WORKSHOP ON COMMUNITY & URBAN RENEWAL
& COMPLEXITY THEORY

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An Introduction to Complexity Principles

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What is complexity in social systems?

Complexity in social systems is about the relationships that arise from the way human beings interact with each other. We are familiar with thinking about the world in terms of the objects in it, but in order to understand how communities work we need to shift our focus to look at and understand how relationships evolve between people.

Social systems of one kind or another are complex systems that may have cultural, technical, political, economic and other dimensions. We cannot simply consider any of the dimensions in isolation, so we need to look at how they interact and influence each other and be aware that things happen at different scales. However in complexity theory the same principles can be applied to both the interactions between two individuals, a number of people in a team or a department or an entire organisation. We can talk about what happens in an industry or even the world economy. In this respect the principles that apply are scale invariant since they apply at all levels. If we are talking about self organisation or co-evolution it may be between two individuals or two industries or two economies. The principles we can apply are the same.

In human complex systems all the dimensions interact and influence each other in a non linear fashion and the systems can be described as having four main characteristics: connectivity, interdependence, self organization and

emergence. The relationships that we build create intricate interdependences. If interaction changes something in one part of a community the effects it may have in other parts may not be seen as obviously related. This is a symptom both of non-linearity and intricate interdependence. New properties arise from the interconnections and interactions that are not expected and are not necessarily predictable. One of the ways of describing this effect is that the whole is more than the sum of the parts. What happens in a system is also very much dependent on positive or negative feedback; a kind of 'snowballing' effect of the interaction.

The four characteristics that I've mentioned are not necessarily new and we are already familiar with them in systems theory, but complexity theory brings to our thinking other concepts that help us to understand why human systems behave and relate to each other in the way that they do. These concepts are very powerful and we can work with them, but what often happens is that by not understanding the way complex social systems work we constrain them by using inappropriate models. Often people say that they want their organization or community to be innovative, but then they completely block all self organization by strict rules and regulations because they have not taken the important characteristics of complexity into account. When people do become aware change can be very rapid. We have seen organizations completely change their structure, their culture and their ways of relating over a three year period. It is worth looking at some of the characteristics in detail.

Self-organization is very interesting. Very often people think that it is the same as self-management, but if I choose three people, tell them what to do and let them get on with it that is not true self-organization because there is external direction. True self-organization occurs when a group sees something that needs to be done and decides how to do it, when to do it and then gets on and does it. You have probably all had something like that happen in your communities and it is one of the most powerful ways in which regeneration takes place. How self-organization can be facilitated should be a key question. We should ask what the right conditions might be for people operating at a local level for this to occur. How can such people be supported without overt 'top-down' control? This represents a complete shift away from 'command and control' management to facilitating self-organizing emergent behaviour. It is not however a case of letting go the reins completely.

As different individuals relate so they influence each other. We can think of how conversation goes. We start off with certain ideas and as we proceed so those ideas change, and as our ideas change, so at the same time, we influence the ideas of others. If this also leads to a change in behaviour then we have co-evolved, but there's a distinction to be made between that and evolution per se. In reality, even in biology, there is no such thing as evolution in isolation. Evolution occurs as part of a greater whole and when we talk about change in a social ecosystem we are talking about social evolution, where everything that changes, in some way influences the whole system. I prefer to call these complex co-evolving systems. You may hear them called complex adaptive systems, but this is not a very accurate description because it implies that the change is one

way and that it is only the system that changes in response to the environment. In the case of social evolution the environment changes as well as the individual or the community.

As result of interaction new properties or qualities arise in a system. These cannot be predicted and are called emergent properties. The properties that emerge are constrained because we all have a history which strongly influences what we do and how we do it. This leads to another characteristic of human complex systems; as our ideas change so we 'explore the space of possibilities'. When we want to do something or have an objective and are faced by a difficult constraint we will probably try to find a different way of doing things and explore the alternatives. If we went on doing the same things and did not know how to change we would not last very long. Human beings are very good at co-evolving with their environment; using this kind of exploration and finding solutions. The difference between such complex systems and those that are merely complicated is that complicated systems do not create 'new order'.

Discussion
One of the inhibitors of change is when people repeat patterns of behaviour instead of exploring the space of possibilities. Eve called this 'positive feedback lock in'. Where patterns of behaviour are reinforced it becomes very difficult to break a habitual or knee jerk response. It may take more than a small intervention to push the system from habitual patterns of behaviour to a 'far from equilibrium' position. Such a position will involve instability and a sense of uncertainty in that people may not be fully aware of the kind of change they are going through. It should not however be a move to complete chaos but one in which the restructuring provides facilities for new and more fruitful connections. Many organizations do not facilitate the re-establishment of new connectivities that need to be in place in order to build up new structures. That is why we often see a knee jerk reaction to go back to what is familiar.

Falmouth, Cornwall: the BEACON Project

ROBIN DURIE and KATRINA WYATT
This presentation was to be given by Hazel Stutely O.B.E., R.G.N., and R.H.V. who was unfortunately unwell. Hazel did so much between 1990-2000 as a full time health visitor working with a critically deprived area in Falmouth. She co-founded the Beacon project and in April 2000 was appointed a member of the Prevention and Inequalities Modernisation Team to develop the NHS plan. Later she was seconded to the development phase of the Healthy Communities Collaborative and working back in her native Cornwall Hazel held a post as a

Community Development Manager before moving in 2003 to become a Research Fellow at the Institute of Health and Social Care, Peninsula Medical School, Exeter University. She was awarded an O.B.E. for services to the Community in Falmouth. Hazel's presentation was given by Robin Durie who is a Senior Research Fellow of the Health Complexity group at the Peninsula Medical School, assisted by Katrina Wyatt who is one of the founding members of the Health Complexity Group and her area of research is to understand the enablers and barriers to transformational change with particular reference to regeneration in West Cornwall.

Introduction

The Health Complexity Group was founded to understand processes of change in health and social care in communities in Cornwall during the process of regeneration. The goal of the project was to understand how conditions could be created that allow self-organization to occur. The BEACON project which was Health Visitor led, demonstrates how the health professionals' position of trust and credibility within the community was harnessed to achieve change which reversed health and social decline. A series of interviews and focus groups try to understand what brought about the changes.

Background

In 1995 Penwerris, with a population of 6000 in 1500 homes, was one of the most deprived wards in Cornwall. The 1996 Bristol University Report into deprivation found that this ward had the largest percentage of children in households with no wage earners and second highest number of one-parent families. It had the highest proportion of poor households in the county with more than 30% of the households living well below the national average. Unemployment rates on the estates were 30% above national average and of 23 child protection registrations in the council district of Carrick, 19 were in this area. One of the key sources of the decline of the community stemmed from the state of the housing which in 1995 was extremely poor indeed. More than 50% of the 1500 homes in the estates were without central heating. Drug dealing and crime had become endemic.

Symptoms of decline

These quantitative measures indicated the declining standards, but what the group wanted to do was to understand what it was like for people who lived on the estate both from the residents and from agencies that were concerned. From some initial hypotheses as to why the estate declined, feedback loops were identified and work was done to find out what these iterative cycles of behaviour actually were. Using one-to-one interviews with key stakeholders, focus groups and tenants meetings, it was found that the key event precipitating a cycle of decline in the community was the shrinking of work on the docks. The estates had originally been built for employees at the Falmouth docks, but in the late 70s and during the 80s there was significant decline in shipment of goods for heavy industry and these estates were badly hit. The increasing unemployment was accompanied by a widespread feeling of hopelessness amongst the residents and these two factors led to residents feeling isolated and abandoned by the statutory agencies. Residents talked of being fobbed off or not being listened to

at all. This resulted in a marked deterioration of relations within the communities involved and the estates became 'no go' areas. The gradual abandonment by the agencies led to a similar estrangement patterning within the community. This 'double movement' was repeated in a positive way when regeneration took place. In the regeneration process there were connections made within the community paralleled by connections made with the statutory agencies. . We can see this as the formation of new relations by co-evolutionary process.

In describing the gradual decline many people talked about becoming 'separated'. They began to feel as if they no longer belonged to the community and we characterised this as a process of fragmentation. This seemed to be a common response. If people saw a neighbour's property being damaged or witnessed a crime people turned a 'blind eye'. They were simply glad that it hadn't happened to them or their children. There was no concern about what was being endured by other people and the feeling of estrangement was aptly captured when one woman observed that as they were 'seen to be like pigs they might as well behave like pigs'. That gives you some idea of how the decline actually manifested itself to the people who were living through it and of the kind of feedback that perpetuated it.

The process of regeneration
Our interest was in the kind of conditions that enabled regenerative transformation to occur. We were asking what changed and how regeneration was able to begin. Eve has talked about shifting the equilibrium of behaviour to a position which is 'far from equilibrium'. We believe it involves a transition point and in all of the research that we've done we feel it is a necessary condition of the transformation. It involves recognition that what is happening cannot go on. Without that happening transformation will not occur and we think some stakeholders in 1995 made comments which were indicative of a transition point: either things were going to start to get dramatically worse or they had to get better. It was almost as if the decline had been progressing arithmetically and if it went any further there would be a geometrical expansion. The marvellous thing that happened was that the cycle of decline was interrupted and I want to spend a few moments explaining how we think that happened and what the key factors were.

The role of the health visitor
We think the two key characters in the transformation were the two health visitors one of which was Hazel Stuteley. The most significant thing about the role of the health visitors was the position that they occupied in relation to the dynamics of the community change. On one hand they occupied a more or less traditional position of authority as health care professionals. In this respect they located outside the community, but in addition to this they had a number of very powerful responsibilities stemming from the powers invested in them for child protection, such as being able to take children away from their parents. Their responsibilities took them into people's homes and they were often invited into

people's homes. This is somewhat different from the way the police discharge their statutory responsibilities. They enter homes for the most part uninvited, so there is a significant difference between the ways in which the two services operate and it was a different relationship in terms of power. Health visitors thus occupied a position which was both inside and outside the community. Furthermore, they were invited into people's homes so they were able to experience the terrible condition of the housing stock on the estates. In particular the houses were damp and cold. Hazel speaks of people going to bed fully dressed and wearing overcoats because they were unable to heat their homes effectively. There were even people who didn't get out of bed during the day because once warm in bed they didn't want to run the risk of getting cold by getting out again. These were often mothers of children and the impact on the children was devastating and went some way towards explaining the very low educational attainment in the ward.

Reaching the tipping point

The other side of the health visitor's situation which seems deeply relevant had to do with the impact that the work had on their overall caseload. Although the estates only amounted to one third of their caseload it turned out that they were actually devoting some 95% of their time to problems which arose on the estates. So the two health visitors had reached a point at which it had become impossible to deliver their statutory responsibilities, because the decline of the estate was having such a detrimental effect on the health of the residents. The health visitors talked of being almost paralysed by the depth and intractability of the problems in the community and that a situation had been reached in which they felt they had to do something different.

The desperation was further exacerbated because as health visitors they always turned up and tried to solve the problems and having built up a trust they found it harder and harder to say no. So the sense of being both trusted and relied upon became almost overwhelming. A crucial event occurred when the two health visitors locked their doors and said we cannot go on like this. They felt that they could not fulfil their responsibilities to the community, and at the same time, they felt that other agencies must be experiencing similar problems. What they decided to do was to bring together as many different agencies as possible, from health and education, social services, local government and the police, to find out if they were encountering similar problems and to see if there was any way they could collaborate. At the same time they were acutely aware that people in the community felt isolated from other statutory agencies and they didn't trust them. The second important element in the process was that they identified 20 key tenants who they thought would have the necessary skills to engage their peers in the community and they invited these people to work in partnership with the statutory agencies. Of these 5 agreed to participate.

Complex dynamics

Applying complexity principles to the reasons for change we propose that there were two fundamental aspects to these events: the formation of new relations

amongst the statutory agencies and the trust that had grown up between the health visitors. There is a tendency to talk in complexity theory terms about multiplying relations as if these are enough in themselves, but it was the qualitative nature of the relations that was particularly significant. The new relationships that were being formed were qualitatively different to the extent that the community was being involved from the start and its agents were being treated as equal partners. Moreover the same problems were manifesting themselves in different ways: to the agencies that were struggling to fulfil their statutory responsibilities and to the agents of the community who were struggling to identify the problems and find answers. There was a realisation of co-dependency which changed the qualitative nature of the relations between the agencies and the community; it was sharing of a sense of the problem and the trust that had been established between the health visitors and the community.

Catalysis

There was also a significant shift in the role of the professional advisers initiated by Mike Owen, then a senior officer for housing and now chief executive of Carrick Housing. There were huge housing issues. A partnership was formed between the community and the statutory agencies such as Housing and Health and the Police which enabled people to bid for and get £2.2 million for housing. It would have been very easy for Carrick Council to manage the project without taking into account the views of the residents, but Mike, with great prescience (and possibly great risk to his career), said that the community would determine how the £2.2 million was going to be spent. He had both the seniority to push through the decisions that the community made and was also senior enough in the eyes of the residents to be taken seriously.

Bottom up process

It is important to think of this 'bottom up' process in terms of complexity principles. People tend to think that regeneration can only happen in a 'top-down' manner, but such renewal requires both a top-down and bottom-up process which proceeds in an iterative fashion. The community devised a process which was utterly transparent and used the energy ratings of houses as the basis for spending the money on renovation. The process was clear from the start and the community was signed up to it because at every stage people knew where they stood in relation to the process. The principle of transparency and the fact that a senior officer had made himself vulnerable was of the utmost significance.

The fact that some individuals concerned had reached a point of not being able to cope and they and others were prepared to come out of role to allow a shift in the power structure in complexity terms, represented a move towards instability which enabled the transformation to take place. In such processes of change it seems necessary that people reach a state of desperation and feel vulnerable. It is important not to see this kind of vulnerability as a weakness, but as involving a sort of power. In the hospital work that we do in health care communities, time and again we find that change begins when chief executives

make themselves vulnerable by walking round wards and talking to patients and dealing with complaints, not in their formal role as an executive, but on a person to person basis. As a chief executive you might say that you can tolerate 5% of people dying, but when you have close contact with the person or relatives concerned you immediately become vulnerable. This has a number of positive consequences. People recognise the strength and courage in that kind of exposure and it forms a better alliance. Once the chief executive is prepared to be vulnerable and prepared to be seen so then other individuals in an organisation are more prepared to take responsibility for their own decisions. People begin to ask what they can do to help their organization. It is a shift in responsibility and an acknowledgement of the role the individual plays within the greater whole. Summing up in terms of complexity thinking; we have described a shift to a far from equilibrium position involving three significant contributory factors: the experiencing of a shift to vulnerability, the dual inside/outside position of the health visitors and the process of forming new qualitative relations.

The sequence of events that took place was that the five residents, who were both vulnerable and brave in a community where nobody would talk to anyone else and there was significant crime and violence, knocked on people's doors and had face-to-face conversations to find out specific problems and canvassed what people would like to see happen in the future. It was these conversations that began the process of breaking down the indifference and feelings of isolation and abandonment. The process of forming new relations extended the basis of trust because it was carried out by fellow residents and reinforced by the health visitors who connected residents that had problems with the appropriate agencies. The process of actively finding out about problems seen in complexity terms, is one of co-evolution because the interactions between the people concerned allowed the emergence of new ways of thinking about the problems.

Exploring the possibilities
There is a great tendency to think of problem solving in a very linear fashion -problems are identified as merely the precursors of solutions of which we are already aware. So the culture surrounding problem identification is essentially negative. Actually redefining problems can be the most important and creative aspect of community regeneration. Before the start of the project people who had problems were often ignored by the statutory authorities and the continual ignoring of problems was a contributory factor in the decline whereas the way in which problems were subsequently discovered or emerged involved an exploration of the 'space of possibilities'. Problem exploration created what Mike Owen called 'adjacent possibles'. The solution may involve a redefinition of the problem and it may simply require a new set of relations to be constructed. This kind of problem discovery was the real motor for regeneration and the question people are now asking is, 'How do we sustain the process?' My own feeling is that the only way in which to sustain people is to continue to ask what the problems are and to explore different ways of responding to them. There are

never just standard answers to the sort of problems that emerge through these kinds of interactions.

Emergence
The Beacon partnership was made up of tenants and residents associations from the estates and representatives from the Council, Health, Education and the Police. It was agreed from the outset that the partnership would be led by the residents who would always constitute the majority. There was clearly a risk in the agencies handing over responsibility to the community, but the investment of responsibility had a dramatic effect on the regeneration process. It reinforced the process of building trust and the reconfiguration of relations redefined the power-sharing. Before regeneration members of the community didn't know who to talk to, but now they work with each and the services to solve the problems. The police no longer see the community as a crime problem and talk about how they can help with the problems that tenants are having.

Health Outcomes 1995-1999
Some of the results of the regeneration of the Falmouth estates are seen in the following statistics:

Cases of postnatal depression came down by 70%
Number of children on child protection register down 60%
Overall crime rate came down by 50%
Childhood accident rate came down by 50%
Resident's fuel bills were cut by £180,306 p.a.
Unemployment came down by 71%
Central heating and energy conservation measures to over 900 properties
Educational attainment: 10 and 11-year-old boy is S.A.T.S improved 100%, girls
        25%
Teenage pregnancy reduced to zero in 2003/4

Discussion

In complexity terms the co-creation of new relations led to new order. The process of self-organisation, emergence and co-evolution resulted in something new being created though it had to be helped and the result was a wonderful bottom up/top down process. Robin thought it was important that partnerships were transient according to the needs of particular problems and this avoided the kind of habitual knee jerk reactions seen in the past. 'Walkabouts' by the representatives of the different agencies enabled an exploration of the space of possibilities when problems were investigated. Although it is now fashionable to use the term 'challenges' instead of 'problems', Robin thought there was a certain purchase value in using the word, though he not particularly wedded to it. A 'problem' represents a constraint or something to be resolved and if it is part of the language of the people on the estate it should be initially seen as such,

even if subsequently redefined.

As far as desirability to live on the estates is concerned it has gone from 'anything but' to being a first choice. Gardens that used to be rubbish dumps are now cared for, as are the houses. As the figures above show; teenage pregnancies represented a lifestyle choice that girls viewed as an opportunity for them to have someone to care about them, were in fact reduced to zero. SATS results for 10 and 11-year-old boys improved by 100% over the five-year period. This was significantly greater than the improvement for the girls because boys are apparently more profoundly affected by the condition of their mothers than girls are. The average energy rating (SAP) on a new house is around 80% and there was an attempt to bring as many of the houses as possible up to at least 60%. Other service departments handled issues such as traffic-calming and landscaping, but in some ways the most significant outcome was the reduced fear of crime because the cycle of estrangement and the feeling of isolation was exacerbated by the perception of crime.

Some concern was voiced about the implication that people had to get 'down in the gutter' in order for change to take place and it was wondered whether the point at which people felt the situation was intolerable could be raised. This would involve a change in perception and in the so-called Peckham Experiment of the 1930s, 40s and 50s there was a conscious move towards studying health rather than sickness. It was felt that what tends to happen now is not a study of a healthy community to see what makes it healthy, but merely to intervene in communities that have become deprived and marginalized. It was a question of how to create the conditions which enabled people to experience positive change without the situation becoming desperate.

It is important to recognize the difference between trying to control or manage a process of change and creating the conditions in which change can occur. It is a case of getting to the point at which people recognise the need for change and the co-creation of enabling conditions including the physical environment, personal skills and seeing people's ambitions as assets. There may be a need for a catalyst in the shape of a person entering the situation from the outside with certain skills and personal connections. That person may actually facilitate the tipping point.

Improving the Relations between the Residents of Camborne and the Statutory Authorities.

David Aynsley, Wendy Randle, Paul Friday and Debbie Honey.

David Aynsley has served as a police officer in Cornwall for 15 years in a variety of towns and is at present a Neighbourhood Sergeant in Camborne. Since qualifying as a police trainer in 1994 he has been continuously engaged in academic studies in education and training and will undertake a PhD at Plymouth University in the near future.

My work on community deprivation and transforming violent behaviour stems directly from Hazel Stutely's course called 'Connecting the Community'. A police officer traditionally has a unique power and authority derived from the Crown. The primary objective is the preservation of life along with the protection of property, maintaining the highways and keeping the Queen's peace. These rules still apply and it is therefore perfectly legitimate for a police officer to make interventions calculated to achieve positive public health outcomes. I believe that 'integrating with people' is a more sophisticated approach to community relations because it emphasises the connection between local police and local people and engenders police learning and knowledge of residents.

Camborne town has 22,000 inhabitants and three wards. Every one of those wards is like the Falmouth estate in terms of deprivation. 4000 people living there are under the age of 16. I grew up on Royal Air Force housing estates, but anywhere my family were posted I knew there would always be a playground, a Medical Centre and sports provision in the form of youth clubs. There are estates in Camborne with over 200 houses that do not even have grass for children to play on. In my view you cannot blame people for behaving antisocially if there is no social provision for them and you cannot blame young children for playing on roads if there is nowhere else for them to go.

Other statistics also paint a picture of deprivation. In one estate 46% of the 16- 74 year-old population does not have any formal qualifications and there is a huge literacy problem. 34% of households do not have access to a car and 19% of the residents have a long-term limiting illness. Before the turn-of-the-century, half of the steam engines in the world were pumping water out of tin mines in Camborne which had the richest per capita output in the country. The great tragedy is that Camborne is very close to Falmouth where Mike Owen did such fantastic work, but in Kerrier, the adjoining District council no one seems to have learnt from it. The government have put millions of pounds into the area, but the people that need the money most are not able to stand up and beg for funding and regeneration. It is up to the Camborne Neighbourhood Team and other activists and voluntary workers to try to get things going. The team comprises 4 police officers and 5 Police Community Support Officers (PCSOs) and is funded by the Neighbourhood Renewal Fund (NRF) which demands that they work in a health/well being and education context. Informal partnerships have now been developed with Community Nurses and School Nurses to deal with health and well-being problems including those related to alcohol and sexual health. The partnership also assists with disorder and other crimes committed.

Wendy Randle is an activist engaged in the Healthy Living Initiative which is particularly active in the promotion of Street Games.

I work for the Healthy Living Initiative which has been set up by the Department of Health and Sport in England to find out what encourages people to take up some form of physical recreation. The reason that I became involved with Camborne was that the initiative was aimed at 13 to 16-year-olds and there were very few places in the town where there was provision for this age group. The project initially involved one day a week for three weeks, in which the team instigated fun activities which may have been as simple as chasing a policeman around. After this the residents association got in touch with the team to say that they wanted to have a football tournament which involved three training sessions to build up some skills. This in turn led to everybody taking part in the football and people asking the team when they were coming back. The result was that every Tuesday there was a football match. It didn't focus too hard on the rules of the game, but it did get people to join in briefly even if they drifted off after a while. As the instigators, the team were all committed to carrying on even in bad weather and because there was friction between two of the estates it initially involved playing alternatively on each one, but eventually people joined in from both and are now starting to organise themselves. Under the countywide initiative called Street Games there are now all kinds of other activities available and I believe that physical activity is one of the best ways of getting people out of their homes.

Paul Friday is a police officer with the Camborne Neighbourhood Police Team. He has been on training courses to supports the regeneration initiative and was given a community sports leadership award.

I'm a police officer working with David Aynsley. My first four years in Camborne were spent as a response officer, which meant that I went to incidents on the estates and assumed a traditional police role. I joined David's team 12 months ago and have been assisting in the regeneration of the community. Through my training which led community sports leadership award I and Wendy take groups for football and triathlon coaching. It's more fun than serious training, but its main purpose is to get kids on the field. They usually just run round for half an hour and at the end of it shake my hand and say thanks, but I do feel that being able to work with the children and listen to people's views and possibly change their perception of the police is very valuable.

Debbie Honey is a Voluntary Worker for the Camborne Communities in Partnership and Cornwall Neighbourhoods for change. She actually lived on the Grenville Estate and has been tireless in helping to bring about change.

I used to live on one of the estates and can remember when the children were stoning the buses. The field where the football is played has a mine shaft in the middle of it that is only partially fenced off and there is an ongoing battle with the district council to cap the mine shaft. Along with other members of the estate I was re-housed, though I am now the community development worker for the estate where I used to live. There are still an enormous number of children under 10 with no facilities, except one small area of grass on which they have to play. There is some funding for improvement and a developer has agreed to pay £60,000 to put amenities onto the field, but the local council and the housing association are now arguing about the maintenance so no money is yet forthcoming.

The local residents association and an initiative that David put together brought people from two estates to the Eden Project Centre and the concept of the 'Emerald Necklace' was devised. This is essentially an initiative to join up the green spaces in Camborne with pedestrian friendly links. The idea is now being implemented on a much larger scale by joining outlying communities together in order to mixing more well off communities with those living in social housing. One of the main problems has been that though a large number of people came to the public meeting and many wanted to say what should be done, few, except that the team you see here, wanted to do the actual work.

The New Cross Gate Project

Steve McGann is the Community Development Coordinator, New Cross Gate, under the New Deal for Communities (NDC) programme. Steve joined the New Cross Gate community development team in June 2004. Since that time, he had been involved in a number of initiatives to support and build the capacity of community groups in the area. One of the key elements in his work is a portal to the Community Groups Forum, which was established in May 2004 and act as an umbrella body to existing and new groups in the area. The Community Groups Forum is taking an increasing role in activities in New Cross Gate and influencing the decisions which impact on the community. Stephen is also responsible for the three-year Holiday Activities Program Initiative (HAPI). This facilitates activities of the children and young people in the area and incorporates a ' hard-- edge' element to encourage local groups to become more sustainable while delivering services which meet local needs and expectations. He has also had some success initiating the Lewisham Muslim Women's Group to support women from that community who experience both isolation and disadvantage.

Introduction

The New Deal for Communities (NDC), set up in 2001 after an intensive period of community participation in drafting the successful bid, has a £45 million government grant to be spent over 10 years within the New Cross Gate area, encompassing a population of about 10,000 people. In keeping with the Government's Neighbourhood Renewal Strategy programme it focuses on the environment and community development with particular emphasis on health, crime, education, housing, and equality issues. The aim of the programme is that within 10 to 20 years no person should be disadvantaged by where they live, and that a key part in delivering this strategy is to ensure that local communities take an active role in shaping the regeneration schemes for their area. The project is now about half way through its life cycle and the NDC is directed by a Partnership Board, which has a majority of elected residents.

Relevant statistics

• About 8300 people live in 3500 thousand households. 70% live in rented social housing and about 13% in private rented accommodation.
• The proportion of lone parent households within the New Cross Gate area is 155% which is higher than the Lewisham figure of 12.2% and the national figure of 7.2%.

- 23 % of the population of New Cross Gate is under 16 years old. 50% of the total population consists of a mix of minor ethnic groups of which the black population is the largest group at 37.2%.
- The 2001 census indicated an employment rate of 10.3% amongst 16 to 17 -year-olds, which was above the national rate at the time.

Background
Typically New Cross Gate has been an area of transience where people come to the area, and only stay a few years, and this has obvious implications for community development and stability. However it has long established Irish and West Indian Caribbean communities and the last 10 years have seen an increasing number of people from West Africa and some from East Africa. More recently the last five years have seen an influx of Afghans and East Europeans. In the 2004 household survey, 40% of the respondents felt that they were part of a community compared with 33% two years previously. Crime and personal safety play an important role in how people feel about the area and despite reduction in some crimes the fear of crime has not decreased in the last few years. As part of the Home Office initiative ' Save the Streets' there is now a dedicated police team serving the area, though people are still wary of attending community meetings at night for fear getting mugged.

Empowering the community
The first two years of NDC development in New Cross Gate was too fragmented and was not being embedded across the different theme groups. 18 months ago a group was formed specifically for development and I see the task as being something in which all groups should be engaged. Community involvement in the overall decision-making has now increased as has the number of community groups and organisations directly involved in the delivery of services. Resident board member elections have been successfully implemented and it is encouraging to note that the turnout for these is much higher than for the local elections.

Last May a community group's forum was facilitated by the community development team and in the 14 months since it was established it has grown steadily in influence. It still needs to become fully empowered, but in addition to being an information sharing forum, it has also become a decision-making body for the initial approval of projects. It now has a structured membership of either full members who are voting, or non-members who are associated. The decisions have to be made by the voting members who are self-selecting and in the last year the Community Groups Forum approved projects to the value of over £500,000. Many of these will almost certainly go through, which will encourage more people to engage and realise their responsibilities and involvement in the area. As a result of the 'hard edge factor', where the amount of money available is reduced by 33% each year, and groups that want access to money have to match the funds available, groups either become self supporting or go out of business in three years.

The Holiday Activities Programme Initiative which provides holidays for young people in the area has a steering group of members drawn from the Community Groups forum which helps to develop these projects. A professional fund raising support officer helps to develop a fund raising strategy which is linked to a business strategy.

The process of change
The building of a self-sustaining capacity over the last two years in the shape of volunteer groups has not been particularly successful and people running those groups have been very much under stress. Often they do not have a lot of time and cannot attend training sessions or workshops, so there is an increasing emphasis on mentoring in order to build the skills base in the community. We do however have five 'Turning Point' trainees who have been on a three-year training course and who will be allocated to different community groups for three days a week.

One of the longest established community groups in the area is the 1970 project. Its people give a great deal of information, advice and guidance from a shop premises on New Cross High Road. It has initiated an ICT skills training project which has cost £300,000 and has another project approved for community outreach support. The group is worried that they won't survive the NDC because it was felt that they were not reaching out enough to the wider community, but hopefully something called the 'Welcome In' project will turn that round, so that they become more of a social focus for the community. Under the programme there are now a number of applications for outreach work among the most vulnerable in the community.

One of the most satisfying projects that the NDC has set up is the 'Unlimited Award' scheme. This is a national scheme that identifies social entrepreneurs or individuals who have a lot of energy and enthusiasm and want to put something into the community. It has proved very successful and the scheme has 25 awards made, which has also helped to reinforce the skills base. Activities include music and video production and a football club for the South American population in the area. There is also a 'community chest' programme that has been running quite successfully, but because it is coming towards the end of its term there is some discussion as to whether it should remain as a 'pump primer' with £5,000 awards or whether there should be a stage two, giving access to funding of between £5000 - £20,000.

One of the challenges is engaging the Muslim population which is less than 5% of the total population and is a mix of people from all over the world. A Muslim women's group was started in December of last year and although it is only growing slowly its membership is multinational.

All the projects work towards community self empowerment so that people can make informed choices. Such empowerment cannot be given, but only be taken and the challenge in community development is to continually find innovative ways to facilitate the community to take the power which is rightfully theirs.

Discussion

It was felt that making people aware of the opportunities might involve training courses for getting grants or even just suggesting in casual conversation certain ideas and letting people decide what they wanted to do. This might take weeks or months though, until people said, ' yes, this is what we want to do' and could say what they needed. Steve said that the board learnt from mistakes or successes through feedback and except when confidential matters were being discussed, board meetings were open public meetings, though often few residents attended. However monthly board member surgeries have recently been introduced and residents can go along to see individual board members that they've elected and discuss their problems. The idea is then that the board members will feedback the issues to the board as a whole.

At the beginning of the NDC program the government was putting in money and telling residents that they were living in an impoverished area and had certain problems. This was possibly a tainting element and because it was instigated from outside there were a lot of groups refusing to take part or to access the money. However, just when there is an element of self-organisation the government is talking about sustainability and exit strategy, so the element of co-creation is rather long in coming. There was, perhaps, a need for acceptance of problems rather than a search for 'abundance'. There seemed to have been some self-organization on one side and quite a lot of external drivers on the other, but not a lot of joining up between them. In the end it is co-operation between agencies and communities that is the most empowering model and it is in the imposed model that resistance occurs. Nobody wants the government to go away and stop giving money, but one of the challenges is how there can be co-creation within the top-down model. The NDC is under a lot of pressure and there is often little time to get out and walk and talk to people because of targets to be achieved, but a lot of people feel that the NDC is not engaged in a two-way learning process. There is perhaps a problem with self-organizational capacity in the deprived areas because, since the Homeless Persons act, council estates have become dumping grounds for the most vulnerable. Thirty or forty years ago the community would have been more mixed with artisans, craftsmen and small businessmen. The biggest problem now is that of communication, but it is necessary to have high expectations of people so that they know that help does not necessarily mean engaging with the 'expert' model.

The Eden Project

TONY KENDLE is Foundation Director for Eden Project in Cornwall, coordinating research and scientific development, horticulture and education. He has been involved with Eden since 1996, when it was just an idea looking for funding and has played various roles from site restoration to exhibit and programme development.

He was previously a lecturer in Horticulture and Landscape Management at the University of Reading, with research interests in social horticulture and restoring value to degraded land. Restoration ecology is an unusual discipline in that it is integrative rather than reductionist and requires that researchers know more about a lot of things than a lot about one thing. This approach has proved excellent experience for the Eden project.

Introduction

The Eden project is not something that people would immediately recognise as a community project, but the project was started by a very small group chewing over ideas in a pub, and it grew in response to local challenges. We are on the edge of the china clay mining region and a lot of Cornwall's challenges can be traced back to the collapse of its mining industry. Cornwall was one of the first major mining regions of the world and has undergone what might be described as the 'resource curse experience'. Regions in which major resources or energy sources are discovered undergo an initial burst of economic activity followed by a decline and find that little of lasting value is left behind. St Austell as a town in a clay mining region had billions of pounds of value passed through it but almost nothing left behind. The decline of the clay mining industry has been slower than that of metal mining, but is winding down in terms of the number of people that make a living from it.

The Eden project is primarily an environmental education charity but it is backed by a company which runs the place and has the job of delivering the charitable aims. A lot of our sense of purpose comes from the funding structures, our relationships with the communities around and the different partners who make the project possible. The reason why this site was chosen was not just to help in the regeneration of St Austell, but it is the first of the china clay mines that has been turned into something radically different. That gives a tremendous range of operational problems and has probably doubled our construction and operating costs compared to a green field site, but the symbolism is very important. With the exception of the Tate at St Ives, pretty well everything that's on offer within the heritage and tourism sector in the county is all about the past. For us, working in this mine within a deliberately futuristic style of physical construct and talking about the future is a deliberate engagement with change and possibility and we try very hard to carry an undertone of hope. We believe that a lack of the sense of possibility is one of the things that disengages people from the chance to make something better.

Tackling the future

Environmental groups often say that about three to four million people in the UK are 'potentially engaged' with environmental issues, which means potentially involved or interested in thinking about those issues. It begs the question of

what happens to the other 50 odd million people who are somehow signalling that they are not engaged in something that has very much to do with their daily lives; with the food supply, with jobs, with energy and comfort in and out of their homes. We ask ourselves how people cannot be engaged in that sort of thing and we think that unless we start to instil a sense of the way forward people may start to believe that the future is not possible any more. It doesn't mean that we tell people it will be easy or comfortable, but a lot of what the Eden project is about is trying to give a sense of possibility. Ambition and endeavour are also linked to the symbolism of the location and the scale of the project; that three people in a pub could end up with something this big is an important part of the message that we are trying to put over.

Taking up the challenge
What is being achieved at Eden is incredibly dependent on networks and we have communities working at different levels. We have the team that works here, the vast majority of whom are from the St Austell area and they have been on a white knuckle ride since the project started. The project business plan was initially built for 750,000 visitors a year and there was such a huge amount of scepticism about whether the place would work, that we were listed in one newspaper article as one of the millennium projects guaranteed to fail. The initial challenge of getting people to back something, first of all in St Austell, and then filling in a hole in the ground with plants was not easy.

 However, the whole idea was to engage people's ambitions at all different levels. We try hard to understand what it is that the people who fund us need and we try to deliver it, but we know that we wouldn't have been able to do it without a broad network of professionals in the construction team and the design team. It is easy to think that these are simply transactional relationships and not really collaborational or part of the community, but we asked all these people to do a little bit more than they would normally do and take risks that they would not normally take, in order to make things possible. So we have a sense of gratitude to all these people and I could talk for hours about the ins and outs of that and some of the dreadful moments as well as the inspiring ones.

One of the challenges of Millennium funding was that you didn't even get to the table unless you have planning permission but how do you get planning permission without any money? We had to have the architects and the construction people all working at risk by putting time in and I think we had a lot of resonance with what Hazel Stutely called 'abundance'. That doesn't just mean a set of skills, it means a reservoir of determination and energy. We think that most people are really desperate to do something with their lives and just need the door opened in order for them to do it. When we opened the doors we had 1.9 million visitors in the first year and that was with staff that had little experience of running of such a project. We didn't have enough places for staff or enough chairs or plates or any other equipment, and we have been on a programme of design and rebuild ever since. We are just about getting the place

in shape to cope with the level of activity this autumn.

Purpose
We do see our primary purpose as educational, but that's not our primary proposition to people in order to get them to come here. We use all sorts of approaches to make Eden an interesting and exciting spectacle. When people are here, of course, we try to get them to think about their connections; what the things are around the world that keep us alive and support our daily lives. We should be aware of our responsibilities and what it is that we need to treasure. I was looking at the terms that you were applying in complexity theory and I think that a lot of those apply to most people's lives. Our own personal function in the world in which we live is much less comprehensible than it used to be. The world is much more networked and diverse and unpredictable than it used to be.

You have been talking about communities and it is interesting to consider what our community is in the 21st century. The farmer that feeds us today isn't at the end of the village, but on the other side of the world. That presents us with a number of challenges. As we eat more processed food it becomes harder to read the connections in the food chain. Our visitors and, of course, all of us, find that the basics of our lives are often obscured. We can vaguely make out the links between things that keep us alive but we don't have a very good sense of it and so Eden is all about making things a little clearer.

We have educational workshops and programs and we have a storytelling team. We are very interested in ideas of narrative as a way of getting a message across and one of the things that we do is to have themes based on the seasons. The one that we have over the winter period is called the 'time of gifts'. Itcame from thinking about what the winter festivals represented in the past for the many cultures that had them. Winter is a time when the days are closing in and the new year is coming, it is about remembering in the darkness who your family and community are and it is time to celebrate and to give thanks and to pay back. The original definition of the word 'community' is a group that is linked by gift giving, not by geographical identity, because the idea was that by giving gifts you were making an investment in the health of your social network. It wasn't about a transaction in which you were expecting something back there and then, but an investment in the health of the community. You give gifts and say thank you to the people who sustain you and you invest in the community because one day you're going to need it. That's something that we're going to be working up more and more in the next few years.

Working in the mine
I just want to say a few things about the nature of the organisation and what it's like to work here. For a start it is a complex place and we have a highly networked structure and a very strong sense that change is constant. So the challenge we have is not a question of how to initiate change, but how to manage and survive it. We are rapidly losing the appetite for any form of

prediction. I've seen an endless trail of five and 10 year plans that are irrelevant within six months and in this place you just have to stand up and enjoy the ride as it unfolds in front of you   We do have a strong sense of optimism and determination and we are increasingly aware of the fact that sometimes, in order to be continually creative, you have to be destructive as well. It can be stressful and worrying to see your previous models and ideas of what can happen get dismantled around you, but you also know that learning to survive and do as well as you have done is continual reinvention. I think the Eden project probably has a lot in common with the things you are wrestling with.

The Peckham Community Network, London

EILEEN CONN worked for many years in central Whitehall policy making on the management and development of government systems, and subsequently in developing systems of business corporate social responsibility. As an RSA Fellow she founded the RSA Living Systems Group in 1994 looking at companies and other human social systems as complex living systems. In parallel she has been an active citizen in London community organisations and was Southwark Citizen of the Year in 1998. She has a long term interest in the dynamics of communities and the emergence of organisations from bottom up/top down interaction between the community and the structures of public agencies and commercial companies. She has found that complexity theory provides a rewarding approach to understanding these complex social systems and she is an associate of the LSE Complexity Research Programme. She is facilitating and studying the emergence of the community network and other community engagement processes in Peckham. She was co-editor and co-author of *Visions of Creation* (1995), and is currently working on a new book with the Living Systems Group.

Introduction

One of the things that I have been on a quest for is to understand how society works, so for the last 15 or so years I've been doing what I call living systems research which has been very idiosyncratic in its use of ideas and analogies and metaphors. The conclusion that I've come to is that it is crucial that we change our ways of seeing and thinking about the way that society works. Complexity theory is extremely helpful, but there are other kinds of models which are complementary to it in understanding how integrated dynamic systems, particularly living ones, work. That's important to me and it is part of the passion with which I do everything. I could be working anywhere, but it so happens that I live in an urban area like Peckham and so for the last three years, as an active resident, I've in effect become an unpaid community development worker. I have joined the national community development associations to make sure that I understand the community devlopment professional approach but I'm also a very active resident and I'm involved in a number of national and international networks on new thinking about human social and cultural systems. I am going to give a brief account of my role in the complex social eco-system of the Peckham Residents' Network.

Gardening in Peckham

In the last three years I have initiated the Peckham Residents Network which is embedded in voluntary & community sector dynamics. The role that I'm playing in the local area is as a facilitator and since I've become a very keen gardener in the last four or five years I've begun to understand that the mental and psychological attitudes of gardening are identical to what I'm doing in the Peckham community. So I could say I'm doing social gardening. The work has been supported by a small grant of £300 for the first year and £650 for the second year.

Peckham is in southeast London which is a very mixed socio-economic urban area. It is also very mixed ethnically and has a recent immigrant population. Like the New Cross Gate area it is a mixture of the old and the new and a significant proportion of the population is transient. There is a high proportion of social housing (60 to 70%) and communities vary from the quite well off and not dysfunctional, to the very poor and dysfunctional. What they all share is the physical environment of Peckham town centre which has a crime hotspot, with poor quality retailing, poor hygiene and a lot of grime and graffiti.

Top down and bottom up

I want to describe how the interaction between the residents and the external agencies works in a top down/bottom up fashion and the emergent structures which have come out of that. If we regard the Peckham Residents' Network as the bottom bit and the external agencies as the top bit then we can imagine that there is a sort of radar screen or interface between them. Down at the bottom in the social ecosystem of the residents, life can go on without much to do with councils or external agencies. There are systems within systems, but the

individual interactions have all kinds of potential that can be activated and I've been doing particular things to facilitate more connections. Structures have emerged like the Bellenden Residents Group (BRG) which connects with the Peckham Rye Working Group (PRWG) and the Rye Lane and Station Action Group (RLSAG). Then there is the relationship between those groups and the top-down structures which might aid, but might hinder the development and self-organisation.

My gardening is facilitating and nurturing loose informal connections which are not particularly structured. We now have about 500 residents on e-mail or hand delivery list. I must say that e-mails have totally changed the way in which I can do things and I'm working towards handing my own input over to other people. I describe the thing that I cultivate as 'collective efficacy' which was defined in a 10-year study in the United States as: "consistent positive interaction and cooperation between local residents". I think that's a very good description of what I think I'm facilitiating.

People have been talking today about the relationship between the external agencies and the communities. I always resist the pressure from agencies to design and predict how structures should be and instead try to create conditions where structures emerge naturally I try to encourage an environment in which people aren't asked to do things explicitly. As a result I notice that people, whether they are ward councillors, residents or council officers or even the station manager, are stepping out of role, at least slightly. Such informality seems to help to override the usual tendency to follow strict norms and patterns.

Applying complexity principles
The complexity principles that might describe what I'm doing are:
• Connectivity: I'm doing this all the time, facilitating connections between the residents themselves and between the residents and the external agencies.
• Enabling conditions: I consider myself a coordinator by cultivation rather than pre-design.
• Space of possibilities: The residents' group has a short and simple constitution to create the maximum possibility of things happening. We built up a big list of individuals, but kept the administrative structure very simple. For example our residents' group has now survived three years without recruiting everyone as members; instead we have a very loose network which means that we don't have to bury ourselves in administration. It's sometimes like walking on the edge of a precipice, but if we followed the ideas about how things ought to happen it would stifle what is emerging.
• Co-evolution: the space of possibilities that I have been focusing on is what I call the social ecosystem dance. It's where the different cultures of the top-down and the bottom-up groups interrelate. The rigid structures of top down functional relationships are interacting with something that is extremely fluid and constantly changing and at present this is not allowing much constructive co-evolution. The potential for positive co-evolution is greatly

increased if pre-consultation processes could be facilitated, before the authorities and agencies even begin to think about the questions they want to ask. We need to build a resilient community which is independent of what external agencies want from it , that can welcome into its processes people from foreign cultures unfamiliar with the way British culture operates. This creates significant potential for social cohesion.

•   Emergent properties: 70 years ago there were two doctors who came to Peckham and started a groundbreaking experiment called the Peckham Experiment, which somehow faded away with the development of the National Health Service in the 1940s. What they wanted to do was study health, because they realised that on the whole doctors studied sickness and didn't know what constituted or made for health. The Peckham Experiment's awareness of the distinction between sickness and health and the need to cultivate health as distinct from a focus on intervention to cure sickness is also relevant to the kind of community environment in which people can be healthy. A lot of government policy on community development, like the NHS focuses on people or communities who are sick, and then tries to make them better through interventions. But it is as important to cultivate the conditions for healthy communities to emerge and not just focus on interventions to cure problems (sickness). Helping fluid informal residents' networks to grow is facilitating the emergence of a healthy neighbourhood characteristic.

For 10 years the complexity research programme has focused on helping big business to tackle its own issues and enormous amounts of information and ability have come out of that. Now I think we ought to apply the principles to community work which in this country has been crying out for some new ideas to tackle community regeneration . Complexity ideas might be like watering a desert.

The Hulme Project, Manchester

Ilfryn Price is Professor of Facilities Management at Sheffield Hallam University and adjunct Professor in FM at the University of Technology , Sydney. Much of his current research and practice concerns the relationships between an organisation's physical environment, its culture and its performance informed by complexity theory. He also deploys the concepts to help organisations reduce inter-organisational complicatedness.

Introduction

I was interested in evolution a long time before I heard of complexity because I originally trained as a geologist, but one of the early ideas that caught my eye was the concept of the 'edge of chaos'. The proposal was that natural complex systems are at their most adaptive or their most creative when they are finely balanced between too much frozen order in which one or more agents set the rules of the system, and utter chaos in which everybody runs around trying to interact with everybody else. I had in the past some experience of working with a chief executive of a corporate environment, who believed in raising the level of creative tension as a route to organisational change. He was inspired by Pascal from Stanford who wrote books about surfing the edge of chaos and talked about organisational complexity. As I moved into academic life I found myself working in facilities management and getting involved with the local council and the local SRB and I began to wonder whether the edge of chaos idea might offer an explanation or clue to urban regeneration. I took on as a PhD student (now Dr Cletus Moobela) and we set out to investigate whether successful regeneration involved some passage of the natural system through an edge of chaos and whether there was some better approach than top-down planning. We looked for examples of success starting in the late 1990s and identified Hulme in Manchester as a prime example of successful regeneration and with the help of the local regeneration partnerships we set out to trace the history of the regeneration efforts.

Some thoughts on Complexity Principles

We see many examples in biology where organisms adapt to changing environments. Complex systems often have simple rules of interaction. A flock of birds consists of lots of agents interacting but they are all following rules which are the product of 4.5 billion years of genetic evolution. We still don't know enough about the cultural equivalent ofDNA replication; what drives towards stability but also drives towards change in social environments. Some of the problem is that social scientists and biologists do not really have a common language, but we've seen many examples of how conversation or discourse shifts in the successful cases we discussed this morning.

What we want to know is how what emerges gets preserved. After all, parrots as organisms are genetically constrained to be parrots so we can conclude that adaptive systems spend a long time locked in stable mixes of populations in an ecosystem. If, however, the external environment changes too fast, and it might be climate changes or a large meteorite crashing down from outside, natural systems find it hard to evolve and adapt faster than the environment around them changes. This is a case when waves of destruction are not necessarily inherent in the system. So we might get wiped out contingently or go through a spiral of decline until something happens to trigger the next phase of renewal. There will be differences in the evolutionary principles of the biotic and non-biotic domains, though there are some things that might be true for both.

We've talked about creative destruction, but we haven't talked very much about contingency. When Captain Cook landed at Botany Bay in Australia in 1776, about 20 or 30 miles down the coast from Sydney Harbour, in the middle of winter, he described it as green and pleasant and suitable for agriculture. However when the first fleet was sent out from England with two ships of convicts in the summer of 1798, Governor Phillip found it hard, desolate, without water and largely uninhabitable, so he rowed up the coast and discovered Sydney Harbour.

Background to the research at Hulme
The project involved an historical narrative that weighed the evolution of the regeneration processes between 1960 and 2002 against the characteristic features of complex systems. The centrepiece of the complexity test was on complexity's "edge of chaos" principle as this related to the dichotomous relationship between local government and local communities in the decision making processes. The system had become highly centralised for much of the post war years, developing into a paternalistic relationship with decisions being made by the local authority for and on behalf of local communities. However the system slowly began to dissolve and eventually reached an edge of chaos transition phase in the late 1980s and early 1990s when consensus and partnership assumed hegemony over paternalism.

Charting the change

In the late 60s and early 70s Hulme became one of the centres for the first wave of urban renewal by top-down social planners who built a series of so-called 'cities in the sky', as the architects of the time described them. They were four-storey mile long tower blocks which were supposed to somehow develop communities, but in their failure decayed, probably faster than any similar social experiment of the time and by the late 70s or early 80s were the scene of the worst urban riots this country had ever known. Most of the community was evacuated so that all that were left were new immigrants and the descendants of the first industrial settlers who had developed the community over three or four generations. There was basically a stand off at the time. The Council didn't know what to do or didn't have enough money to do what it thought of, and the residents were walking around describing the council in derogatory terms.

By the early 1990s the two groups had at least formed a sufficient number of connections to have some pockets where there was communication and the City Challenge programme was introduced. A certain spirit and desire to seek change were beginning to come together and the City Challenge gave the city council money to tear the flats down. After they were torn down there were one or two residential development projects built with Guinness Trust money. What was an area where you wouldn't have liked to have left your car, is now quite a successful residential place.

There was a big change in the deprivation statistics around 1995/96 as the area began to take off and there was a critical shift in the density of the social networks. Suddenly a lot more organisations started talking to each other and this suggested that, coupled with a shift in the physical environment, there was some sort of tipping point in the community relationships. Evidence for this could only be obtained at the organisation level as it was no longer possible to do any analysis at the individual level, but relationships between all the different stakeholder groups were investigated. Among these were community activist groups, ethnic groups, gender and sexuality groups, art groups and the council bodies and developer organisations in the north-west sector.

Dubious outcomes

Complexity principles seem to apply in that a critical point seems to have been reached between the top-down ordered conversations of the external agencies and the totally anarchic conversations of the residents, but there seems to have been a certain contingency in money being made available when there was the beginnings of dialogue between the two ends of the spectrum. The system was perhaps poised at the edge of chaos, but the subsequent regeneration has not necessarily entailed a beneficial emergence. The fringes of Hulme are now attracting another generation of privately financed high-rise development. The council gets £2000 for every flat and planning permission has been given in a conservation area for a set of five tower blocks with 454 apartments in them. Existing buildings are already suffering from appalling levels of maintenance, because housing associations are operating on small budgets. There is a great danger that a second crisis is looming because old patterns of thought are reasserting themselves and there is a lack of understanding of the evolutionary

dynamics at the planning stage.

Postscript
I suggest that history is important in understanding evolving social systems and that there is something roughly equivalent to stratigraphy which is the study of geological history according to rock strata. We ought to understand the historical pattern of social evolution as well as the current dynamics. The dynamic of biological evolution or geological evolution is characterised by long periods of little change interspersed with short moments of high activity. Something similar happens in social systems on a vastly speeded up timescale. Another feature of biological evolution is that new species evolve more easily in small populations because in large populations the existing gene pool damps the change advantage. An example of this is the case of 'peripheral isolates' in which branches of a population get geographically isolated. Since innovation and successful regeneration might also depend upon such enabling conditions it is not a surprise that in quite a small geographic area in Cornwall there should be such a wealth of creativity at the Eden Project.

We might ask whether there are cultural genetics analogous to population genetics. Are there norms of discourse that seek to replicate themselves? Evolutionary systems which have the power to adapt and change are also systems which drive towards stability. However the kind of stability which involves 'locked in' patterns of response is not an advantage in evolutionary terms. In cultural evolution the replication of the 'dominant wisdom' can work against advantageous evolution. A British biologist called Waddington wrote a book which was published in 1977 and anticipated complex adaptive systems theory. His so-called '*tools for thought*' included systems thinking and he refers to the danger of COWDUNG (the conventional wisdom of the dominant group).

Exploring the space of possibilities involves exploring physical space in terms of buildings, as well as mental space in terms of adjacent possibilities. We may need to make space in our garden by getting some weeds out of our social or managerial thinking. Winston Churchill once said: ' first we shape the buildings and then they shape us". We've seen examples of how buildings shape communities already, so creating environments in which things will happen rather than designing exactly what will happen is perhaps a better approach. I was talking to a managing director about a project we were doing a couple of years ago. He talked about designing a garden by laying a lawn all over it and seeing where the paths appeared before putting the paving slabs down. It might be a good idea to set the overall framework within which people can work, and worry about the details later, but it does mean letting go of a certain amount of control.

Discussion
Cornwall has not so much need of urban regeneration, but the regeneration of clusters of small villages in outlying areas. These are often diverse in needs and it was wondered whether complexity theory could be applied within this context. Ilfryn thought the same sort of principles would be applicable. He knew many

small coastal or market towns which were sites of tremendous deprivation especially where are the tourist industry had moved elsewhere. The coalfields of Nottinghamshire have villages which have seen an industry decline and the same principles of regeneration should apply since they were scale invariant but it was important to take the local conditions into account and this is at present very often not done. It is important to understand that though the underlying principles of this kind of change and renewal apply, we cannot simply copy what was done in one area to another because it will not work. There is no such thing as best practice, but we do have to understand the underlying reasons for success and the reason why so many different projects have been discussed today is to try to understand why they worked.

Researchers who are currently investigating real-life problems of the kind that have been discussed have to be educated as to how the systems really work. They shouldn't necessarily be asking for quick solutions, otherwise the problems are likely to go on recurring. Ilfryn cited the number of urban areas where privately funded high-rise blocks were being put up and where the urban problems of the 60s could be repeated, because people did not want to look five or ten years ahead. It may be that sort of timescale for the recurrence of bad practice if the lessons are not learned. It was suggested that high rise high density dwellings in London were always a problem and there was a need for political pressure. Ilfryn, however, said he didn't mind high-density housing providing the appropriate maintenance structures were put in and the environment was kept in the right condition.

It was felt important not to lose sight of the interaction between the design of the housing and the social conditions in which people live and want to live. It may be that design in the 1960s did not take real needs into account, because some high-rise dwellings won awards, but were modelled on inappropriate conditions and did relate to the actual lives of people living in them. There may be, however, types of housing that always work and types that perhaps will never work. Ilfryn said that around the shores of Sydney Harbour there were plenty of high-rise buildings where affluent people lived, but that they paid a high maintenance charge to remain living there. It was the low cost 'brownfield site' housing in England that was attracting a generation of private investors who do not have the social tradition that exists around Sydney Harbour.

As a species human beings are deeply programmed to copy best practice. David Aynsley agreed and suggested the traditional police response to a problem was to refer back to a previous stock of solutions so the new way of thinking represented a shift of paradigm for police officers. What had changed for David's team was the application of intuition to an emerging new structure of interaction rather than the traditional approach. To do that it was necessary to have a sympathetic ear and a sympathetic voice to connect with a personality rather than a community. It is that kind of personal interaction that gives rise to community learning.

There may be some mileage to be had in drawing an analogy between social and biological evolution in regarding a discrete community as a species

that either adapts or does not. When there is an extinction of a community there is massive redevelopment. Ilfryn said he wouldn't like to push the analogy too far and there were even debates in biology about what constituted a species and to what extent the lateral transmission of genetic material was possible.

Cycles of regeneration seem to be speeding up perhaps because technological and political evolution is proceeding faster than social evolution. A lack of joined-up thinking 200 years ago probably didn't cause too many problems but now it causes crises in our cities and it is up for discussion whether the crises are necessary transition points on the edge of chaos and opportunities for change. Ilfryn also thought that the recurring cycles of crises were speeding up, though he admitted it was only a guess.

Plenary on enablers and inhibitors

David Aynsley's team came up with three factors. The first enabler was proximity between people or between organisations. If people are geographically close or have a shared sense of purpose or values then they are more likely to interact. An inhibitor was that agencies or bosses expect results quickly when residents are in a lengthy process of trying to deliver a shared vision. If people are pressed to achieve targets there can be a lot of cleverness in achieving targets, but not a lot of wisdom about how to improve things and self interest can come into it. A third inhibitor was the theme of funding, when the money offered was not sensitive to the conditions, resulting in money not being able to be spent or being spent in the wrong way.

Aileen Conn said some of the things discussed, such as the kind of physical environment, could be considered both an enabler and an inhibitor. Individual passion was seen as an enabler. The Eden project clearly involved people who were passionate about what they were doing, as were the Camborne police. Individual passions were significant for the success of the Falmouth project. An inhibitor of regeneration would be not learning from good and bad lessons and spreading the knowledge horizontally across other parts of the system. Imposed targets were an inhibitor in that they distorted things and might not be appropriate for the conditions. The converse was that learning from previous work with other kinds of organisations particularly in terms of good management was an enabler, though it was important not to copy blindly. Poverty and unemployment were important inhibitors. Shifts in roles such as the police in the Camborne project were enablers. Perceived distance as opposed to actual distance could be both an enabler and an inhibitor and e-mail certainly helped to reduce perceived distance.

(?)'s team discussed the NDC as an inhibitor in the New Cross Gate area because of its organisational structure and mechanistic type operation. Though the aims and the goals of the NDC sounded wonderful, they often didn't achieve what they set out to do because of its power structures and because it was target driven. People started off by being very enthusiastic, but the decision-making process was removed from them by the procedural system within the NDC and the removal of self organisation led to a downward spiral of dependency which then created mistrust. It became very hard to intervene in this cycle and there was a lot of pressure on staff to produce results and an inevitable tension between letting go of control and having to fulfil outcomes. It was thought that the executive in the Beacon project who enabled his staff to have the space to do what they needed to do and protected them by fulfilling the requirements of the bureaucracy took a huge risk - there have to be individuals who are prepared to be protective and provide a sense of security so that possibilities can be explored. It was also important that staff became 'multi-lingual', perhaps talking the language of bureaucracy in their reports, but forgetting it when dealing with their own community. It was thought that much of the official language of

regeneration and sustainability is jargon and it was important that residents could use their own language on the forms and applications that they had to use. Ownership was suggested as an enabler. The creation of positive relationships engendered engagement though it has to keep being reinforced.

Robin and his team were particularly interested in the Eden project and the ambition that was communicated, such that contractors and builders went beyond where they would have gone in bidding for the work. This resonated with the other projects where people talked about sharing problems and going beyond professional responsibilities, and the notion of vulnerability. One of the worst inhibitors of regeneration is the creation of false hope in which promises are not fulfilled, resulting in a lack of trust. Tony Rendle in talking about the Eden Project said, "It's not the scale of the work that matters but the scale of the ambition." Robin's team was therefore interested in the notion of sharing ambition and communicating it, particularly in the form of accepted targets – "We want to have ambitious targets rather than achievable targets." Ambitious targets and 'Trojan mice' build up momentum in the work, but there have also to be 'quick wins' to reinforce the sense that the processes are leading somewhere. The main thing about ambitious targets is that they are owned by the people that set them, rather than being imposed on them from somewhere else.

   The team were also interested in the decline spiral and were reminded that it still took energy to stay in the same position if things were not to get worse. They discussed the energy of momentum that creates stability and one that resists change such as the relationship between residents and external authorities or ethnic communities or between different housing estates. Positive differences were those that allowed creativity to occur, but the nature of funding and the management of regeneration projects often meant people became part of a community or were even forced to lead communities against their will. Money is also one of the ways that communities can be set against each other and if communities were fighting for the same fixed pot then opposition was already built into the relationship.

Summing up
Eve thought that one thing that ambition did was to push the situation away from equilibrium and create the space of possibilities. If the ambition is big enough it pushes the system far from equilibrium leading to something radically

different. 'Far from equilibrium' means away from the established norms and ways of working and relating. But in order for this kind of 'rocking the boat' to occur, people have to feel they can take those steps in a protected way, so creating the space of possibilities and supporting the networks are part and parcel of the same thing.   There is interdependence of all the complexity principals and it is important to realise the interdependence so that the issues for both the agencies and the communities are seen to be the same. The tipping point is knowing that the problems cannot be solved without co-evolutionary change.

It is change at the micro-level that counts; thinking about new order, evolving ideas and micro-strategies, exploring the space of possibilities. Successful change is not made by having one big strategy but several micro-strategies working in parallel so that each one becomes more relevant in the changed conditions. That's the idea in complexity theory of the 'fitness landscape'. If we think of a bouncy castle, as each child bounces it changes the whole landscape of the surface. We try to improve our fitness or ability to jump by climbing up a hill and standing upright, but the whole landscape is changing as we do it. So we're all adapting to the castle and each other and this leads on to the idea of co-evolution. Co-evolution is not always good, so we have to distinguish between efficacious co-evolution and non efficacious co-evolution. The latter takes a project into a downward or decline spiral.

There is also the importance of targets stemming from motivation; micro strategies leading to self organisational targets, but ones that come from what is being developed instead of ones that are imposed. If we set ourselves a goal and the goal changes then we are prepared to change our working practices. When this kind of change takes place new ideas and debates emerge which result in different ways of doing things. The emergence leads to the creation of new order. However an enabling infrastructure and feedback loops are also important in process. An organisation needs to have feedback about how it is changing what its targets are and there has to be a momentum that maintains the enabling structure. It is co-evolving sustainability.

Regeneration projects in general have at some time to operate with systems or bureaucracies that are hierarchical. David commented that the police engagement model was something that the management has produced which talks about engaging the community at grassroots level, but that structures higher up the system inhibited change. Government departments need targets and good management and imposition cascades down a long chain, starting with Whitehall. Bureaucracy may be frustrating in the short term when people are fighting against it, but co-evolutionary forces can bring about change in the macro structures. It depends how determined people are to work for change at the micro level, but it is a fact that bureaucracies that do not change when the environment changes around them, in the end, face extinction.