated into a bounded CSH reference system.

In CSH boundaries make up what is called a reference system. A CSH reference system cultivates a more holistic awareness of situations with regard to wide-ranging stakeholder issues associated with four sources of influence. The CSH reference system addresses issues of:

- (i) *values and motivations* built into our views of situations and efforts to 'improve' them (who gets what?);
- (ii) *power structures* influencing what is considered a 'problem' and what may be done about it (who owns what?);
- (iii) *the knowledge basis* defining what counts as relevant information and skills (who does what?); and
- (iv) *the moral basis* on which we expect third parties (i.e., people not involved yet in some way concerned) to bear with the consequences of what we do, or fail to do, about the situations in question (who gets affected in the process, and with what justification?).

In CSH, these four dimensions of a complex situation are called *sources of motivation, control, knowledge, and legitimacy*, respectively (see column 'sources of influence' in Table 4). Each of the four sources of influence have three bounded questions regarding who the stakeholders might be, what's at stake, and what might be the particular stakeholding issues associated with the particular stakeholder group. Thus there are a total of twelve boundary judgements to be made regarding any situation being examined. The complex situation of interest (for example, an intervention such as a policy, programme or project) is effectively translated into a more manageable system of interest. Table 4 outlines the 12 boundary judgements associated with CSH. Some of the judgements originally phrased by Ulrich are more challenging than others to appreciate, hence my inclusion of alternative wordings in parentheses.

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<sup>5</sup> The other strand is called Total Systems Intervention but is not relevant to this paper.

**Table 4: Boundary judgements as questions relating to CSH**  
(adapted from Ulrich and Reynolds, 2010)

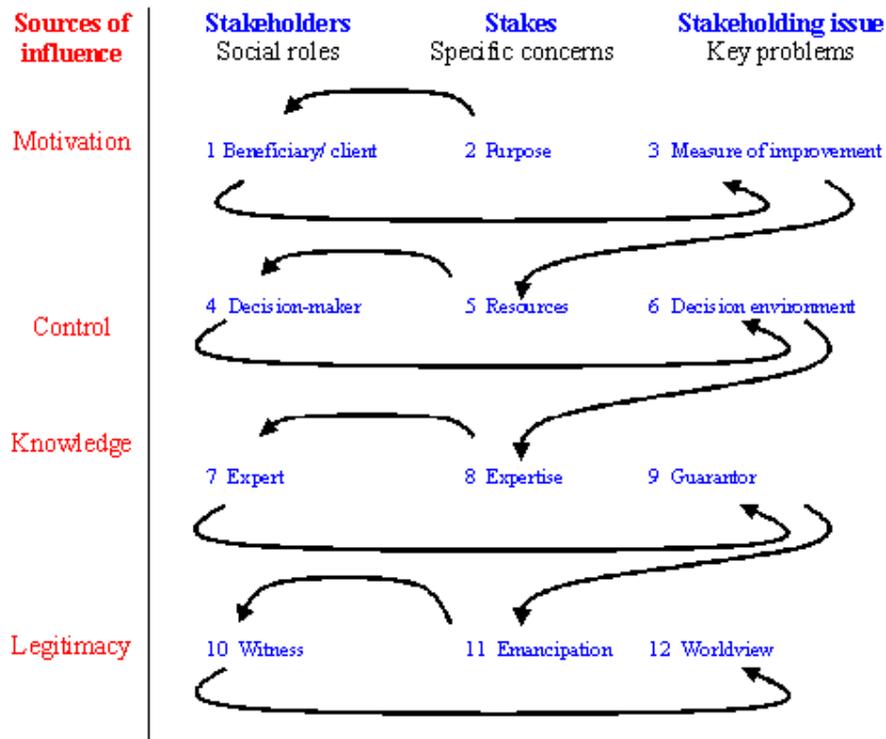
Sources of influence	Boundary judgements informing a system of interest (S) where S may represent an intervention such as a policy, programme or project			
	Stakeholders	Stakes <i>(specific interests)</i>	Stakeholding issues <i>(key problems)</i>	
<b>Who gets what?</b> Sources of motivation	1. <u>Beneficiaries</u>  Intended clients or customers of S?	2. <u>Purpose</u>  key objective of S?	3. <u>Measure of success</u> (performance indicators)  S's measure of improvement?	The 'involved'
<b>Who owns what?</b> Sources of control	4. <u>Decision –makers</u>  Those in command of resources necessary to enable S?	5. <u>Resources</u>  conditions of success for S - relevant components ('capital') to secure improvement?	6. <u>Decision environment</u> (accountability)  conditions of success <i>outside</i> the control of the decision maker for S?	
<b>Who does what?</b> Sources of knowledge	7. <u>Experts</u>  Those providing relevant knowledge and skills for enabling S?	8. <u>Expertise</u>  relevant knowledge and skills supporting S?	9. <u>Guarantor</u> (assurances)  promises or guarantee of successful implementation of S?	
<b>Who gets affected by what some people get?</b> Sources of legitimacy	10. <u>Witness</u> (victims)  Those representing the interests of those negatively affected by but not involved with S?	11. <u>Emancipation</u> (marginalisation)  constraints on the interests of those negatively affected to have expression and freedom from the worldview of S?	12. <u>Worldview</u> (political space)  opportunities available for reconciling contrasting worldviews giving meaning to improvement in S?	The 'affected'

Details on how the CSH questions can be used for an evaluation in general can be found in Reynolds (2007). Specific exemplars on how CSH has been applied to the Narmada project as part of an equity-focused evaluation are provided in Reynolds and Williams (2012).

The following provides a rough sketch on features of CSH as used in the evaluation using the parameters of a CST-informed evaluation as described above.

### CSH: understanding interrelationships

The twelve CSH questions prompt an understanding of the 'bigger picture'. In an equity-focused inquiry, it provides a way of organising normative values into a common reference system (sometimes referred to as a 'system of interest'). The relationships between the four sources of influence can be explained through a narrative. Figure 1 below illustrates the narrative in terms of the suggested sequencing between the twelve boundary questions associated with CSH.



**Figure 1 unfolding narrative of 12 CSH questions**  
(adapted from Reynolds, 2007 p. 109)

The narrative in Box 1 below was developed by Reynolds and Ulrich (Reynolds, 2007 p.107; Ulrich and Reynolds, 2010 pp. 260-261) and is further adapted here from Reynolds and Williams (2012 pp.120-121)

### **Box 1 Narrative of an unfolding reference system associated with CSH**

(adapted from Reynolds and Williams, 2012 pp.120-121)

#### *Motivation*

The development of a system - whether it's an intervention itself (e.g., a project, programme or policy) or an evaluation of an intervention - starts with some notion of "purpose." Since a purpose reflects embedded values associated with some person or persons, it is valid to ask, "Whose purpose?" Identifying first what the *purpose* of the system should be helps identify who the intended *beneficiaries* ought to be. This in turn raises questions about what should be appropriate *measures of success* in securing some improvement to those beneficiaries.

#### *Control*

The exploration of motivation leads to questions regarding the *necessary resources* or *components needed for success*. Financial capital and other forms of tangible assets like natural, physical, and human capital might be complemented with less tangible factors such as social capital (access to networks of influence). But who ought to be the *decision makers* in control of such resources? This in turn prompts questions as to what should be left *outside* the control of such decision makers in order to ensure some level of *accountability*. There are risks of having all the necessary resources under the control of the system. If the system has all the resources, then the system cannot be controlled or held accountable in any way by those outside the system. In other words, a decision has to be made about what should be part of the system's decision environment in order to keep it in check and accountable?

#### *Knowledge*

One important set of factors that need to be independent of the decision maker is knowledge or expertise. In an ideal setting, knowledge (including expertise) ought not to be under the control of the decision maker but should have independence. So what ought to be the necessary types and levels of knowledge and experiential know-how to ensure that the system actually has practical applicability and works toward its purpose within the decision making environment? Who ought to provide such expertise? The whole point of having experts is to provide some informal warranty or assurance for success. So the question is, how might such expert support provide some promise as an effective guarantor? Conversely this requires evaluators to look out for false guarantors; a reliance on experts or expertise that may turn out to be unwise or misleading.

#### *Legitimacy*

Any assessment of the values (motivation), power (control), and expertise (knowledge) associated with any system will always be biased in some way. So what gives this system the legitimacy to carry out its tasks? Churchman (1979) considered that a system could not legitimise itself. Legitimacy is awarded by those outside system. In particular it must withstand *critical* assessment. In other words, if the system is looked at from a different, opposing viewpoint, in what ways might the system's activities be considered as marginalising particular interests? How might it be coercive or malignant rather than emancipatory or benign? Who or what interest groups are likely to be the "victims" of the system, and, importantly, what type of representation ought to be made on their behalf? That is, who is capable of making representations on the victims' behalf, and on what basis would they make this claim?

Finally, how might the underlying worldview associated with the system be reconciled with these opposing worldviews? Where might representation of opposing views be expressed, and what action ought to happen as a result?

Boundary questions relating to ‘motivation’ - purpose, beneficiaries and relevant measures - make transparent the *value basis* of the Narmada project. Questions relating to ‘control’ – resources, decision-makers, and the decision making environment - help make transparent the *power basis* of the system. Questions regarding ‘knowledge’ - what expertise is deemed important, who might be the experts, and what promises of assurance underpin such expertise and experts - help to make transparent the *knowledge basis* of the system. Finally, questions regarding social ‘legitimacy’ - the need for emancipation and freedom from the negative affects of an intervention, who may act as representatives or be witness to such effects, and opportunities for contrasting worldviews to be given expression to reshape such effects - help to make transparent the moral meaning underpinning the system. This in turn provides the *basis of legitimacy*; a sense of social and legal approval to the system at any one time.

In the first part of the evaluation of the Narmada project, these questions were addressed in a normative ‘ought’ mode (Reynolds and Williams, 2010 pp. 123-128). So for example what conditions of success *ought* to be outside the control of the decision maker? (CSHq6) and who *ought* to be providing relevant knowledge and skills (CSHq7).

### **CSH: engaging with multiple perspectives**

In the second stage, CSH questions are asked in the descriptive mode inviting contrasting perspectives through a critique of ‘ought’ against ‘is’ – normative against descriptive. Such a critique can itself draw upon different perspectives. Table 5 provides a generic template grid for addressing such questions.

**Table 5 CSH grid for recording perspectives  
(adapted from Ulrich, 1996)**

CSH Template on perspectives		Stakeholder (social role)	Stake (role concern)	Stakeholding issue (key problem)	
Sources of motivation		1 Beneficiary	2 Purpose	3 Measure of improvement	The involved
	'ought'				
	'is'				
	critique 'is' against 'ought'				
Sources of control		4 Decision-maker	5 Resources	6 Decision environment	
	'ought'				
	'is'				
	critique 'is' against 'ought'				
Sources of knowledge		7 Expert	8 Expertise	9 Guarantor/ assurance	
	'ought'				
	'is'				
	critique 'is' against 'ought'				
Sources of legitimacy		10 Witness	11 Emancipation	12 Worldview	The affected
	'ought'				
	'is'				
	critique 'is' against 'ought'				

The three traditions of philosophical ethics provide a helpful platform for addressing such critiques in a pro-equity evaluation. For example, CSH questions regarding what's at stake (CSHq2, 5, 8, and 11) can draw on consequentialist ethics regarding the impact of the intervention from different perspectives – motivation, decision making, expert support, and moral/ social legitimacy. Questions regarding who the stakeholders might actually be (CSHq1, 4, 7, and 10) can draw on deontological ethics regarding who actually have particular rights in the intervention and how such rights/ entitlements might be exercised. Questions regarding stakeholding (CSHq3, 6, 9, and 12) can draw on theories of virtue-based ethics addressing whether, and to what degree, particular stakeholders may find themselves entrapped or liberated by their own stakeholder patterns of behaviour.

For an equity-focused evaluation particular attention is given to the perspectives of worst-off groups who traditionally lie outside the core system boundaries (i.e., those affected but not involved – CSHq10-12) in contrast to the perspective of those involved (CSHq1-9).

The critique of the Narmada project – contrasting the normative 'ought' with the analytical 'is' – was guided by philosophical ethics. It constitutes the second part of the pro-equity evaluation (Reynolds and Williams, 2010 pp. 129-134). The third part of the evaluation generated interesting issues regarding relations of power.

### **CSH: reflecting on boundary judgements**

Contrasting different stakeholder perspectives through critique can often lead to an unhelpful state of inertia – an entrenchment of stakeholder positioning, or literally ‘stakeholding’. The drive towards enabling reflective practice amongst practitioners in CSH can in contrast contribute to an enhanced form of *developmental* evaluation. CSH questions 3, 6, 9 and 12 relate to stakeholding development. This third set of questions were originally referred to in CSH as the ‘key problems’ associated with a particular stakeholder group in relation to a particular system of interest.

The ‘problem’ in each case is a problem of boundary judgement between a bounded system and the realities of the essentially unbounded situation. For sources of motivation the problem is how to make a bounded ‘measurement’ from the essential immeasurable emergent outcomes from an intervention. It questions the politics behind adhering systematically to fixed targets and other expressions of performance indicators rather than allowing for systemic adaptation and revision of measures in response to feedback during interventions.

For sources of control the stakeholding problem is how to exert control in an essentially non-controllable socio-economic-ecological environment. It brings to the fore issues of ‘might over right’; how much power is unduly expressed by those in control of resources? For sources of knowledge the stakeholding problem is how to give some promise of assurance that the intervention will succeed whilst acknowledging inevitable uncertainty. It brings to the fore issues of ‘right over might’; how much power is unduly expressed by experts in the particular field? For sources of legitimacy, the stakeholding problem is how to affirm some sense of redress to the power of decision makers and experts about an intervention in a political environment of contested relations of power including contested meanings about righteousness. Table 6 illustrates the contrasting issue of either stakeholding entrenchment or stakeholding development to look out for in addressing boundary judgements in a creative manner.

Table 6 Stakeholding entrenchment or development associated with a system of interest

	Stakeholders Social Roles	Stakes Role-specific concerns	<b>Stakeholdings</b> <i>'Key Problems' = tensions between idealised 'system' vs realities of 'situation'</i>	
<b>Sources of motivation</b>	1. Beneficiary/ client	2. Purpose	<b>3 – (measure of success) enchantment of fixed <i>measurable outcomes</i> vs managing emergence</b>  <i>Check on values (circumscribing the system)</i>	The involved
<b>Sources of control</b>	4. Decision- maker	5. Resources	<b>6 – (environment) imperative towards <i>command and control</i> vs allowing autonomy</b>  <i>Check on power (controlling the system)</i>	
<b>Sources of knowledge</b>	7. Expert	8. Expertise	<b>9 – (guarantor) dogma and promises of <i>professional expertise</i> vs wider humility of social/ ecological uncertainty</b>  <i>Check on complacency (informing the system)</i>	
<b>Sources of legitimacy</b>	10. Witness	11. Emancipation	<b>12 – (worldview) righteousness and premises of <i>'the' system</i> vs rights of, and consequences on, those affected</b>  <i>Check on fundamental meanings (assumed within the system)</i>	The affected

Stakeholding development is a positive expression of triple-loop learning. It encompasses an appreciation of risks in 'mightiness' (sources of control) over 'rightness' (sources of knowledge) and vice versa. CSH moves developmental evaluation on by recognising different stakeholder concerns regarding possible opportunities for stakeholder development (relating to nurturing purposeful negotiation), as well as signalling risks of stakeholder entrenchment (relating to 'positional bargaining').

Questions of stakeholding development for Narmada are addressed in the third stage of the pro-equity evaluation (Reynolds and Williams, 2010 pp. 134-138).

## Summary

In an equity-focused developmental evaluation some basic systems questions might be asked to reveal areas of responsibility that need to be, and can be, managed more constructively. Such questions are informed by critical systems thinking:

- *Interrelationships.* What are the particular issues that need attention and how might they be related with each other? In particular what normative values are involved and how might they relate to what's at stake - (1) built-in values, (2) power structures, (3) expert assumptions, and (4) the moral basis on which an intervention operates - with the system of intervention being evaluated?
- *Perspectives.* How might these issues be attended to and by whom? How in particular may the views of traditionally worst-off groups be given expression? What opportunities exist for such expressions to be meaningfully

engaged with in an emergent purposeful manner? How might philosophical traditions of ethics, focusing not just on utility but rights and virtues, assist with such evaluations?

- *Boundaries.* Why are some issues privileged more than others, and some ways of dealing with them from particular perspectives prioritised over others? How pervasive are existing systems of expert-driven solutions to poverty-alleviation, or existing systems of financial control by international lending agencies in partnership with national Governments, in sustaining iniquitous situations? How might triple-loop learning inform developmental evaluation in nurturing appropriate political space?

CST can enhance purposeful equity-focused developmental evaluation. More specifically, CSH provides a pro-equity toolbox of questions – a reference system - for evaluating interventions with a pro-equity focus. The CSH questions relate to an understanding of who gets what, in relation to who owns what and who does what. Such questions are viewed in further relation to who the victims (ensuing ‘worst-off groups’) might be in any intervention and with what justification. CSH provides a conceptual model – a reference system – for then critically engaging other perspectives. Finally, CSH offers a means for confronting and deliberating upon boundary judgements in a purposeful manner. The idea is not just to enable double-loop learning for actively changing existing systems for ethical purposes, but to provide triple-loop learning guidelines and alerts on the political risks of decisionism (might over right) or technocentrism (right over might) that circumscribes many interventions.

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### **Glossary of abbreviations**

CSH critical systems heuristics

CST critical systems thinking

### **Biography**

**Martin Reynolds** is a Senior Lecturer in Systems Thinking at The Open University, UK. He has produced distance learning resources for postgraduate programmes on International Development, Environmental Decision Making, and Systems Thinking in Practice and has published widely in these fields. Many of his publications are available on [open access](#).

