Network Perspectives In The Evaluation Of Development Interventions: More Than A Metaphor

Rick Davies, November 2003

PLEASE NOTE:

1. The most current version of this paper can be found at www.mande.co.uk/docs/nape.pdf

2. Research funding for extending and testing the ideas developed in this paper is being sought! For further information contact the author at rick@mande.co.uk

Abstract

In this paper I argue the case for the use of a network perspective in representing and evaluating aid interventions. How we represent the intentions of aid activities has implications for how their progress and impact can be assessed. Because our representations are by necessary selective simplifications of reality they will emphasise some aspects of change and discourage attention to others. The benchmark alternative here is by default the Logical Framework, the single most commonly used device for representing what an aid project or programme is trying to do. Five main arguments are put forward in favour of a network perspective as the better alternative, along with some examples of their use. Firstly, social network analysis is about social relationships, and that is what much of development aid is about. Not abstract and disembodied processes of change. Secondly, there is wide range of methods for measuring and visualising network structures. These provide a similarly wide range of methods of describing expected outcomes of interventions in network terms. Thirdly, there is also a wide range of theories about social and other networks. They can stimulate thinking about the likely effects of development interventions. Fourthly, network representations are very scalable, from very local developments to the very global, and they can include both formal and informal structures. They are relevant to recent developments in the delivery of development aid. Fifthly, network models of change can incorporate mutual and circular processes of influence, as well as simple linear processes of change. This enables them to represent systems of relationships exhibiting varying degrees of order, complexity and chaos. Following this argument I outline some work-in-progress, including ways in which the conference participants may themselves get involved. Finally I link this paper into its own wider web of intellectual influences and history.

Rick Davies is a monitoring and evaluation specialist, based in Cambridge, UK, and the manager of the Monitoring and Evaluation NEWS website at www.mande.co.uk

1. The Starting Position

1.1 *Theory based evaluation*

The argument spelled out in this paper is situated within a theory-driven approach to evaluation. Within this approach an assumption is made that those spending aid monies should, and usually do, have some sort of conceptualisation of what they are trying to do. That is, a "theory-of-change" (ToC). In this context the role of evaluation is to help test that conceptualisation. This can be done by drawing out the implications of the theory of change as currently stated and looking for the evidence that the theory says should be there. At least some of this evidence this should already be in the hands of the person whose theory is being tested. This is a deductive approach to evaluation. It stands in contrast to an inductive approach, one that involves no assumptions about prior intentions, except at the broad level of general goals. When an inductive approach is used meaning is constructed after the event, out of reflections on past events, including changes that may or may not be seen as achievements, and that may or may not have been anticipated. Both approaches can vary in the extent to which they emphasise multi-stakeholder participation.

I should emphasise here that I am not arguing for one approach to the exclusion of the other. As some of you may be aware, in 1993/94 I developed and tested an inductive method of monitoring the outcomes of participatory development projects, known as the Most Significant Changes approach. This has since been applied in quite a wide range of programmes and countries.

1.2 *Evaluation rights and responsibilities*

A second feature of my starting position, which relates to the deductive approach above, is that it distinguishes between people's *rights and responsibilities* in relation to evaluation. In my view, those who spend aid monies have a *responsibility* to state their theory of change, to assess its validity and to make information about these judgements available to those who were the intended beneficiaries, and to others whose interests may have been affected. It is not the responsibility of the intended beneficiaries to assess the impact of the development activities. They do of course have the *right* to express their views on the impact (or lack thereof), and on the judgements made about impacts by those spending aid monies. I emphasise this point because of some of the excesses of participatory approaches to evaluation, which involve an abrogation by project implementers of any responsibility to make their own judgements (Seen in Ethiopia in 1998), and the de factor impositions of very time consuming forms of participatory evaluation on the intended beneficiaries of aid programmes (Seen in India and Bangladesh in 1996).

1.3 The comparator: The Logical Framework

"Compared to what?" was Grocho Marx's question to his friend, after his friend had complained, "Life is difficult!" The same question can be asked of the argument I have put forward in this paper, about the value of a network perspective. The most appropriate comparator is the Logical Framework (and its variants), because of its global dominance as the most commonly used framework for summarising the intentions of development aid programmes (Gasper, 1997, 2000). There are also other similar abstract stage based models of what is called the "program logic" used in other fields, such as Bennett's hierarchy (Bennett, 1975) which has seven stages, and the Kellogg Foundation's Logic Model which has 5 stages (Kellogg, 2000).

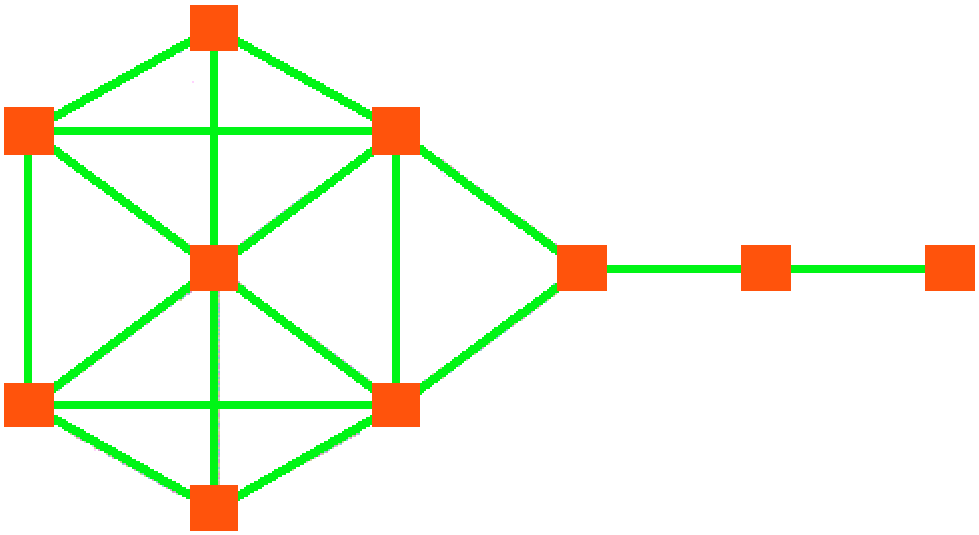
Despite the main thrust of this paper, I do not advocate the total rejection of the use of the Logical Framework. It is useful in situations involving a small number of actors and where outcomes within in those relationships are reasonably predictable. Not surprisingly it often features in contractual relationships. It may also be useful strictly as a summary device representing some of the important expected changes that can be mapped out in detail in the form of changing network structures, which will be discussed below.

2. What is a network?

A network is a simple concept. It consists of two things: nodes and links between those nodes. In social network analysis the nodes of concern are people, groups and organisations. In other areas of network analysis the nodes of concern may be pages in

the World Wide Web, difference species in an ecosystem or different compounds in a cell. In social network analysis links may be social contacts, exchanges of information, political influence, money, joint membership in an organisations, joint participation in specific events or many other aspects of human relationships.

Figure 1: Krackhardt's kite – used to illustrate different types of network relationships



The defining feature of social network analysis is the focus on *the structure of relationships* between people (or whatever entity is of concern). This is contrasted with other areas of the social sciences where, it is claimed, the focus has been on *attributes* of actors the characteristics of people, groups and organisations, rather than the relations between them (Scott, 2002; Monge and Contractor, 2003).

It should be noted here that this conception of networks is very broad. It encompasses formal hierarchical organisations, heterarchies (/matrix structures), teams, named and unnamed "networks" and crowds. These are all distinguishable by the types of linkages that connect their participants. This paper is not focused solely on networks that call themselves networks, or that are called networks by others.

3. Five arguments for the use of a network perspective

3.1 Social network analysis is about social relationships.

That is what most of development aid is about. Development aid interventions are enmeshed in social networks, formal and informal, involving individuals and organisations. And their aim is to affect the lives of people within those networks, and those marginal to those networks. When you explain the idea of a social network most people can understand the basic idea quite quickly. Everyone is involved in social networks, in any culture. In contrast the Logical Framework is about abstract stages of

change described as Outputs, Purpose and Goal, whose specific meaning is not always easy to communicate across cultures, or even within the same culture (or organisation).

Describing a development intervention in terms of changes within a social network automatically brings in a multi-stakeholder perspective. This is not present in the structure of the Logical Framework. Donors such as DFID and others have in effect "tacked on" a multi-stakeholder perspective through the requirement for a separate "Stakeholder Analysis". That guidance itself is not very sophisticated, in terms of the types of distinctions between stakeholders and their relationships with the project[1]. Stakeholders are defined into types according to their relationship with the project, but no one else (i.e. primary, secondary and key stakeholders). The types of relationship that are of concern are the nature of their interest, and their potential impact on the project. Relationships *between* these stakeholders are not a significant concern. It is the development aid equivalent of a pre-Copernican view of the world. The world revolves around the project.

A social network representation of an aid programme enables attention to be quickly focused on who is influencing whom, directly and indirectly, up to whatever level of complexity is required. Figure 1 shows a very early and provisional mapping of stakeholder relationships in a multi-country Information and Communications Technologies (ICTs) project in Africa. Questions still to be resolved include which and how many African organisations still need to be brought into the network (green nodes), how long the consultants (blue nodes) will still be needed to bridge their relationships with the Programme Manager (red nodes), how the African organisations will link further out to poor communities and their institutions (not yet in the picture), and how the donors (yellow nodes & DFID red node) can link up. The purple node is the evaluation team. The nature of their linkages is also under negotiation.

3.2 There is a range of methods for describing networks

There is a wide range of methods for describing the structure of networks, and people's places within those networks. This provides theory builders with a correspondingly large number of opportunities to specify the types of changes they think will take place in network structures (as the dependent variable), or the type of network structures that will be associated with particular changes (network structure as independent variable). The same methods can also be used simply to describe the current set of relationships, before any intervention.

One means of representing networks structures is through the use of matrices showing actors' links with actors. These allow compact and detailed descriptions of network relationships, but they are not easy to comprehend at a glance. They are however some examples of such matrices being used to map relationships between actors in development projects. Figure 2 shows a matrix describing actor linkages in an agriculture project in Nambia (Biggs and Matsaert, 1998). Such matrices can also be used to collate detailed textual descriptions of large sets of individual relationships, cell by cell, as can be seen in the example of a use by Temel (2001) to describe the

[1] A summary, based on DFID sources is available on the Enterprise-Impact website at www.enterprise-impact.org.uk/informationsources/toolbox/stakeholderanalysis.shtml

relationship between nine components in the agriculture innovation system in Azerbaijan (See Figure 3). “Components” here are groupings of organisations with similar functions.

Figure 2: Stakeholder linkages in an Africa ICT programme (existing and potential)

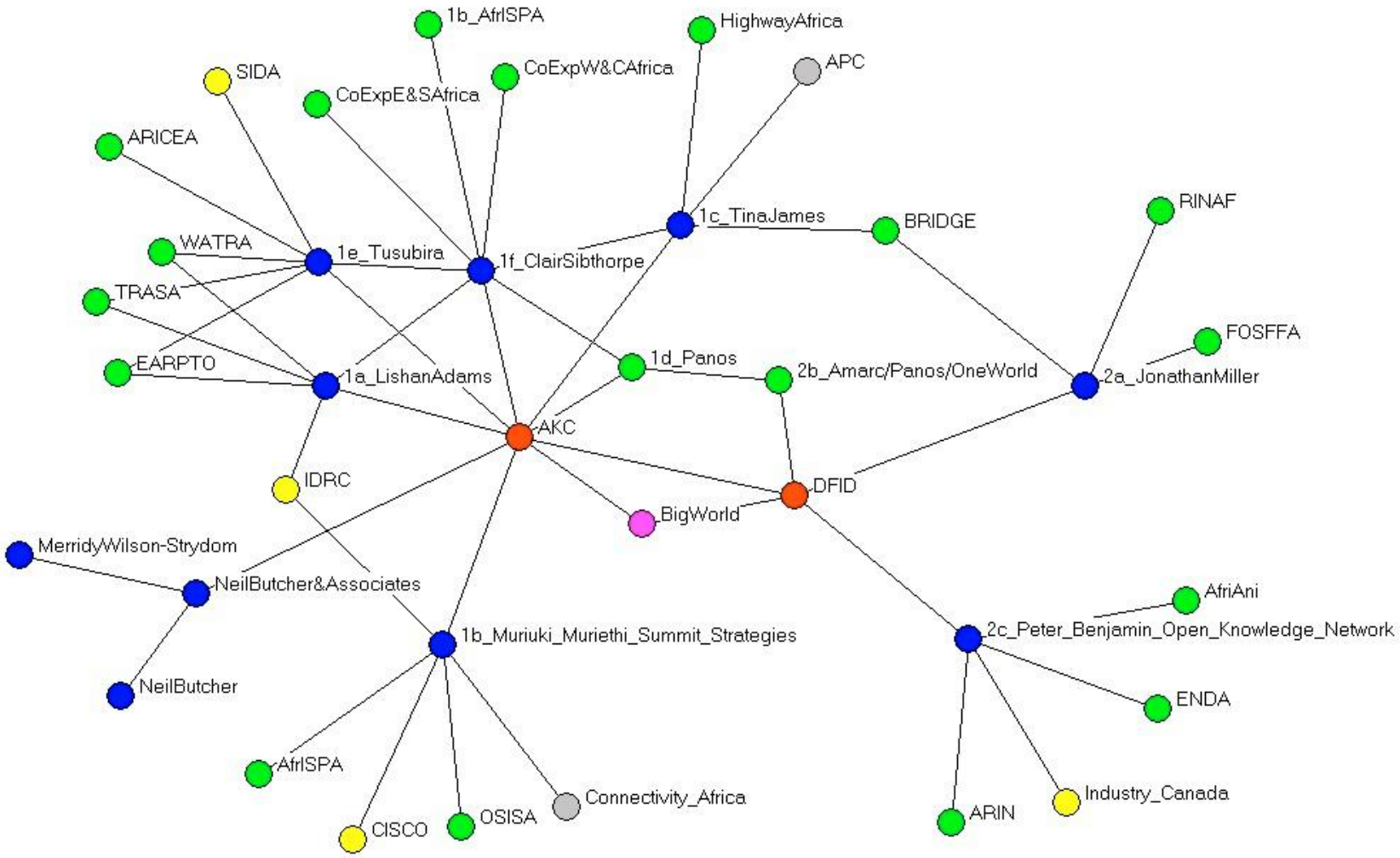


Figure 2: Actor Linkage matrix KFSR project, Namibia, from Biggs and Matsaert (1998)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		LCS Staff	Part Time ME's	Full Time ME's	Retail SME's	Other SME's	Large/Formal Enterprises	Suppliers/Wholesalers	Kavango Chamber	Other Business Associations	Co-operatives	Training Programme	Donor	NGO's	Parastatals	Other Lenders/Insurers	Local Government	SME Fora	National Business Associations	Businesses outside region	Central Government
A	LCS Staff	■			■							■		■				■			
B	Part Time ME's									■				■							
C	Full Time ME's								■				■	■			■				
D	Retail SME's	■							■			■	■	■			■				
E	Other SME's							■											■		■
F	Large/Formal Enterprises							■					■		■	■			■		■
G	Suppliers/Wholesalers				■	■	■									■	■		■		
H	Kavango Chamber	■			■				■			■	■				■				
I	Other Business Associations																				
J	Co-operatives													■							
K	Training Programme	■							■					■							
L	Donor	■										■		■							
M	NGO's										■							■			
N	Parastatals																				■
O	Other Lenders/Insurers						■	■											■		
P	Local Government						■	■													
Q	SME Fora																				
R	National Business Associations						■		■				■	■				■			
S	Businesses outside region												■	■					■	■	
T	Central Government	▒									■				■					■	

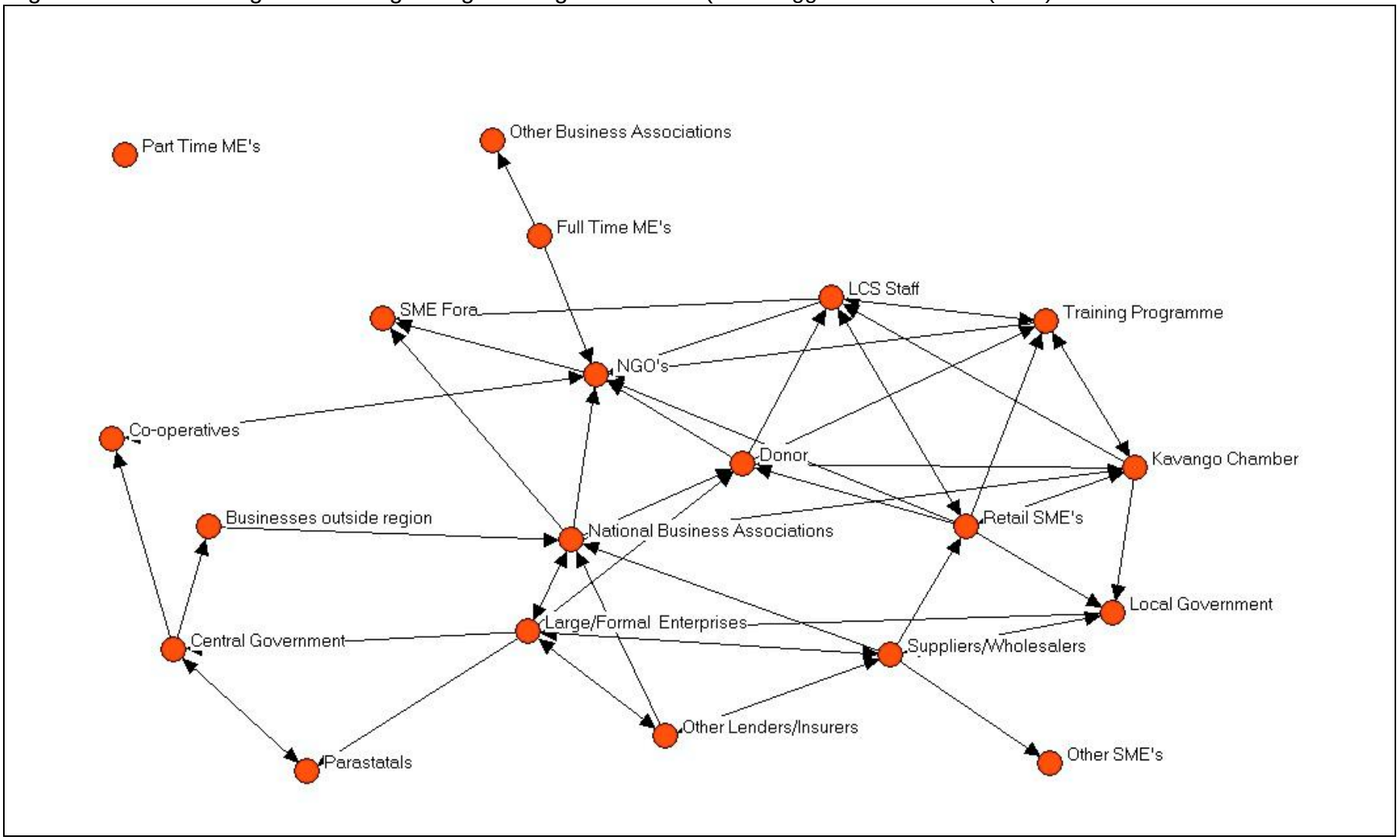
Key
Intense Communication ■

Figure 3: Actor linkage matrix with text descriptions of relationships, Azerbaihan, from Temel et al (2001)

Table 1. Linkage matrix

Policy Component (P) (Reorganization)	**Formal & weak**	**Formal & weak**	**Formal & weak**	**Mixed & weak**				**Formal & medium** Priority setting Programe devel. & review
Formal & weak	**Research Component (R) (Reorganization)**	**Formal & weak**		**Mixed & weak**	**Mixed & medium**	**Informal & medium**	**Informal & medium** Information sharing Problem diagnosis Technology diffusion Exchange of staff	**Formal & weak** Workshops/seminars Information sharing Personnel training
Formal & weak	**Formal & weak**	**Education Component (E) (Reorganization)**				**Informal & weak**	**Informal & medium**	**Formal & weak** Workshops/seminars Information sharing
Formal & weak			**Credit Component (C) (Reorganization)**					**Formal & weak**
Formal & medium Information sharing	**Formal & medium** Information sharing			**Extension and Information Component (I)**		**Formal & medium** Program developmnt Problem diagnosis Priority setting Tech diffusion/demon Training	**Formal & medium** Program developmnt Tech. diffusion Info&finance shraring Workshops Seminars	**Formal & weak** Tech. diffusion & demonstration Information sharing
Formal & medium	**Informal & medium**				**Private Enterprise Component (M)**	**Mixed & medium** Tech. demonstration Training		**Mixed & weak** Program developmnt Tech. developmnt Workshops
Informal & medium Information sharing	**Informal & medium** Information sharing Problem diagnosis Technology diffusion Exchange of staff	**Informal & weak** Information sharing			**Mixed & weak** Tech. demonstration Training	**Private Farm Component (F)**		
Informal & medium Information sharing	**Informal & medium** Information sharing Problem diagnosis Technology diffusion Exchange of staff	**Mixed & medium** Information sharing		**Formal & weak** Program development Sharing of info. & finance Workshops	**Informal & weak**	**Mixed & medium** Problem diagnosis Priority setting Technology diff. & demonstration	**Private Consultancy Component (D)**	**Formal & weak** Program developmnt Tech. diffusion Info &finance sharing Workshops
Formal & medium Priority setting Program development Program review	**Formal & weak**			**Formal & strong** Priority setting Program development Technology development Technology diffusion and demonstration Information sharing	**Mixed & weak**	**Formal & medium** Problem diagnosis Program developmnt Tech. demonstration Information sharing Training	**Formal & medium** Program developmnt Tech. diffusion Info&finance sharing Workshops	**External Assistance Component (X)**

Figure 4: Network diagram showing linkages in Figure 2 matrix (from Biggs and Matsaert (1998)



Because of the complexity of many large-scale networks a large amount of effort has gone into developing a range of means of visually representing network structures, making any patterns of connections easier to grasp at first glance (Freeman, 1999). The most well known of these is Ucinet (Borgatti, 2002), which has been used to produce some of the network diagrams in this paper. These are of value for more inductive approaches to understanding networks. Figure 4 below is a network diagram of the same set of relationships as shown in Figure 2.

Large network diagrams can also get very complex and difficult to "read". Associated with visualisation software there has been a continuing development of mathematical measures of attributes of networks, ranging from the simple and intuitive to quite complex measure, many of which are not obviously relevant to representations of development interventions. These are built into programs such as Ucinet. Some of these are referred to below.

3.3 There is a range of theories about social and other networks

There is a wide range of theories available to inform thinking about changes in networks, and this is very multidisciplinary. At the same time social network analysis is free from dominance by any particular theoretical view as to how networks work. Monge and Contractor (2003) have noted "The field does not have a coherent, overarching framework for integrating conceptual, theoretical and empirical work". While some may see this as a limitation, it is also an opportunity. There is not yet a stifling orthodoxy. In their "Theories of Communication Networks" review Monge and Contractor identified and analysed five major families of theories about networks. Outside of the field of social network analysis there are other important theoretical perspectives on networks, most notably that of Complex Adaptive Systems (CAS), and the mathematics of networks (Barabasi, 2002) which have prompted new forms of investigations into social networks. These theories are a major potential resource for those thinking about how development interventions should or might be working. Unfortunately, few development project plans, cast into Logical Frameworks, make any reference to other theoretical perspectives on how development projects work, or don't. Even a recent DFID funded examination of networks and social capital seems to have limited its references largely to the literature within the development field (Fraser et al, 2003).

Network theories have practical value. In 2002 I was asked to help provide advice and training on how STEPS, a network of NGO networks in Bangladesh could monitor and evaluate its achievements. The method, which was pre-tested in a workshop with network members, made use of Burt's (2000) analysis of the "network structure of social capital". This distinguished two aspects of social capital, as it exists in network form. One is in the form of a dense set of interconnections between network members, which is seen as the basis of trust. The other is in the form of individual members' own particular linkages beyond the network, their means of brokering access to influence or resources between the network and the wider world. Especially those linkages not available to the other members of the same network. The actual linkages existing within and out from the STEPS network was then documented and compared to what might be seen as an ideal set of internal and external linkages, based on Burt's views. Linkages within the network were not very dense, and tended to focus on two members only. All members had their own specific links to external resources (in the form of donors) but fewer had external links that could be used for influencing purposes in their field. More importantly, mutual knowledge about the existence of these links seemed more limited.

3.5 Network can be seen, and analysed, at many scales

Network analysis has been carried out at many different scales (Barabasi, 2002). At the smallest scale, the network structure of the human genome has been subject of research, as have metabolic networks within human cells. On a larger scale, studies have been made of inter-locking directorates and global alliances in corporations, international trade networks and terrorist networks. The network structure of the World Wide Web is a subject of continuing interest.

In contrast the usefulness of the Logical Framework and other linear logic models has been quite circumscribed. In my experience they are rarely used at the country programme or global levels within the same donor agencies that have promoted their use widely for project design and management. Their most common use has been in contractual relationships between a small number of parties likely to be working with each other over a period of years. Logical Framework are supposed to be able to manage increases in scale by the method of nesting, whereby as scale increases a number of Logical Frameworks relating to change on one level are included as subsidiary elements within a large scale Logical Framework. For example, each Output in the largest Logical Framework becomes the Purpose in the subsidiary Logical Framework. However, this practice has not caught on, on any noticeable scale, unlike the spread of the single use of the Logical Framework amongst NGOs. In contrast, multi-level analysis of networks is common. There is even a specific technique known as "block-modelling" which involves the grouping of actors together and treating them as a single larger actor and then examining relations between these larger groupings of actors. This enables the identification of larger clusters of actors, which might not be immediately self-evident.

There are a number of developments that make scalability an important attribute of network representations. As is now well known, in many countries DFID has been scaling up the size of its aid investments and moving from single donor to multi-donor support via SWAPs, Direct Budge Support and other mechanisms. Coordination and aid harmonisation initiatives are high on the agenda. Combined together these increase the complexity of the environment within which aid interventions have to be planned and monitored. There are a multitude of actors whose interactions need to be taken into account. A network perspective is increasingly relevant at this level.

There are also scale related developments within the third (NGO) sector that increase the relevance of a network perspective. Alliances between major northern NGOs, such as the Oxfams, the SCF's the CAREs and World Visions all have varying degrees of semi-autonomous network like structures, with less centralisation of authority than their individual country components have had up to now. More visible are the special purpose international advocacy networks involving large numbers of very diverse groups of NGOs, around issues relating to debt, trade, HIV/AIDs and more. In addition, the funding of network based development projects is also more common than in the past. Thinking about how to evaluate these more network like forms of organisations has yet to catch up with some of their important differences, when compared to traditional hierarchical organisations. Some evaluators are still looking for common objectives around which network performance can be assessed, and criticise their absence (Gregson, 1998). While common objectives are to be expected within a hierarchical organisations, and can be treated as starting point for an evaluation, in networks of semi-autonomous actors the emergence of agreement over objectives can be seen as an achievement,

and worth investigation in itself. Differences in levels of agreement can also be used as the basis for predicting differences in achievements of those objectives.

It has been argued for some time that organisations are embedded in networks of larger social processes, which they influence, and which also influence them (Granovetter, 1985, 1992). Recognising this can help us bridge links between different levels of analyses, relating to different types of organisational entities within development aid: projects, country programmes, and government policies. The common element between individual projects and an aid organisation's country programme (or portfolio) is the partner organisations they are working with. At the project level the single most influential decision, in terms of the likelihood of project success, is the choice of who to work with. Not the specifics of what activities to engage in and when. Unfortunately it is the latter that is the typical focus of Logical Frameworks, because the partner choices are the *context* in which Logical Frameworks are then developed. In the Ha Tinh Poverty Alleviation Programme (HTPAP), in Vietnam[2], the key choices were between working with province level authorities and district or commune level authorities. These effected likelihood's of aid funds being appropriated and the likelihood of local lessons learned being replicated further afield. In the PETRRA rice research funding project in Bangladesh the choice of fund manager has been seen to influence the level of competitiveness in the fund's research allocation process, a key part of the project's theory of change of how rice research could become more poverty focused.

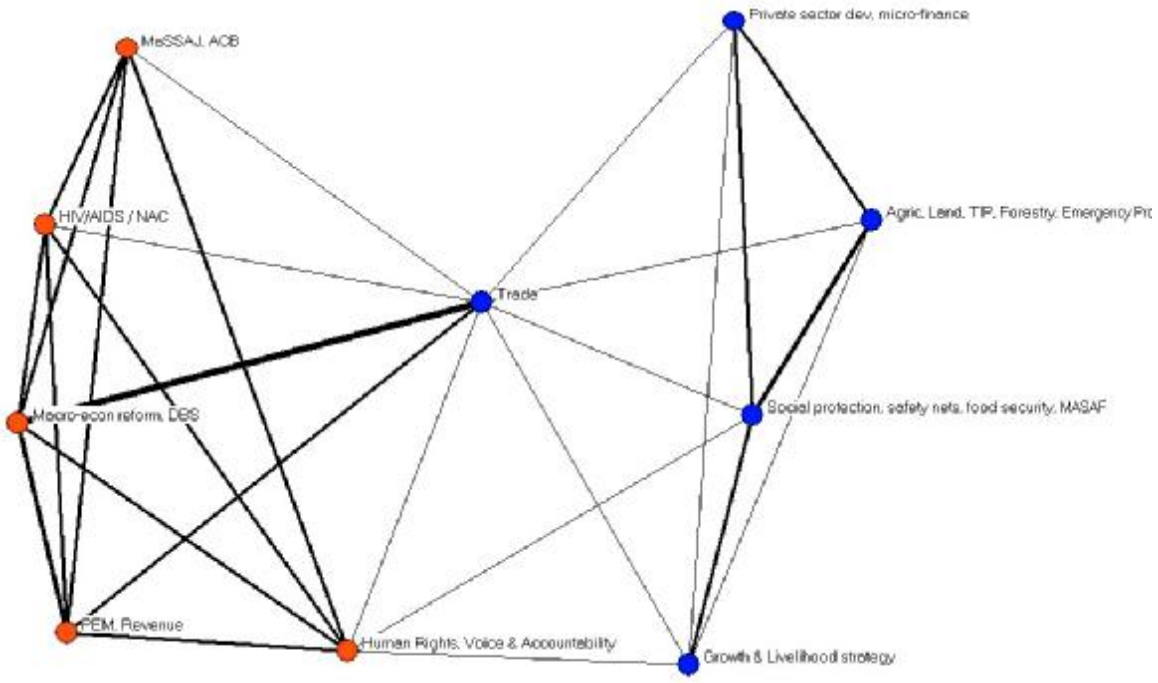
At the country programme level aid agencies have portfolios of investments, which are expected to be guided by country strategy statements in one form or another. Similar to projects, they typically focus on activities, but at this level these relate to policy development and implementation. Although these can only happen through particular partnership relationships these choices are given a lesser emphasis. Yet again, it is these choices that can have the biggest consequences, not the level of sophistication of the policy analysis by country level staff. In Vietnam the decision by DFID to direct all further investments via partnerships with multilateral aid institutions has prompted debate about the extent to which they will be cut off from district and commune level experience of how peoples lives are effected by policies, or not, which would come through maintenance of some funding relationships with NGOs. In Bangladesh a proposal that DFID should fund a single Agricultural Research Initiative has raised questions about the risks of investing in a single solution via one main partner, versus a plurality of partners. In both country programmes there are also questions about appropriate levels of connectivity between different partnerships. In Vietnam there was arguably too little connectivity between the NGO based HTPAP and other parts of the DFID portfolio working through multilaterals. In Bangladesh, one funding component appears to have suffered from too much connectivity between funded partners, lessening diversity of approaches, and the productivity of the investments as a whole.

Within the aid agencies themselves the structuring of relationships between staff is another set of relationship choices with direct consequences for how local projects and national policies relate to each other or not. Structure can link strategies at different levels, or not. In Malawi DFID staff have in the past and like many other organisations, been organised around disciplinary and skill specialisations. These did not readily link to the contents of national policies, such as the Poverty Reduction Strategy (PRS), which DFID wants to support. More recently staff have been re-organised into three sets that each focus on particular objectives of the PRS. Within each set of staff there are up to

[2] See www.mande.co.uk/htpap/hatinh.htm for project description and documentation

five teams of staff which then focus on more specific concerns, and which have responsibilities for specific groups of projects. How those projects (and associated staff) should be grouped is still undecided, but it may be that they will each focus on PRS sub-objectives. An important issue to be resolved is the extent to which the teams should have overlapping membership within each set, and across the sets of teams, and who should take on these bridging memberships. One means of identifying the appropriate link is to identify the specific projects that most closely share the objectives of the two teams. Figure 5 shows the current linkages between staff teams, which are now under revision.

Figure 5: Linkages within and between two sets of staff teams (blue and red) addressing two PRS objectives. Each staff team is responsible for a specific set of projects



3.4 Networks are not linear

A network perspective is inherently a multi-actor perspective. Within social network analysis one of the most basic distinctions made is between one way and two directional linkages. Having multiple participants and two directional linkages means there can be a substantial amount of reciprocal influencing and various forms of feedback via simple and complex webs of connections. Complex Adaptive Systems research has highlighted the effects on the complexity of the behaviour of networks of actors resulting from changes in two simple network parameters: (a) the proportion of links to actors (Kauffman, 1995), (b) the proportion of those links which are local versus distant (Watts, 1999). Varying these generates substantial differences in degree of order, complexity or chaos in the behaviour of the network of actors. In the short term whole networks may seem to move in a relatively linear trajectory of change, from one state to another. But over the longer term complex networks can return to earlier states, with varying frequencies. Recessions in market economies are probably one large-scale example.

Much of the research into factors generating large scale complexity are probably not immediately relevant to the construction and evaluation of relatively simple theories of change in development projects. But what is relevant is that the possibility of complexity and instability is built a network perspective.

It may not be very common knowledge, but there is a network-like perspective on change processes built into an exercise that has been promoted as a necessary pre-cursor to developing a Logical Framework (e.g. Ausaid, 2002; UNDP, 2000; ADB, 20001). This exercise involves the construction of what is called a "problem tree". A central problem is identified, and brainstorming activities then identify all the consequences of this problem. These are linked to the problem, or to other consequences arising form the problem. The focus then turns to the tree "roots" where discussion is focused on identifying all the causes, both directly linked to the problem, and others indirectly liked via other causes. The problem tree, especially the roots section, is then converted into an "objectives tree" by inverting all problem statements into objectives. These are then moved over into the Logical Framework four stages structure, according to their stage in the perceived sequence of change. Examples of problem trees from World Bank and AusAid guidance on the Logical Framework are shown in Figures 6 and 7 below.

There are three problems with the use of problem trees. Firstly, the problem tree is about a network of "problems", rather than a network of people or organisations. They are therefore more abstract, disembodied and difficult to verify. Where are these processes, and whose problems are they? Where there are references to specific people or organisations they may turn up in more than one statement on the problem tree. Secondly, when the contents of the objectives tree version are moved into the Logical Framework all the connecting links, visible in the problem tree diagram are removed. The connections are lost from sight. All we have are lists of activities, lists of outputs, sometimes lists of purposes, and lists of indicators at all levels. And in many cases the lists with each stage of the Logical Framework are not even listed in a temporal sequence. Thirdly, the problem tree is as its name says, a tree. It is a branching structure where causes come together, and consequences radiate out, but there are relatively few loops, normally found in highly connected networks, where cause and effect reinforce each other. In network terms the problem tree is a network with a very low density, or level of inter-connectedness. Problem trees are also typically made up of one-directional links, leading from one problem to another, then to a consequence, and then another. This is another simplification compared to the network representations discussed in this paper, and in social network analysis more generally. Problem trees are too simple to represent the complexity that aid projects have to deal with.

Temel (2001) has pointed that social network analysis can help "bridge the gap between conceptual descriptions of systems and their quantitative descriptions". One of the problems of attempts to use a systems perspective in the past has been the intangibility of the systems, and the boundaries, that are under discussion. When a network diagram is built up out of knowledge about a set of links between actors, each of which has one directional or bi-directional processes of influence we end up with a diagram showing something that could legitimately be called a system. Furthermore, there are techniques within social network analysis for the identification of clusters, showing more internal linkages than external linkages, which is one way of defining system boundaries.

Figure 6: World Bank problem tree example, from web.mit.edu/urbanupgrading/upgrading/issues-tools/tools/problem-tree.html

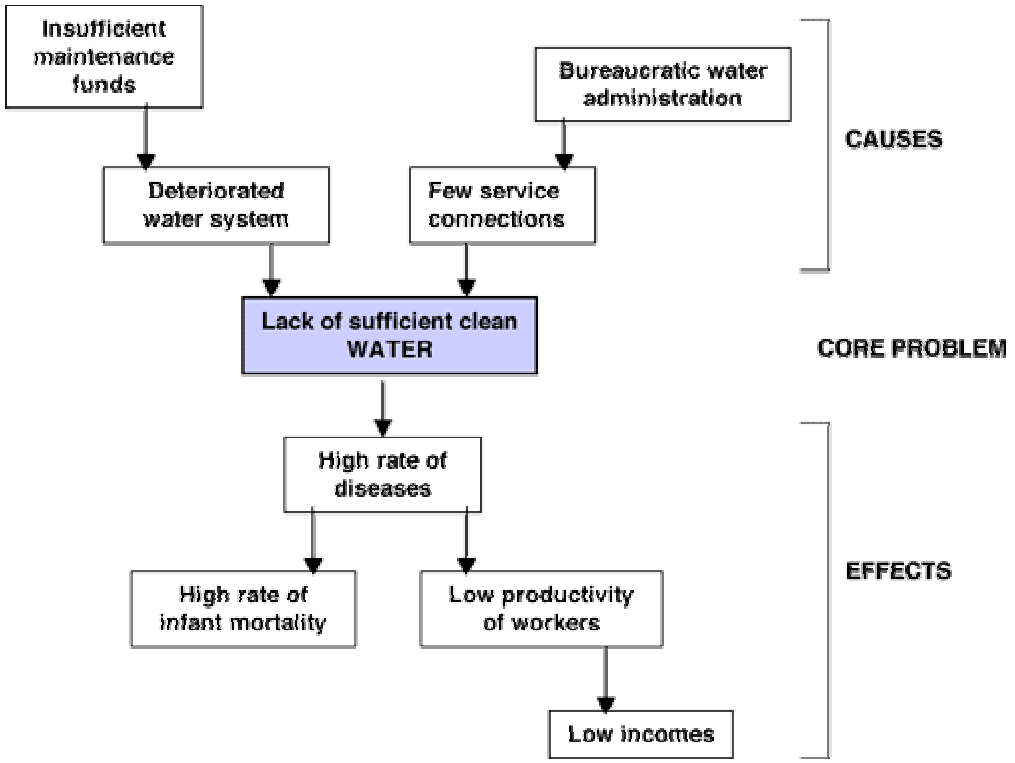
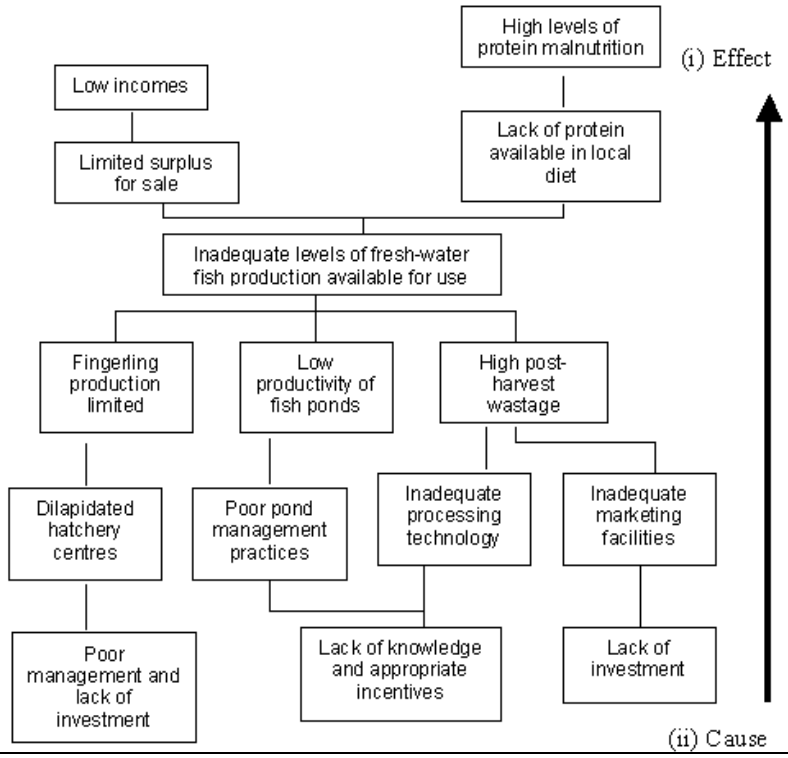


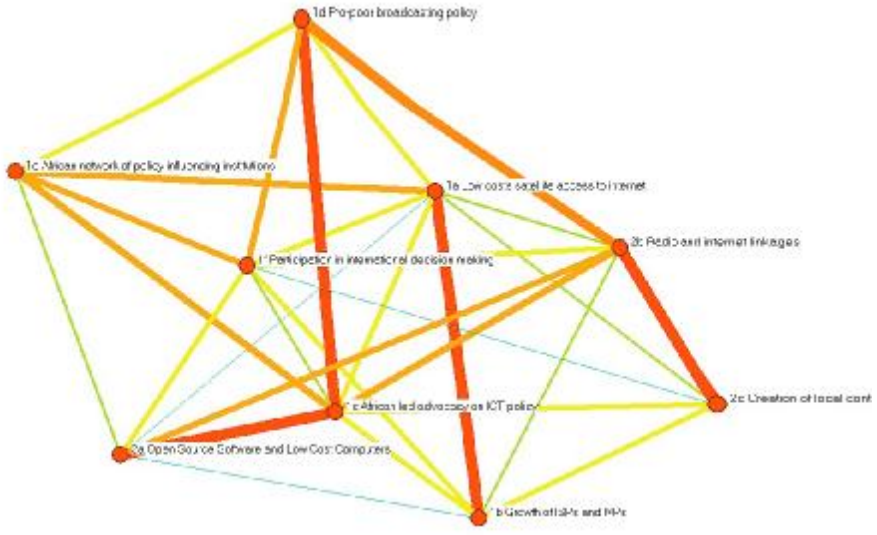
Figure 7: AusAid problem tree example, from www.ausaid.gov.uk/ausguide/ausguidelines/1-annex_1.pdf



In their analysis of the agricultural innovation system in Azerbaijan Temel et al developed a matrix and a graph showing how different actors varied in the extent to which they influenced others, versus were the subject of others influencing. Similar analysis could be developed for many multi-actor development aid settings, using information about each actors' reported linkages with others. While possibly interesting in themselves such diagrams can also generate implications for evaluations of these systems. It could be argued, or hypothesised, that the actors with the most influencing links (minus "being influenced" links) will be the most successful in achieving their objectives within this system, and that their view will dominate the system. Or, it could be argued that simply counting links is too crude, and what matters is the centrality of that actor in the network, as well as the directional nature of their links. Both these arguments can be specified in some detail by relevant network analysis measures ("in-degree","out-degree" and "betweeness centrality").

Another more real-time example may be of interest. In the Africa ICT programme (mentioned above) which covers 32 countries in Africa, there are nine programme components managed by more than 15 different organisations. There are and will be Logical Frameworks covering the responsibilities of each of these organisations.. Provisions are being developed by each component for the monitoring and evaluation of their own activities and their impacts. But what is equally important, if not more so, is the linkages between these components. If there are none then it can hardly be described as a coherent programme or system. At this stage it does appear that there are some dependencies between components and that there are some expected synergies. Initial steps have been taken to get each of the component managers to identify the linkages that should exist, and the net result is that there are probably now more linkages than can be realistically managed by the components (See Figure 8). The next step that will be taken is to ask the programme managers to prioritise their linkages, possibly by identifying those they would be willing to see evaluated by the independent evaluation team. These judgements in turn will be vetted by the overall Programme Managers, responsible for the programme as a whole. The evaluation team will then focus its external evaluation activities on those countries where there are the most cross-linkages between components. It is here where the programme will have invested the most and where we might also expect the greatest achievements by the programme.

Figure 8: Linkages between ICT programme components – as initially identified but not yet prioritised. [Thick red lines = strongest links, thin green = weakest]



4. Where to next?

4.1 Developing an alternative approach

In this paper reference has been made to Logical Frameworks, Stakeholder Analysis and Problem Trees, both their intentions and limitations. One of the questions yet to be explored is to what extent a network perspective can be developed into a coherent approach that addresses the purposes of these tools mentioned above, but which also extends our expectations of how development aid interventions should be represented and analysed.

There are three ways in which this might be done. The first is implicit in the discussion throughout this paper. That is to give much more emphasis on ecological relationships and less on temporal relationships. The Logical Framework is structured around a process that is taking place over time. The relationships between activities, or outputs, at any level of the hierarchy are effectively neglected, and the identity of who is involved is often obscured by the expected writing style. In the network perspective the focus is on identifiable actors and the structure of the relationships between them.

The abandonment of a stage-based representation might seem problematic to some. How else will degrees of achievement be assessed, if there are not different levels of progress defined in hierarchical terms such as outputs, purpose and goal? There are however other ways of hierarchically ordering expected achievements. One is very straightforward and already widely used. That is the use of milestones to describe specific changes that are expected by a specific point in time. This could also apply to expected changes in relationships. The other is to rank order expected changes in networks of relationships in terms of how local versus global the effects of those changes are expected to be. In development aid interventions there has been a continuing concern with achieving change not only locally, but also nationally, not only nationally but also regionally and globally.

The second way forward is to bring the analysis of what is problematic back into view, alongside what is planned, and what is actually achieved. This is especially relevant where a development project is trying to generate knowledge about how to achieve significant impacts, versus simply delivering them (or at least the outputs) like a contractor with a focus on the bottom line only. With most uses of the Logical Framework the prior analysis developed via the use of Problem Trees and the like (if used at all) drops out of sight as soon as the Logical Framework has been approved. All that remains of the theory of change is the hard-to-read story line connecting narrative and assumptions columns. And because the assumptions column is often labelled “Assumptions and Risks” these become conflated. The column often becomes a rubbish bin for all the hard bits the project cant manage or does not want to manage. The story line gets lost. The focus then moves to the “horizontal logic”: are the indicators appropriate to the narrative statement and were they achieved? Myopia rather than Utopia.

If analysis of what is problematic is brought back into the picture then evaluators would need to make two comparisons: (a) between the analysis and the plan, and (b) between the plan and what is achieved. This might help distinguish between failures caused by poor implementation versus failures with more structural causes, in the form of faulty analyses. These are not very distinguishable via the use of the Logical Framework.

Thirdly, and perhaps most radically, a network perspective suggests a different view of project objectives. What we have in many settings are *networks of objectives*, some of which may be more and less consistent with others. Even in a tightly controlled hierarchy agreement over objectives cannot be taken as a given. Even more so when we are looking at networks of organisations across and within the public sector, private sector and third sector. As most of us already recognise, to get anywhere key actors in a network need to be enrolled into an agreed understanding of what is problematic and what should be done. In effect, a strategy has to be grown, and this process is a continuing one, not just confined to a "design stage". In this context agreement over objectives can therefore be seen as an achievement, and this should be the initial focus of monitoring and evaluation efforts. Next, we might expect that the more agreement there is over an objective, relative to others, the more likely that there will be success in achieving this objective. This view can be tested. Finally, in many network settings information about the impact of activities undertaken by other actors cannot be commanded. What we can do instead is examine the availability of particular types of information as a *symptom* of the relationships between actors, and their views of what the priority objectives are.

To be continued….

4.2 Common Interest Networks

This is also a work in progress…. People are connected by ideas and concerns, as well as events and organisations. Uncovering those linkages may enable people to pursue those concerns more effectively, through their links with those with shared concerns.

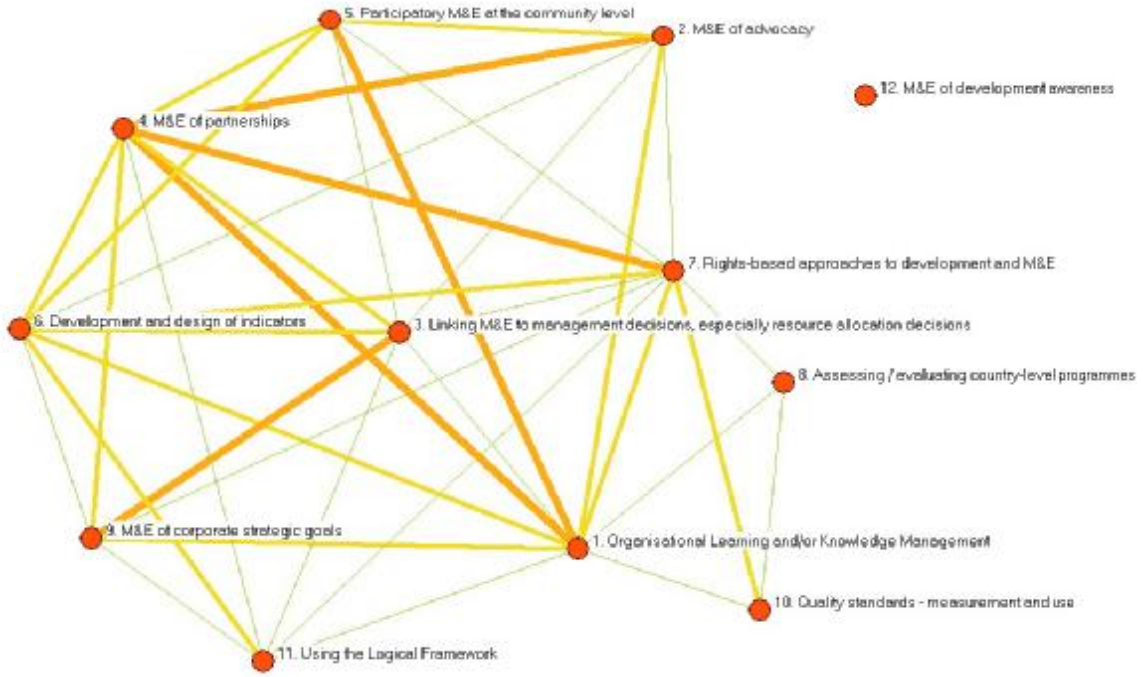
In June 2003 the participants at a REMAPP meeting in London brainstormed a list of topics related to their individual interests in the general topic (Monitoring and Evaluation practice within UK NGOs). . This list was then circulated by email to all the list members, approximately 80 in all, with a request that they each identify the topics that interested them most, with a 0 to 3 rating. Their responses were then collated in a spreadsheet and used to generate two network diagrams, all of which were circulated to the respondents. One diagram showed who was most closely linked to whom, in terms of shared interests, and the other showed which topics were most closely linked to which, by being of concern to the same people. The diagram showing topic linkages is shown below, in Figure 9.

The most central[3] topic was chosen to be the focus on the next meeting ("organisational learning"). At the end of that meeting members then brainstormed a second list of topics within the area of organisational learning. A brief email questionnaire has since been sent out to all REMAPP members asking them which two of the eight brainstormed topics they are most interested in. The analysis of their responses will be fed back to members, and may be used as the basis for planning the next meeting. Or it may be decided to move the focus back out to the second most central topic identified in the first round. There is some similarity of this iterated process to that used in the Delphi technique[4], which seeks to develop a consensus forecasts or conclusions of some kind, from a nominal group of experts, often in different locations. The difference is there is no

[3] Organisational learning, and rights based approaches both had the highest "closeness" score, one measure of centrality in a network.
[4] www.nursing-standard.co.uk/archives/vol13-45/v13w45p3236.pdf

intention or pressure per se on achieving a consensus, and the nature of the connections between participants' views are transparent to all participants. It is also much quicker, because of the difference in purpose.

Figure 9: Relationships between topics of interest in the REMAPP group.



An invitation to the Conference participants

1. A form will be circulated to those in the session receiving this paper. Participants are invited to list down two items of information
    - A question they have relating to network perspectives on the evaluation of development aid interventions (the contents of this paper)
    - Their email address

2. This information will be collated and converted into a very simple questionnaire sent to all those on the list, asking them to:
    - Identify the two questions on the collated list of questions they are most interested in. This may or may not include the question they posed on the form they completed

3. The responses will be collated and summarised into two forms
    - A spreadsheet (matrix, showing who is linked to whom, by shared questions
    - Two network diagrams, showing linkages between participants, and linkages between questions

4. This information will be returned to the participants, but not to anyone else.

5. Epilogue: This paper within the wider network

It would be ironic in the extreme if this paper on networks did not itself acknowledge the networks of influences on its contents. My thinking here has been influenced by three related bodies of theory and research. One is evolutionary epistemology and its relevance to organisational learning, as spelled out in my thesis on the same subject (Davies, 1998). Another is a continuing interest in complex adaptive systems (CAS) research and its potential applications (Kauffman, 1995; Axlerod and Cohen, 1999). The third is the huge field of social network analysis (Monge and Contractor, 2003), and related studies into the structure of other forms of networks (Barabasi, 2002), including the World Wide Web. On the side of practical applications this paper makes use of experiences from monitoring and evaluation consultancy work in Vietnam, Bangladesh, Malawi and Ghana, most recently. Associated with the development of this paper is a new, but still small section on Monitoring and Evaluation NEWS at www.mande.co.uk dedicated to the evaluation of networks and network perspectives on evaluation.

This paper also has a history. It has developed out of a paper given at the 2002 European Evaluation Society Conference in Seville, on representing theories of change and subsequent shorter papers on partnerships and networks given at the INTRAC conference in early 2003 and more recently a PARC seminar.

Bibliography

ADB (2001) Untitled document on Logical Framework analysis. See www.adb.org/Documents/Guidelines/Logical_Framework/prelims.pdf

AusAid (2002) AusGUIDELINES: The Logical Framework Approach. At http://www.ausaid.gov.au/ausguide/ausguidelines/1.cfm

Barabasi, A-L. (2002) Linked: *The New Science Of Networks.* Perseus Publishing. Cambridge, Mass.

Biggs, S., Matsaert, H. (1998) An Actor-oriented Approach for Strengthening Research and Development Capabilities in Natural Resource Systems. *Public Administration and Development*, Vol. 19, 231-262.

Borgatti, S.P. (2002) Everett, M.G., Freeman, L.C. *Ucinet 6 for Windows: Software for Social Network Analysis*. Harvard Analytic Technologies. See http://www.analytictech.com/downloaduc6.htm

Burt, R.S. (2000) "The Network Structure of Social Capital" in *Research in Organisational Behavior*, Volume 22, edited by Sutton, R.I, and Staw, B.M. JAI Press. Greenwich, CT.

Fraser, Thirkell, Mckay, (2003) *Tapping into Existing Social Capital: Rich Connections, Poor Connections*. DFID & Social Development Direct. UK

Freeman, L.C. (1999) Visualizing Social Networks. *Journal of Social Structure*. See http://zeeb.library.cmu.edu:7850/JoSS/article.html

Gregson, K. (1998) *Evaluation of Community Networks*. See http://www.asis.org/Conferences/MY98/Gregson.htm

Kaufmann, S. (1995) *At Home In The Universe: The Search For Laws Of Complexity*. Penguin. London.

Scott, J. (2002) *Social Network Analysis: A Handbook*. Sage. London

Temel, T (2001) *Systems Analysis by Graph Theoretical Techniques: Assessment of the Agricultural Innovation System of Azerbaijan*. International Service for National Agricultural Research, The Hague, The Netherlands

Temel, T., Janssen, W., Karimov, F. (2001) *The Agricultural Innovation System of Azerbaijan: Functions, Linkages, and Constraints.* International Service for National Agricultural Research, The Hague, The Netherlands

UNDP (2000) Capacity Building Workshop for Dryland Management. May 3-5 2000 Beirut, Lebanon. *Logical Framework Analysis*. UNDP Office to Combat Desertification and Drought. New York See www.undp.org/seed/unso/capacity/documents/lfa.pdf

Watts, D. (1999) *Small Worlds: The Dynamics of Networks between Order and Randomness.* Princeton University Press.

World Bank (2001) *Problem Tree Analysis Tool* web.mit.edu/urbanupgrading/upgrading/issues-tools/tools/problem-tree.html