



A voice for local communities



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British Science Association

The British Science Association (formerly known as the BA) envisages a society in which people from all walks of life are able to access science, engage with it and feel a sense of ownership about its direction.

We seek to achieve that by connecting science with people: promoting openness about science in society and affirming science as a prime cultural force through engaging and inspiring adults and young people directly with science and technology, and their implications.

Established in 1831, the British Science Association organises major initiatives across the UK, including the annual British Science Festival, National Science and Engineering Week, programmes of regional and local events, and an extensive programme for young people in schools and colleges.

<http://www.britishsociety.org>

PEALS

Policy, Ethics and Life Sciences Research Centre (PEALS) was established in 1999. Our development and growth as a research centre have been aided by Newcastle University, Durham University and the Centre for Life, who have all played an important role in our activities. Ten years on we are now a formally recognised

University Research Centre within Newcastle University. A variety of valuable collaborations and activities continue between PEALS colleagues and colleagues in both Durham and the Centre for Life. PEALS aims to research, inform and improve policy, professional practice and public participation in the life sciences. We particularly promote research and debate on the social and ethical aspects of genetics and other life sciences. <http://www.ncl.ac.uk/peals>

1. Executive summary

The community x-change aimed to strengthen links between the public, scientists and decision makers and to create opportunities for discussion that would help to inform and influence the direction of policy.

To achieve this aim, we set the following objectives:

1. To provide opportunities for people to discuss issues involving science and other issues about which they have strong views
2. Pilot processes that build mutual respect between scientists and under-represented publics, acknowledging that each bring their own expertise
3. To develop processes to effectively include marginalised groups in policy debates
4. To build capacity locally to enable further interaction between participants beyond the lifespan of the project
5. To create an involvement process in which policy-makers play a meaningful role

In two series of workshops, in Norwich and Liverpool, local residents from diverse communities met to talk about climate change, the use of animals in research and functional foods. They shared their thoughts and views with scientists, policy-makers and one another.

The community x-change project tackled some of the inequalities regularly found in discussions about topical science issues. It was particularly concerned with engaging marginalised communities, paying attention to their needs and concerns in relation to the subject matter. Significant resource was allocated to ensure involvement of marginalised groups in the workshops. Those normally under-represented in public engagement projects were consciously over-represented.

The project worked to ensure that communities were empowered to contribute to the process rather than being passive recipients of it:

- Scientists were invited from the same locations as the community members, to be participants in the process as citizens rather than 'expert' information providers
- The science issues were carefully framed to allow the community to shape and develop the direction of the discussions

- The project team committed to reflect on the process and embed their learning within future activities. This report, primarily aimed at science communicators, is a part of that commitment

Aspects of the project were driven from the 'top down'. The three topics for discussion were selected at the project's initiation. Space was also given for participants to propose other topics for discussion. In this way, a 'bottom up' element was introduced. For example, participants chose to investigate issues of public health service provision alongside discussions about the use of animals in research.

The project had some notable successes:

- Diverse communities met together and talked about their hopes and fears, finding that they share many common concerns
- Groups who assumed that their lack of scientific knowledge would preclude them from debates about science, discovered they could have a say and that their experiential knowledge was valuable
- Through the process of talking about their work, a number of scientists have changed their working practices
- Perhaps most importantly the project impacted on the project partners. It has resulted in a review of assumptions and approaches relating to working practices around diversity issues at the British Science Association

The community x-change has enabled the Association to recognise that public engagement can be successful if diverse publics are allowed to contribute the expertise they have gained through their life experiences on an equal footing with "experts". In addition, the long-term success of public engagement, such as community x-change, requires organisations to spend as much effort institutionalising participation internally as they do on external engagement initiatives. The key finding of the project was that the scientific community needs to invest much more resource in, and prioritise listening to the views of the general public.

The project built local capacity for further interaction between participants beyond the lifespan of the project. The British Science Association kept in touch with individuals from the East Anglia community x-change and involved participants in drugsfutures – a government-funded initiative, organised by the Academy of Medical Sciences, to shape policy through consultation on drugs issues. About half of the community x-change participants took part in face-to-face discussions looking at issues around regulation and control of drugs.

The project found that engaging with policymakers in a meaningful way was a hard task. Whilst some links were made with individuals, it quickly became clear that with no policy champion in the national arena, the project would struggle to make an impact. As the project developed, resource was therefore focussed more on the local policy arena with more productive results.

In conclusion, for local communities to understand the necessity and see value in solutions to global issues, like climate change, there need to be clear links to local solutions.

2. Background

The last 20 years have been punctuated with science-related stories that have caused major public concern: BSE (1990), cloning (Dolly the sheep) (1996), MMR (1998) and GM foods (2002). More recent debates have included stem cells, nanotechnology and climate change, all demonstrating that science has the power to elicit a strong public response. During the same period there has been much change in the field of science communication.

A Royal Society report in 1985, *The Public Understanding of Science*, was the catalyst for much activity in science communication, leading to the establishment of the Committee on the Public Understanding of Science (COPUS). A lot of this activity was based on the assumption that public fears were due to a lack of knowledge about science. Education was therefore the order of the day.

By 2000, there had been a huge amount of work in this new field. However the crises of BSE and MMR led to a re-evaluation. The House of Lords Select Committee on Science and Technology published a report, *Science and Society*, which acknowledged a crisis in trust. The report encouraged scientists to engage in dialogue with the public, to allow a two-way exchange of information. The report recommended that "direct dialogue with the public should move from being an optional add-on to science-based policy-making and to the activities of research organisations and learned institutions, and should become a normal and integral part of the process".

The Public Attitudes to Science survey in 2008 suggested that society did not see scientific research as relevant to everyday life and did not feel that science could be easily understood. Further, being poor at science and mathematics appeared to be culturally acceptable.

The challenge was to change this cultural attitude ensuring that science and its application were seen “as relevant and valued by all of society, creating a sense of public ownership and pride in its achievements” and led to the launch in January 2009 of the Science: [So what? So everything] campaign.

In spite of the above commitments there have been concerns about how best to involve the general public in discussions about science, in particular policy. For example, the process for the Government’s consultation on nuclear power was firstly ruled as seriously flawed by the High Court and in its second incarnation, heavily criticised for being a rubber stamp for a pre-ordained policy decision.

It is clear that new models of participative democracy and governance need to be developed. One area in which we have much to learn is the participation of all sectors of society in debates about science. In simplistic terms, science and discussions about science do not reflect the diversity of society in terms of characteristics such as ethnicity, age and gender. Science should have a key role to play in many of the issues facing society today. The scientific community needs to work with the whole breadth of society in order to have maximum impact.

In addition, many science issues present challenges which, in effect, are only partly related to science. For example, although there has been much debate about the human contribution to climate change, many of the issues are political and social. The community x-change sits within this broader political context.



Jose with our Portuguese interpreter, discussing the issues at the community x-change in Norwich

3. Introduction

The community x-change was a collaboration between the British Science Association and the Policy, Ethics and Life Sciences (PEALS) Research Centre. The British Science Association's expertise lies in science engagement and facilitation and that of PEALS in process design and workshop facilitation.

Other partners provided skills in film production (Swingbridge Video and Living Lens) and drama (Operating Theatre).

The main funders for the project were:

- Sciencewise-ERC: £128,325
- Wellcome Trust: £30,000
- Defra Climate Challenge Fund: £30,000

The community x-change was originally conceived in 2004, partly as a response to the government's 10-year Science and Innovation Investment Framework and the formation of Sciencewise, a government programme to bring scientists, government and the public together to explore the impact of science and technology on our lives.

The project also emerged from a desire within the British Science Association to further explore the concept of public dialogue. The Association's Delivering Inclusion in Science Communication (DISC) project in 2004/5 looked at the barriers between black and minority ethnic communities and science communicators. Some work had resulted from collaborations as part of this project and the community x-change offered the chance to build on this learning. The lack of diversity in audiences for traditional science communication events is often talked about by practitioners but long-lasting impact has yet to be seen from these discussions.

The British Science Festival moves to a different location each year and is one of Europe's longest established science festivals with a greater media impact than any other event of its kind. It was originally planned for the community x-changes to be based over three years (2006-2008) in three subsequent Festival venues – Norwich, York and Liverpool.

The aims of the community x-change were to:

- Provide opportunities for publics to discuss issues involving science and other issues they felt strongly about
- Improve involvement processes between scientists and publics, acknowledging that each brings their own expertise

- Develop processes to effectively include marginalised groups
- Build capacity to enable further interaction between people involved in the x-changes
- Create an involvement process, giving policymakers the opportunity to engage both in the topics and the process

Two key characteristics of the process were contained within these objectives.

Firstly, the process would create space for citizens to talk about issues which they were concerned about. Most engagement processes, whether they are consultations or Citizens' Juries are controlled from the top down. They have strict parameters, defined by the project team or funders, out of which participants cannot stray in their discussions. The community x-changes were designed with a strong bottom up element – with issues for discussion chosen by the citizens involved.

Alongside this bottom up element would be a top down strand. Participants would be invited to engage with a science topic as defined by the funders of the project. However it was hoped that combining top down and bottom up elements in one process would shift the power dynamic. As well as asking their specific questions, funders and policymakers would have the opportunity to listen to issues which citizens were concerned about.

PEALS had trialled a bottom up approach in the Newcastle DIY Citizens' Jury process. Elderly people from low income families and excluded groups were invited to be a part of this process and prioritised the topics for discussion. A two-way engagement was first explored in the UK Nanojury process in 2005, again facilitated by members of the project team from PEALS.

Secondly, the project aimed to work effectively with marginalised groups. The project did not aim to achieve representative samples of the local population in the areas where it was based but instead to over-represent marginalised groups.

The science topics for discussion were selected at the start of the project. Each topic was allocated to one of the project phases and locations. They were climate change (Norwich), functional foods (York) and the use of animals in research (Liverpool).

The subjects were chosen in discussion with the project funders and were selected as being newsworthy, areas of continued scientific research and development and also potentially of interest to citizens.

The initial plan was that each phase of the project would consist of the following components:

- i. planning and involvement of citizens as participants in the workshops and of stakeholders and policymakers as informants and advisers to the process. It was intended that stakeholders (other than citizens) and policymakers would also respond to participant views on the issues discussed
- ii. a series of deliberative workshops where research scientists and non-specialist citizens would meet to discuss local and national issues of concern and propose possible courses of action
- iii. scaling up activities, to take place at British Science Festivals and through the British Science Association's regional network

Following the first phase of the project in East Anglia and prior to the main workshops in York, we decided to have an externally-mediated review process. It became apparent towards the end of the East Anglia phase that for subsequent phases of the project to build effectively on learning from the first phase, a review would be extremely valuable. This resulted in the York phase of the project being merged with the Liverpool phase to produce a deeper, longer engagement in Liverpool.



Somali women at the Liverpool community x-change taking part in a food tasting session

4. Outputs and outcomes from community x-change

4.1 Outputs

Deliberative workshops

The main focus of the project in each region was a series of deliberative workshops in East Anglia and Liverpool.

In each region, the citizens met for four full days spread over 3 weekends within a period of around 6 weeks. The workshops were all held in community venues. The workshops were facilitated by members of the project team with other invited contributors.

	East Anglia 2006	Liverpool 2008
Project Manager	Alice Taylor-Gee (British Science Association)	Dr Nigel Eady (British Science Association)
Associate Director	Dr Tom Wakeford (PEALS)	Dr Tom Wakeford
Inclusion	Dr Jasber Singh (Freelance) Laura Middleton (Freelance)	Dave Clay (Community Engagement Worker)
Project team and Facilitators	Dr Nigel Eady & Nick Hillier (British Science Association) Amy Sanders (Freelance) Dr Fiona Barbagallo designed process pre-2006 (British Science Association)	Catherine Purvis (Newcastle-Durham Beacon for Public Engagement) Dr Jackie Haq (PEALS) Alice Taylor-Gee & Dr Hilary Jackson (British Science Association)

Since the project was designed to be focussed on local communities, details follow on the locations of the partners: the British Science Association is a nationwide organisation with a head office in London, which is where both project managers were based. PEALS is part of the University of Newcastle as is the Beacon. Jasber Singh was based in Lancaster, Laura Middleton in Norwich and Dave Clay in Liverpool.

East Anglia

The first series of community x-changes took place over four days on 10, 11 June and 1 and 29 July 2006, on the topic of environmental change, as well as other issues of local concern.

To ensure the involvement of people who do not normally have the opportunity to be involved in discussions about issues such as climate change, two outreach workers built contacts with a variety of community groups in East Anglia.

The final panel was made up of 39 people, primarily from Norwich, Lowestoft and Peterborough:

- Most participants (16) responded to an invitation sent to people on the electoral roll in low socio-economic wards in Norwich and Lowestoft
- The two outreach workers were successful in recruiting (9) participants from:
 - an after-school club for young people experiencing bullying
 - a hostel for young men who had recently left a young offenders institute
 - people from black and minority ethnic groups, some of whom did not speak English as a first language
- Eight scientists were recruited through the University of East Anglia and Norwich Research Park
- Six young people were involved in the workshops as they had previously been part of a local community video project (with Living Lens). They worked with the other attendees to produce a participatory video of the x-changes

To ensure accessibility:

- Workshops were held in Waterloo Park, Norwich, a location with good transport links, especially as some participants were coming from as far afield as Lowestoft and Peterborough
- We covered costs for childcare provision, translation and travel, including taxis for the infirm
- We also made a contribution towards loss of earnings

All participants were also paid £35 for each day they attended, as a thank you for giving up their time during a weekend.

Initial discussions focussed on people's local environment, in particular issues the group deemed important to them, such as transport and crime. This enabled the group to feel they had ownership of the discussions and that no question or comment was out of bounds. The group also began to bond following a day of activities aimed at getting everyone to meet each other. These extended ice breakers ensured the right atmosphere was created so participants felt relaxed and

open to discuss issues, in some cases close to their hearts. Building trust among the group was important as was making a friendly space for participants to meet.

At the second workshop (Sunday 11 June), a local environmental campaigner, Maxine Narburgh from Suffolk Connect, helped to facilitate the sessions. Since one of the aims of the meetings was to empower those attending and to enable them to feel they could contribute to action on the issues being discussed, Maxine had also invited six environmental volunteers to attend. These volunteers enabled the group to begin thinking about issues around the environment and climate change. In particular, this helped the participants to relate the issues they had raised to climate change.

On the third day, Saturday 1 July, the participants delved deeper into the issues they had begun to discuss over the first weekend. Part of the process involved the group looking at various scenarios, which were written to present some of the tensions there are in responding to a subject like climate change.

Participants talked about the issues in small groups, two of which decided to present their thoughts in the form of a drama. One drama addressed flooding in Norfolk and the other issues of exclusion and isolation. In both cases, the dramas brought a real depth and richness to the process.

The last day of the workshops was Saturday 29 July. Participants were given the opportunity to discuss issues that had been raised during the process and that they were passionate about, with information providers.

One session in the previous workshop on 1 July had been devoted to drawing up a list of potential information providers for this final day. The group identified who they regarded as trusted sources of information. These information providers were then invited to the last workshop enabling participants to engage with them directly.

For the first half of the final workshop participants each chose two issues which they wanted to talk about with the information providers. Having divided themselves into small groups with issues in common, they generated a list of potential questions to ask each of the information providers. Over lunch the participants were able to meet the information providers before having the opportunity to question them.

The information providers were:

- Julie Brociek-Coulton - Executive of Environmental Management, Norwich City Council
- Simon Gerrard - CRed Environmental Group Manager
- Dr Ian Gibson MP - Member of Parliament for Norwich North
- Rik Martin - Raising Aspirations Coordinator
- Maxine Narburgh - Suffolk Connect Environmental Group
- Sarah Strivens-Coups - Police Community Support Officer

The final session was held in a similar manner to a world café. First, the participants returned to their small groups. The information providers then each joined a group. After about 15 minutes, the information providers moved on to another group, so that by the end of the session, each group had questioned each information provider.

British Science Festival session

Following the workshops, a session was run at the British Science Festival in Norwich on Wednesday 6 September 2006. The session provided participants with the chance to discuss and evaluate the workshops. It also showcased the project, with some of the participants presenting a screening of the first draft of the video report they had filmed at the workshops.

Stakeholders and policymakers were invited to attend the session and included Sarah Crudgington, Defra East of England Climate Change Champion. (Sarah was one of nine 11-18 year olds selected in a competition organised by Defra whose role was to encourage their friends, family, school or community to make positive steps to reduce their carbon footprint.) Sarah spoke about a trip she made to Switzerland to see the impacts of climate change first-hand.

Dissemination

On completion of the East Anglia workshops, we produced a resource pack about the environmental issues raised by the participants (see Appendix Three). A series of events were held throughout the UK, based on these resources. Most of the events were organised by members of the British Science Association Branch network. These activities involved nearly 1,100 people and consisted of the following events:

- Green houses - can I really save the planet by making my own energy? - Edinburgh, 18 March 2007
- Derby SciBar series - Derby, 30 April-30 July 2007
- An Inconvenient Truth - Cardiff, 4 August 2007
- Controversy & risk - York, 24 November 2007
- East Oxford community x-change - Oxford, 4 December 2007
- How can you live sustainably? – Oxford, 12 December 2007
- Clean technologies fair – Oxford, 23 February 2008
- Engineering our climate - Coventry, 3 March 2008

We also ran a session discussing the project at the May 2007 Science Communication Conference. The session was called Engaging non-traditional voices, involved a panel made up of a public participant, a scientist and one of the Project Managers.

Both Project Managers delivered the seminar Reaching new audiences as part of the Masters in Science Communication course at the University of the West of England, in April 2007, May 2008 and October 2009.

Members of the project team produced the following articles about the East Anglia workshops to disseminate learning on public participation and community development:

- Are policymakers interested in public engagement? - Science and Public Affairs, December 2006, page 25
http://www.britishtscienceassociation.org/NR/rdonlyres/5437A2BE-58E0-4D3D-88AF-F72C232F616F/0/spa_dec_06.pdf
- Engaging the disengaged - Science in Parliament, Summer 2007, page 32
<http://www.vmine.net/scienceinparliament/sip.asp>
- Community x-change: connecting citizens and scientists to policy makers - PLA Notes 58 http://www.planotes.org/pla_backissues/58.html

The articles in full are reproduced in Appendix one.

Liverpool

A series of community x-changes took place over three days on 22 June and 5 and 26 July 2008 in Toxteth, Liverpool, on health and related science issues.

The independent evaluation of the community x-change in East Anglia led to the employment of Dave Clay, a Liverpool-based Community Engagement Worker. Dave brought a wealth of experience and knowledge of Liverpool, especially the city's black and minority ethnic communities and enabled the project to be embedded within the local community. Each of the community groups below (based in the Toxteth area) were engaged in the project through personal invitations from the Community Engagement Worker resulting in nearly 60 people attending the workshops.

- Pakistan Association Liverpool
- Al-Ghazali Multi-Cultural Centre
- Somali Women's Group

Dave Clay was in post about 6 months before the workshops allowing him time to strengthen his relationships with the local community groups. Building up trust with people is important and therefore allowing sufficient time to do this is key.

Unlike in East Anglia, individuals were not paid to take part but instead the community group was given £200 to be spent by their members on what they wanted.

Six scientists were recruited through universities within Liverpool to take part in the workshops as citizens, rather than as experts.

The workshops were held in a community centre belonging to the Pakistan Association Liverpool in the centre of Toxteth.

The workshops had quite a different feel to those in East Anglia. This was primarily due to many participants already knowing other people attending and the venue being a community centre. There was a family feel to the sessions with a number of people choosing to bring their children with them rather than accept a donation towards child care.

Friendships appeared to develop quickly within the group. The Chair of the Pakistan Association commented, with delight, on seeing the Pakistani and Somali committees meeting and speaking to each other.

Participants were invited to come and share their views and opinions on health issues.

The first workshop started with space for the participants to raise health issues of concern to them.



Participants discussing the issues as part of the Liverpool community x-change

Participants also knew they would be discussing some health-related science issues of interest to the government. The first workshop included performances of two specially-commissioned dramas. The two 20 minute plays explored two science issues: the use of animals in research and the development of genetically-modified

(GM) foods. The plays were written by award-winning playwright, Carol Clewlow and directed and produced by Operating Theatre.

Animal Adventures tells the story of Alice, a young girl writing an essay on animal experimentation. Her father is an eminent scientist who uses animals in his research. As she drifts off to sleep, a mouse and a rabbit appear in her dreams and tell her why they think animal experiments are unnecessary. The play takes some of the themes of Alice Through the Looking Glass and introduces the complex topic of animal research in an engaging manner.

Transgenia presents the debate around genetically modified crops by eavesdropping on the meeting between an MP and an organic farmer from his constituency who has just found out that a GM crop trial is about to take place next to his farm.

The plays were an extremely effective way of introducing the two science issues. They were fun and enthusiastically received by the participants, making the issues accessible to the broad age range present in the room. They also enabled some of the basic science to be presented but more importantly contextualised the social issues around the science. For an audience predominantly with English as a second language, the plays were invaluable in quickly getting the participants to a place where they understood some of the issues and heard some of the conflicting viewpoints without the need for copious information provision.



Following the plays, the workshop participants had the chance to quiz the actors in character.

We made a film during the workshops to capture the opinions of the participants and act as a record of the process. At the start of the second workshop on 5 July, we screened a rough edit of the first workshop and discussed a further GM scenario in detail.

The workshop finished with more in-depth debate about local health issues. Groups talked about who holds power over the issues of interest to them. We generated a list of information providers who it was felt could inform the deliberations of the group. Some of the groups also mapped limiting factors that influence change.

The final workshop was held on 26 July 2008. Participants discussed a range of science, health and local issues with information providers from the list generated in the second workshop. The group believed these people to be trusted sources of information and people who the group wanted to feed back their thoughts to. The information providers were:

- Ann Keenan, Community Engagement Manager, Liverpool Primary Care Trust
- Karl Smith, HEAL 8
- Sam Semoff, supporter of local BME community groups
- Meriel Jones, School of Biological Sciences, University of Liverpool

The morning was spent preparing questions and deciding the key issues. Each group spent time with each of the information providers asking their questions and talking about any potential action that could be taken.

British Science Festival sessions

The workshops occurred in the summer before the 2008 British Science Festival in Liverpool. We ran two sessions as part of the Festival:

- 8 September 2008: a celebration of community projects in Liverpool, including the first screening of the Liverpool community x-change film. Participants who could make it attended and stakeholders and policymakers were also invited. This event took place at Kuumba Imani Millennium Centre, a venue developed by Liverpool Black Sisters - an organisation set up to highlight the lack of childcare facilities and lack of support in dealing with a number of highly sensitive issues, including immigration/nationality, mental health and the ad-hoc selection and recruitment of black foster carers, domestic violence, racial harassment and the under-representation of black women in professional employment
- 11 September 2008: a working lunch, which provided professional science communicators with an opportunity to hear about projects working with under-represented groups. It included a discussion of the community x-change.

Other events where the project manager presented include:

- Nitrogen Science workshop, Madrid, October 2008: a workshop for 25 scientists to develop tools and methods to engage the public with current nitrogen science
- Public Communication of Science & Technology (PCST) Annual Conference, Denmark, June 2008: an abstract was accepted to present the project at this annual conference for people interested in public communication of science and technology.

Sciencewise-ERC events

In October 2008, Dr Nigel Eady presented at a Drop into Dialogue event where he shared his knowledge on managing the community x-change. The session was held at the headquarters of the Department for Business, Enterprise and Regulatory Reform (now the Department for Business, Innovation and Skills) and consisted of a presentation, followed by lunch and an open discussion.

Films

During the open discussion we explored the use of film as the primary reporting mechanism for the community x-changes. It soon became clear that this would require significant extra resource and, most of all, participants with desire to take on this role. Participating in the filming process – for example, holding a microphone and asking interview questions – was a valuable method for engaging some of the younger participants. There was also interest in seeing how a film is made and using film to capture opinions, akin to voxpops. Therefore a number of short films act as companion pieces to this report.

Six short films were produced from the East Anglia x-changes and can be viewed online at:

1. www.youtube.com/watch?v=EPa26Rtv2o (126 views)
2. www.youtube.com/watch?v=Yjra_VtorDU (89 views)
3. www.youtube.com/watch?v=8KjO9RwcSKQ (266 views)
4. www.youtube.com/watch?v=qVxD7s_Wd2s (78 views)
5. www.youtube.com/watch?v=bL4kdEniaHA (81 views)
6. www.youtube.com/watch?v=JdHMrl8t1Ms (50 views)

Figures for numbers of views are given for each film. As at 11 November July 2010, there were a total of 690 views across all six of the East Anglia films.

An 18 minute film was produced of the Liverpool community x-changes. A shorter 5 minute version is available at <http://www.youtube.com/watch?v=LbsXNxJ1c9A>, which has been viewed a total of 234 times, as at 11 November 2010.

We have sent links to the online videos to funders and MPs. The films highlight some of the views of participants on particular issues. However, more importantly, they provide a snapshot of the process.

Working with scientists as non-specialists

In each series of workshops, a small group of scientists from the local area took part not as experts but as citizens.

The aim of involving scientists in this way was to help them see an engagement process from the perspectives of the person being engaged. The scientists were deliberately selected as those who did not have expertise in the subject areas being discussed. We hoped that through the discussions they would see that non-experts can provide valuable input on science issues.

Prior to the workshops, a lunchtime event was held with interested scientists to discuss the project and the role of scientists within it. It was an opportunity for the scientists to find out more and ask questions, without having to sign up to take part in the workshops.

In East Anglia, eight scientists were involved in the workshops as non-specialists. Six scientists took part in the Liverpool x-changes as non-specialists.

Four of the non-specialist scientists from the East Anglia x-changes wrote diaries about their experiences. These are provided in full in Appendix two.

One of the scientists, Laura Bowater also contributed to the Sciencewise-ERC publication *The road ahead – Public Dialogue on Science and Technology* (http://www.webmags.co.uk/mag.aspx?magcode=the_road_ahead).



Two scientists who took part in the project as non-specialists

Working with policymakers

The community x-change process aimed to engage continually with policymakers.

This included involving policymakers alongside a variety of other stakeholders, in a "shaping change" workshop before the participants met in the x-changes.

Policymakers were also invited to contribute to the x-change meetings and were invited to the British Science Festival session to view the video report.

Our experience during the East Anglia project was that the lack of a commissioning department within the government made disseminating learning at the national level extremely hard.

Therefore, for the Liverpool phase of the project, we chose to invest more effort into the local policymaking arena. Local stakeholders and policymakers contributed to the Liverpool workshops, both in attending sessions and providing contacts and other advice.

Website

www.britishecienceassociation.org/web/ScienceinSociety/Past_projects/community_x-change/index.htm contains many of the project resources.

4.2 Outcomes

By bringing together members of the local community with local scientists, trust was built up between both parties. The participants realised that although they may not have much science education, they were more aware of science issues than they realised and were empowered to offer their thoughts about certain issues. As one of the aims was to improve involvement processes between scientists and publics, acknowledging that each bring their own expertise, the project really allowed a mutual respect to develop between the scientists and publics. Many participants commented on how they valued meeting a real scientist as well as the scientists commented on getting to speak to the public.

“The wonderful thing about the x-change was that it brought together a great big melting pot of different people from many communities and walks of life who under normal circumstances would never ever interact with each other.” Scientist in East Anglia community x-change

Another aim of the project was to provide opportunities for publics to discuss issues involving science and other issues they felt strongly about. As the process was top down and bottom up, the value of personal concerns was recognised. It became clear that for many participants local concerns were of far more importance than global and national issues. Providing a safe space for participants to discuss local issues of concern gave depth to the process. Many of the local issues, for example public transport, could be discussed within the broad framework of the environment, allowing climate change to be introduced more naturally to the discussions. However, deep-felt personal feelings were also uncovered which impinged on the global science issue, one participant commenting, “I can’t even influence my local community so how can I influence climate change.” We also observed that willingness to value and promises to act on the views of the community quickly removed perceived barriers. Many participants greatly appreciated the opportunity to meet with other local people outside of their normal acquaintance.

5. Conclusions

5.1 *Involvement*

We found that recruiting participants was made easier by working with existing community groups rather than contacting individuals. Word of mouth was very effective. Having a community engagement worker talking to his/her contacts, who then spoke to their contacts, created a snowball effect in terms of recruitment.

The first phase of the project engaged an outreach worker who was not based locally. Although he had experience in outreach work, he did not know the region well and so had no prior knowledge of community groups in East Anglia or community centres that could be used as venues. Also having to travel from Lancaster to Norwich for face-to-face meetings with community leaders was a long round trip and not something that could be done regularly. To get community groups involved in projects like this takes time, as trust and understanding needs to be established between both parties.

Due to the aforementioned challenges, the second phase of the project recruited someone who was local to the area, with already established contacts and local knowledge, especially of the background of community groups. Being based in the community was an advantage as it allowed more flexibility in meeting up with potential participants as meeting face-to-face was far more effective in building trust than email or other types of correspondence.

Developing processes of effective inclusion of marginalised groups was an important part of this project and resources were allocated specifically to allow the project partners to ensure as many barriers to engagement as possible were removed. Paying for childcare allowed parents to attend; taxis ensured that the infirm could travel to the workshops; and interpreters were able to assist with any language barriers, as English was not the first language of some of the participants. For example, there is a large Portuguese population in Lowestoft. Over the two series of community x-changes, interpreters in Portuguese, Punjabi, Somali and Arabic were engaged.

5.2 *Scientists as citizens*

Involving scientists in the dialogue process as participants as opposed to experts worked well. Having scientists on an equal footing meant that other participants did

not feel that the views of scientists were necessarily more valuable than their own. The scientists also valued meeting other people local to where they live, who they might not normally spend time with. Scientists and non-scientists shared issues of local concern due to living in the same area, bringing both parties together.

There were however challenges in recruiting scientists to the process in that scientists sometimes were not sure what public engagement entailed and why they should take part. In 2006, the British Science Association ran a lunchtime open session at the University of East Anglia, where scientists interested in finding out more about the project could come along, with no obligation to participate. It was an opportunity to discuss why they might want to take part and the benefits of doing so. As the scientists were taking part as participants and not experts as such, they were paid the same as other participants for giving up their time on a Saturday.

The scientists who signed up to take part in all the workshops were therefore self-selecting and included both sexes and a range of ages and scientific disciplines. Listening to the general public's views on science and their questions on science was a new experience for the scientists and all the scientists involved found the process educational. This learning is noted in the diaries kept by many of the scientists during the community x-changes (Appendix two).

5.3 Top down bottom up

The issues discussed during the community x-changes were a mix of top down and bottom up. The Department for Environment, Food and Rural Affairs (DEFRA) was one of the funders for the first phase and was interested in finding out public views about climate change, providing the top down element for these x-changes. The pre-defined topics in the second phase of the project were animals in research and functional foods, as the Wellcome Trust was a funder that year.

The methodology used in the project involved combining top down science issues with bottom up issues. The latter were topics chosen by the participants during the workshops, allowing them to have some control over the agenda. During the workshop, time was allocated to both top down and bottom up but it proved difficult to do both and sometimes it was not clear why so many issues were being discussed. Some bottom up topics seemed to have no connection to the top down issues creating confusion for both participants and also the project team. When time and space was allocated to a single issue discussions were far more focussed. This may have been a more effective approach for the whole process.

The choice of top down issue was also significant, especially in terms of natural linkages to bottom up issues. For example, the topic of health was very relevant to

people's lives and was discussed by all, as opposed to topics which were more abstract or less relevant. There are ways of designing workshops which achieve both goals so given this experience a new type could be designed which really works next time.

5.4 Policy hooks

This project was not specifically linked to any particular policy area or government department so the project team found it difficult to get many policy makers involved in the process. Rather than getting the participants of the project to agree on a set of recommendations regarding climate change for example, the project focussed on community development.

One aim of the community x-change project was to create an involvement process, giving policymakers the opportunity to engage both in the topics and the process. We tried to establish links to policy makers early on in the process by inviting them to the workshop that shaped the whole project as well as inviting them to the final showcase events at the British Science Festival. Neither was very well attended by policy makers as there was no real hook to get them in the door in the first place. More recently Sciencewise-ERC has required that public dialogues are commissioned by a policy owner and that there is a policy hook as pre-requisites for support.

However, building capacity within the community that we worked in, giving people a voice about science issues and creating a space for scientists and publics to share their thoughts were important achievements of the project.

The learning regarding working with community groups, specifically black, Asian and minority ethnics, has been incorporated and shared with other staff at the British Science Association and led to training for all senior management on the topic of diversity.

Appendix one - Articles from the East Anglia community x-change

Are policymakers interested in public engagement? - Science and Public Affairs, December 2006, page 25

http://www.britishtscienceassociation.org/NR/rdonlyres/5437A2BE-58E0-4D3D-88AF-F72C232F616F/0/spa_dec_06.pdf

Are policy-makers interested in public engagement? Alice Taylor-Gee and Nigel Eady hope they are

The need for better public engagement in policy decisions is widely acknowledged. The 'hardware' required for engaging with publics – citizens' juries, focus groups, consensus conferences – is well known.

Through an innovative project called the community x-change, the BA has been focussing on trying to change the 'software' – the attitudes, values and principles within policy-making circles .

Community x-changes

Public engagement is now de rigeur in the field of science communication, yet many questions remain. Do policy-makers have the capacity to engage effectively with participatory processes? Who defines the opportunities, subjects and framing of the issues the public are allowed to discuss? Do scientists get the chance to discuss science issues with their local community?

We wanted to provide opportunities for scientists and the public to engage through dialogue. We wanted to provide opportunities for citizens to discuss issues involving science. As well as this, we hoped to improve dialogue practices, particularly those allowing excluded voices to inform policy; and to improve the way communities and decision-makers become involved with each other. We also wanted to develop policy makers' capacity to engage with participatory processes.

The community x-changes are running over three years in three different locations. In the first year, based in East Anglia, the project has set out to provide a space for a diverse group of people to discuss climate change, amongst other issues. We held a series of structured deliberative workshops where citizens, including scientists and policy makers, met to share their opinions and strategies for positive change.

Workshop participants

The workshops applied a 'two way street' approach, pioneered by our partners at PEALS (Policy, Ethics and Life Sciences Research Institute), Newcastle University, where participants could identify issues of local concern as well as discussing issues that were pre-determined. Past projects have shown that this leads to better commitment on all issues and a greater sense of ownership of the discussions.

Involving people in public engagement exercises has many potential pitfalls. Time constraints can lead to a reliance on dominant community voices, obscuring and even misrepresenting genuine views. The community x-change process was therefore designed to include voices that are rarely heard. With this in mind, many of the participants were invited by linking up with local community and school groups. Alongside this, we used conventional approaches including direct mailing using electoral roll data.

A cohort of scientists also actively contributed to the process, as citizens. However, we excluded scientists with expertise in the area of climate change so there was less risk that citizens felt that the professional researchers knew all the answers. The main issues to emerge from discussions were: improving public transport, encouraging schools to run eco-friendly initiatives, creating a space for the community to meet and reducing crime.

Policy-makers and key stakeholders have been involved and informed throughout the scheme. The outputs of the process have been shaped to fit the remit of those creating and contributing to policy, as well as providing the chance for policy makers to hear the views of the panel face-to-face.

A new space

We have created a space for traditionally excluded voices to be listened to. We have engaged a number of members of the community on scientific issues, and increased understanding of the kind of things that the panel may be able to do as individuals.

The results of the x-changes are being shared at a variety of levels. A DVD of the project, along with diaries of participants, was presented at the BA Festival of Science. The x-change participants are helping us design a resource for the 33 BA branches across the UK, as well as looking at how to press for the outcomes to be acted on in their region. This will act as a springboard for events all around the country, multiplying the number of people taking part in this project .

Sharing the results of the process with policy-makers has, unsurprisingly, proved to be difficult. Dialogue activities seem most popular among policy-makers when they own them exclusively, rather than having to be answerable to the results of an independent process.

Even though relevant policy-makers were engaged early in the process it is hard, at this stage, to say whether this first phase of the community x-change will result in concrete changes. Through Sciencewise, a number of policy 'hooks' have been identified and there have been a number of fruitful discussions.

The national rollout events, and our follow-up work with participants in East Anglia, provide a longer time-frame within which to embed our group's views and experiences within policy.

The community x-change is funded by Sciencewise, Defra and the Wellcome Trust.

Engaging the disengaged - Science in Parliament, summer 2007, page 32

<http://www.vmine.net/scienceinparliament/sip.asp>

Dr Nigel Eady, Science in Society Officer, the BA (British Association for the Advancement of Science)

Recent years have seen a shift in science engagement activities from rigid 'top down' approaches to methods that consciously allow participants to share power in decision-making. However, the community x-change, an innovative project run by the BA (British Association for the Advancement of Science), shows there is still a long way to go.

Power to the people

Since the House of Lords Science in Society report of 2000 there has been a steady stream of developments in the science communication field. Everyone is 'doing dialogue' and the processes and approaches of participation are gradually becoming embedded within institutions. The formation of Sciencewise, the proposed Expert Resource Centre for Public Dialogue on Science and Innovation and the Beacons for Public Engagement all demonstrate awareness, at a high level in public institutions, of the need for a social licence for the advance of science.

However, whilst these developments have been welcomed in many quarters, there still exists a suspicion regarding the quality and utility of these sorts of processes. Whilst new 'hardware' exists to probe public views some doubt whether culture change, the 'software' required for a meaningful response, has occurred.

Over-representing the under-represented

In this context, the community x-change was designed to explore a new methodology for dialogue. This 'two-way' approach takes elements from a number

of different initiatives, including citizens' juries and common language projects, to provide time and space for citizens to discuss issues of local concern as well as those with national implications – year one of this project addressing climate change. A series of structured deliberative workshops were held where citizens, including scientists and policymakers, could share their opinions and discuss strategies for positive change.

A distinguishing element of this process is that it seeks the views of voices currently excluded from public debate. It is easy to tick the diversity box for such an engagement process whilst never getting beyond the gatekeepers within local communities. Two outreach workers were therefore employed to involve a wide range of participants in the workshops, especially targeting the marginalised in society. Over a number of months they met and worked with a wide range of local groups to encourage their involvement in the process.

Through this project we wanted to learn how to improve practices of dialogue, particularly those allowing currently excluded voices to influence policy. We wanted to learn how to improve involvement processes which address issues that communities, as well as policymakers, deem to be of concern. We also wanted to develop the capacity of our elected representatives to engage with participatory processes. With this in mind, close contact with policymakers and stakeholders was maintained throughout, in order to ensure appropriate outputs.

A safe space

The community group of about thirty participants included representatives from a broad range of groups: black and minority ethnic communities, non-English speakers, ex-offenders and young people, to name a few. A small number of scientists were also involved who were not experts on climate change but deliberately recruited as citizens.

Providing a safe space for participants to discuss local issues of concern gave depth to the process. Many of the local issues, for example public transport, could be discussed within the broad framework of the environment, allowing climate change to be introduced more naturally to the discussions. However, deep-felt personal feelings were also uncovered which impinged on the global science issue, one participant commenting, "I can't even influence my local community so how can I influence climate change." We also observed that willingness to value, and promise to act on, the views of a community quickly removes perceived barriers. Many participants greatly appreciated the opportunity to meet with other local people outside of their normal acquaintance.

The future

Participants presented their video report of the workshops at the BA Festival of Science in September 2006 and the videos are now available to view online . To extend the influence of the discussions, a series of events based on resources from the project are now running across the country throughout 2007.

The project has now entered a period of reflection and evaluation. Further workshops are planned in Liverpool, European Capital of Culture 2008, to coincide with the BA Festival of Science. There has been a great deal of learning within the project team about the benefits of collaborating with local communities and we will endeavour to embed future processes more deeply in local community structures. For example, we will provide greater levels of support to the group after the workshops to enable them to engage over a longer period of time with issues discussed. The danger with all engagement being that aspirations and expectations are raised, only for the individuals to be left high and dry once the project team move on. Without doubt, a comparable challenge is presenting the views expressed in a manner that influences decision-makers both locally and nationally.

The community x-change is funded by Sciencewise, Defra and the Wellcome Trust.

Community x-change: connecting citizens and scientists to policy makers - PLA Notes 58 http://www.planotes.org/pla_backissues/58.html

Community x-change: connecting citizens and scientists to policy makers by Nigel Eady, Jasber Singh, Alice Taylor-Gee and Tom Wakeford

Introduction

Our community x-change process aims to strengthen links between the public, scientists and decision makers, and to create opportunities for discussion and debate that will help to influence the directions of policy.

Our project draws on elements of various methodologies for public participation, not least the IPPR citizens' jury model (see Kashefi and Keene, article 5, this issue). However, it seeks to incorporate learning from experiences of bottom-up processes of engagement, which provide space for participants to set and shape the agenda. A conventional IPPR-style citizens' jury would have a decision or question on which to make a ruling. However, as the name suggests, the community x-change is a process by which a group of citizens exchange experiences with appropriate stakeholders in order to co-produce knowledge. Therefore, the boundaries between experts and lay knowledge are disrupted in order to create a safe space where all knowledge is respected and recognised without any form of knowledge being given special attention on an elevated platform.

An unusual feature of the community x-change approach, compared to most science communication events in the UK, is that it provides opportunities for scientists to participate in an engagement process as regular participants, without being called upon to act as experts.

Origins

In the mid-1980s in the UK, it began to be acknowledged that communication is an integral part of being a scientist. Initial attempts to communicate tended towards a one-way transfer of information from the 'knowledgeable' scientist to the public. However, with both a perceived lack of public trust in science and controversy over issues such as genetically modified organisms (GMOs), foot and mouth disease and bovine spongiform encephalopathy (BSE), to name but a few topics, it has become clear that a one-way knowledge exchange is not enough. It is in this context that the community x-change aims to involve scientists not as experts but as citizens. For most scientists familiar with a reductionist approach to a particular question or problem, it is unusual to be involved in an approach which draws on a broad range of expertise, and which values lay perspectives on issues normally the preserve of the 'expert'.

The project is the joint initiative of the BA (British Association for the Advancement of Science) and the Policy, Ethics and Life Sciences Research Centre (PEALS), based at Newcastle and Durham universities. The first x-change was convened in the summer months preceding the BA's annual Festival of Science, a six-day series of talks, discussions and debates highlighting recent scientific developments and intended for the public and popular media. A small group of participants from the community x-change shared their experiences of the x-change process at a session held at the Festival in Norwich on 6 September 2006, where a video of the x-change meetings was also shown.

The Norwich community x-change

In the summer of 2006, a group of people of mixed age, ethnicity and background, took part in the first community x-change, in the city of Norwich in East Anglia, UK. They met to discuss local issues of concern, and also to reflect upon and debate about their local environment and climate change, to share their thoughts and ideas on possible action, and to frame questions for further exploration. They then raised these ideas and asked questions of the decision makers, whom they themselves had nominated to be invited to the final workshop. Highlights of the discussions, presented in a series of short videos of the x-changes, recorded by six young people who had previously participated in a community video project, are available on the project's website.

Over four days in June and July, 39 people – mostly from Norwich, Lowestoft and Peterborough – met in Norwich. Two participatory practitioners had spent time building contacts with community groups throughout the region, to recruit participants from a wide range of communities. Sixteen participants had responded to an invitation sent to people on the electoral role, and eight scientists were recruited from the University of East Anglia and Norwich Research Park. It should be noted that the process was not trying to achieve a representative sample of the local population. Rather the aim was to over-represent groups who might not be able to push themselves to the fore in a public meeting or consultation. For example, participants included individuals from the Bangladeshi and Portuguese communities who do not speak English, and young men from a hostel.

Despite the large group, relationships quickly developed, especially as participants met others living in the same local area. Initial discussions focused on issues about the local environment, such as transport and crime. How could public transport networks be improved? What factors are driving young people towards criminal behaviour? As the group began to feel they had ownership of the discussions, and that no questions or comments were out of bounds, groups began to gel.

On the second day, a local environment campaigner, Maxine Narburgh from a charity called Suffolk Connect (now Bright Green), helped to facilitate sessions along with six of the charity's environmental volunteers. In particular, this helped the participants to relate the issues they had raised to climate change. For many of the participants, climate change appeared to be a global issue for governments to discuss and tackle. However, relating global warming to the amount we consume, whether we recycle, the modes of transport we choose – or have – to use, started to open up debate.

On the third day, the participants delved deeper into the issues they had begun to discuss over the first weekend. Alongside issues related to climate change, the group were keen to include social issues of community breakdown and the lack of public meeting places. Of significant concern were specific issues around meeting places for, quite often, isolated ethnic minority women. The participatory process enabled gender inequalities to be drawn out and drew attention to the importance of women's voices in climate change discourse. Part of the process involved the group looking at various scenarios, written by the project team, to present some of the tensions emerging from climate change. Participants talked about the issues in small groups, and two groups decided to dramatise their discussions. One drama addressed flooding in Norfolk, and the other issues of exclusion and isolation. In both cases, the dramas brought a real depth and richness to the process.

In the final workshop, participants had the opportunity to discuss issues raised during the x-change process with 'information providers'. One session in a previous

workshop had been devoted to drawing up a list of potential information providers. So the group was able to say who they deemed to be trusted sources of information and to generate questions for these specialists. Those who attended included two environment experts, one who works with a variety of stakeholders, including businesses, on a project to reduce carbon dioxide emissions. The other was an environmental activist. A police community support officer, a local councillor and the local MP also attended.

Feedback from reviewers

After Norwich, a team of reviewers, Jenny Chapman and Antonella Mancini, with expertise in community development and participatory approaches, were commissioned to undertake a mid-term review of the process. The intention was to draw out lessons learnt so far, to be incorporated into the next community x-change in Liverpool. These reviewers read all the reports and diaries, viewed the video and raw footage, interviewed 21 members of the project team and the participants, and held a focus group discussion in Norwich with five participants. Although the sample was small and unrepresentative, it was clear that the workshops were enjoyed by most participants and that most had found the experience interesting and engaging. Some participants, however, would have liked more clarity about the purpose behind the workshops. Most expected that something would come out of the process and, in particular, that the information generated would be presented to decision makers. One benefit of working with the review team was that it became clear that a more realistic assessment was needed of resources – human and financial – available to make change take place.

In discussion with the reviewers, the project team acknowledged that they were over optimistic in their expectations as to what they could achieve in a short period of time, in a process led by people from outside the region and with only temporary links to local communities. Another issue that the review team voiced was that there was too little attention paid to explaining to participants the overall purpose of what was being done.

The reviewers recommended an externally facilitated workshop to look at objectives for the next project phase, to agree clear, shared and realistic objectives and to develop a clear theory of change as to how those objectives might be achieved. The project team were only too aware of the inherent power imbalance within the project around decision-making on issues of climate change. However, in seeking to redistribute the power, particularly around local issues of concern, there was now a clear plan for how participants might affect change. Future workshops would need to allow participants to work with stakeholders to formulate and own a plan to create a better future.

The review team also advocated that the key stakeholders take collective responsibility to improve group dynamics within the project team. All team members should know what is happening and why. The reviewers judged that there had been insufficient feedback and joint reflection about the model and methodology employed at Norwich. We needed to prioritise learning, monitoring and evaluation in the next phase of work. The reviewers specifically recommended a clear write-up of methodology before the workshops and that the x-change process would benefit both from on-going feedback from participants and from project team members. Where a number of project partners work together, clear terms of reference needed to be negotiated within the project team to enable a transparent and mutually agreed decision-making process.

Feedback from participants

Four of the scientist participants kept a diary of their experiences, from which the following quotations are drawn. Helen Czerski asks:

So what will come of all this? It was a fantastic way to explore the problems in society and to hear many different points of view. There was a genuine feeling that if this group had a discussion and made a decision, after hearing a cross-section of opinions and the reasons for them, then the group as a whole would be far more likely to respect that decision, even if they didn't like it. But how do you use a set of opinions expressed by such a group? It was very useful for all of us, but how could we apply what we discovered more generally? I think that the links made between people who live close enough together to see each other on the streets of Norwich or Colchester will be very valuable to them, but the whole of East Anglia is a bit too large for that sort of interaction. I hope that more of these happen and that it makes local communities more cross-linked as a result. The more people who are exposed to the opinions of others in society in an environment like this, the better – or so I think. Thank you to the BA for giving me the opportunity to participate. And if you ever hear of one of these happening near you, don't hesitate to volunteer!

Peter McKeown writes:

I certainly came away from the x-change with a lot of food for thought, as well as a lot of optimism about people's enthusiasm for dealing with problems within local areas. Like most of us, I'll be interested in seeing what becomes of the outcome – what thoughts it provokes when shown at the [BA] Festival, and how it compares with the results of other similar exercises. I particularly hope it is followed up on by local government, and attracts interest from the local press, as opportunities to hear people frankly discussing their thoughts in an unpressured environment are all too rare.

Laura Bowater writes:

The wonderful thing about the x-change was that it brought together a great big melting pot of different people from many communities and walks of life who under normal circumstances would never ever interact with each other. It made me see that in today's society we are individuals who have some contact with our immediate community but that we have hardly any contact with different communities or members of society [...] The really amazing thing that I discovered was that almost everyone in these communities wanted to find ways to break through the barriers [...] and form wider links with other people from other backgrounds, other beliefs, and other age groups. We noticed that our immediate environment and where we live can make a huge difference to creating these links. It was felt that having green, pleasant spaces where people want to pass the time as well as town and community centres that are inclusive and welcoming are steps that would start to break down the isolation and the alienation that people feel in British society today.

Reflections

The community x-change has highlighted the importance of recognising community perspectives in developing solutions to one of the biggest challenges of modern times – climate change. The key message we took from the x-change was that feelings of disempowerment and isolation were at the forefront of people's minds, especially some of the women and younger participants. A conclusion we have reached following our experiences in Norwich is that changing the culture that disempowers and isolates these people is inherently linked to the development of climate change solutions. Like nanotechnology (see Singh, article 4, this issue), climate change does not perhaps fit as neatly into the 'science' box as some suppose.

Perhaps the enormous threat of climate change provides an opportunity to reinvigorate democracy and collective action. These, no doubt, will be among the key ingredients required to adapt to a rapidly changing climate. The x-change highlighted the limitations of top-down behavioural change initiatives that target the individual and do very little in allowing communities, especially women and young people, to develop safe spaces for collective analysis of issues of primary concern in their locality – which, no doubt, will be both social and climate-related.

The other challenge that the community x-change highlights again and again is one of institutional culture change.

Over the last 25 years, the focus of the UK science communication community has gradually moved away from dealing with complex issues using simplistic methods of information provision. There is now a glut of initiatives in the sphere of what has

become known as public engagement. Scientists will act as citizens in much the same way as any group of individuals in such processes. However, the sort of innovative and flexible thinking that allows knowledge to be co-produced, as we attempted here, is much less readily found. There is now increasing appreciation of knowledge gained from those other than professional experts, for example within the farming community about ecology, or within patient groups about treatment procedures and regimes. But this sort of knowledge, derived from these 'experts by experience' is rarely valued by policy makers. Few of them, in the UK at least, behave as if the expertise, values, hopes and fears for research and regulation can yield creative solutions to complex problems.

For institutions, such as the BA and universities like Newcastle and Durham, the key challenge from this project is to embed participatory approaches within the organisational fabric and move beyond one-way communication of science. A great amount can be achieved through careful planning. Key questions must be asked at the outset about the thinking behind the approach chosen:

- What are realistic timescales for this project?
- What are the barriers to engagement?
- Who can we work with to ensure critical monitoring and evaluation before, during and after the process?
- Have we considered all the various sources of knowledge which could be utilised to produce a creative solution?

These questions could also have profound impacts on the government, learned societies and universities.

As our community x-change process begins in Liverpool, so we have recognised a drawback in the funding model behind our project. It does not allow our project team to become integrated into the community in which it works. We have therefore employed a Community Engagement Worker from the area of Liverpool in which we will be working. The funding for this process ends in the near future and we want to maximise the possibility of future interactions between participants. So we are working closely with a number of community groups from the area within which we have drawn our participants. In parallel, we are seeking to share our learning and encourage others to implement it more widely within our organisations. The true legacy of this project in the long term could be significant changes in the way we 'do' science. This would be the most significant demonstration of long-term success of the community x-change.

Appendix two - East Anglia non-specialist scientists' diaries

Dr Laura Bowater, John Innes Centre

I have to admit that it is with some trepidation that I signed up to take part in the East Anglia community x-change. However I thought that the concept sounded really interesting especially after I found out that the topic for this year's x-change is the environment. Although I am not an environmental scientist by any means, I am a member of the public who happens to have a scientific background (I study the biochemistry of bacteria). For many years now I have had an avid interest in environmental issues. I see the environment as something very precious which mankind is changing at a remarkable rate and I do not think that we are changing it for the better. I really believe that we have to take a moment in time to stop what we are doing and look into the future to see the impact our current lifestyle is going to have on everyone's life on this planet in the next few decades.

Before taking part in this project it would be true for me to say that I felt that it was only a few 'lefty middle class activists' who were passionate enough and worried enough to take individual steps to try to make a difference to our future. It really concerned me that people within our society live their lives in a bubble. We think about ourselves and our needs and the needs of our family but the needs of our immediate community and the world wide community are pushed aside and forgotten. It also scared me to think that we are going to have to rely on everyone to pull together and work together in order to make a difference. I think this is because I really felt that most of the world just isn't interested. They haven't woken up to the fact that the way we live today may mean millions of people suffering tomorrow. Worrying about the future is a priority that is way down their list compared with the urgency of getting through today.

I really valued being given the opportunity to make my voice heard. I suppose that in the beginning I saw the importance of having my thoughts recorded on video. It seemed a fantastic opportunity to have policy makers and people with the power to make a difference, listen to my concerns. However by the end of the project I realised that what was also so important was to talk about my concerns with other people. The wonderful thing about the x-change was that it brought together a great big melting pot of different people from many communities and walks of life who under normal circumstances would never ever interact with each other. It made me see that in today's society we are individuals who have some contact with our immediate community but that we have hardly any contact with different

communities or members of society. This isn't through choice but through circumstances and the way that people, these days, live their lives.

The really amazing thing that I discovered was that almost everyone in these communities wanted to find ways to break through the barriers that have been built higher and higher throughout the years. We all wanted to form wider links with other people from other backgrounds, other beliefs, and other age groups. We noticed that our immediate environment and where we live can make a huge difference to creating these links. It was felt that having green, pleasant spaces where people want to pass the time as well as town and community centres that are inclusive and welcoming are steps that would start to break down the isolation and the alienation that people feel in British society today.

We were given the opportunity to talk to our local MP, our local Councillor as well as a police officer. Being able to speak to these people, being able to voice our concerns and most importantly, being able to give them our suggestions about what we feel will make a difference, was empowering. This made me realise that the video can reach people that matter and that they will be interested in what we have to say. It also made me see that we all have a voice and that we should use it. We were also told other ways that we as individuals can go about getting our voices heard. It also confirmed to me that 'having your say' does take effort but that we can all do it and now we know how to do it.

The final thing that I learnt from these workshops is that when people are given the information about climate change and the environment in a way that they can relate to and understand they are concerned. We are all willing to play a role in trying to improve our local area and the wider community. It isn't just 'lefty middle class activists' who care. The x-change brought in people who talked about a couple of local groups who are trying to make a difference and who were making an impact. We were made aware of the fact that people can be 'reached' and can be made to care. However, we need to give people the information, the facilities and the chance to make a difference. I hope that this project has set us on the road to achieving this.

Dr Helen Czerski, Cambridge University

When you're standing at a bus stop or waiting in a queue at a shop, do you ever idly watch the other people around you? I do. I wonder who they are, why they are in a hurry, and why the thing that they are clutching is so important to them... I wonder what their story is. All these individuals together are the "Great British Public", but who exactly are they? Do I really know the people of my own country? Do you?

In June, I was invited to join in with the community X-change organised by the BA and I got the chance to meet some of the people who I would not otherwise have

come across. We were a very diverse group of thirty people from all over East Anglia, of varying ages and from a huge range of social groups. There were also several “facilitators”, people who had experience in leading this sort of group activity, and their job was to make sure that everyone had their say and to keep it structured. The group met for four whole days in Norwich, spaced out over a few weeks.

I volunteered to go along just because I had the free time and because I was interested to see what it was all about. I’m very aware that I know only a limited section of the population – if you don’t do science or sport I’m much less likely to have met you. I also work within a university environment (I’ve just finished my PhD) and so most of the people I see have a lot in common. They’re pretty liberal-minded academics, able to afford the odd crazy hobby and they generally lead very active and goal-oriented lives. It’s a small subset of society and it has always worried me that I don’t know much outside that box. My sample set, if you don’t mind the phrase, is not very representative.

We started off with games to get to know the other people in the group and then we split into smaller groups to talk about the issues that were most important to us in our local society. Every so often, the groups would all meet, present their ideas to the rest, and then new groups would form to discuss specific issues that had been raised. The small groups were a great opportunity because they allowed time to hear the views of everyone in that group. Everyone was very friendly and willing to listen and there was lots of time to chat to people individually as well. It was fascinating to hear how people prioritised issues in society – whether the fact that their bins were not emptied on time each week was more important to them than the risk of flooding in East Anglia. It was also possible to hear both sides of an issue, for example the younger people who might socialise on street corners described why and we also heard from others who feel threatened by such groups on the streets. The best bit was being able to question someone directly about how they felt. Even if you know about a situation by reading about it, you rely on the journalist to cover all the issues and you have no opportunity to ask your own questions.

I was asked to go along because I was a scientist, and it was very clear that it was possible to generalise about differences between how I approached things and the group in general did. Of course, a scientist is just another member of society and my view does not necessarily count for more than anyone else’s. However, my method may have been a bit different. First of all, I would choose discussion groups for issues that I knew nothing about, purely in order to improve my knowledge – effectively to extend my data set. I noticed the other scientists there doing the same sort of thing. The group in general was far more likely to stick with the one or two issues that were of most concern to them. Also, I feel that it is possible to influence the way things are done in society because I believe there are reasons for the way things happen – for

example, the reason that little local shops are disappearing is that even though everyone complains about huge supermarkets, most people shop there. If you want little local shops, don't buy your groceries at the supermarket. For many people there, there seemed to be a powerful feeling that "they" made the decisions and that there wasn't anything they could do about it. As a scientist, maybe I was a bit more likely to look immediately for the causes of problems and ask what could be done about those causes, rather than stopping at the problem itself.

So what will come of all this? It was a fantastic way to explore the problems in society and to hear many different points of view. There was a genuine feeling that if this group had a discussion and made a decision, after hearing a cross-section of opinions and the reasons for them, then the group as a whole would be far more likely to respect that decision, even if they didn't like it. But how do you use a set of opinions expressed by such a group? It was very useful for all of us, but how could we apply what we had discovered more generally? I think that the links made between people who live close enough together to see each other on the streets of Norwich or Colchester will be very valuable to them, but the whole of East Anglia is a bit too large for that sort of interaction. I hope that more of these happen and that it makes local communities more cross-linked as a result. The more people who are exposed to the opinions of others in society in an environment like this, the better – or so I think. Thank you to the BA for giving me the opportunity to participate. And if you ever hear of one of these happening near you, don't hesitate to volunteer!

Peter McKeown, PhD student, John Innes Centre

Over the course of summer, I took part in the Community X-Change programme, which was being held in Norwich as a prelude to the BA Festival of Science. Across three weekends, people from across the area met to discuss issues important to us, especially those related to the environment. I had applied to take part after seeing posters at work, as I think that environmental concerns should be near to the heart of every scientist, and it seemed like a good opportunity to see how this important issue was viewed by other members of the community. Having said that, after applying, I promptly forgot about the whole thing, so I'd like to think I arrived with very few preconceptions!

The meetings were held in the beautifully restored pavilion of Waterloo Park in the north of Norwich, and brought together people from the Fine City itself, and from Peterborough, Lowestoft and rural areas. The setting really helped – even once the heat-wave had really got underway, the park remained a beautiful green space filled with tree-lined avenues and ponds full of frogs, which grew up over the course

of the events. It was a good place to be reminded of the importance of the local environment for our well-being.

On the first day, we began with trying to get to know each other over lunch and, introductions, and a few silly games, before splitting into age-groups for some informal brainstorming – basically, what we wanted to talk about. We hadn't known each other long, but seemed to click quickly, and that everybody had a chance to be heard. One thing that soon emerged was that, despite different back-grounds and some differences in priorities, a lot of the things which concerned us were very similar: knowing where we fitted in with the wider community, public transport, council accountability. These themes seemed to turn up from other groups as well, as did concerns about discrimination (both racial and age-based) and crime. On this first day we also met with a community film-group from Peterborough, which gave some of us a chance to try out our interviewing skills... concluding with an ad-libbed performance of Jerry Springer which explored the issue of disruptive school pupils (I think we found a natural Jerry Springer, which certainly helped!).

The second day continued with a more in-depth discussion of issues, in my case, transport. Again, a lot of the same concerns emerged, especially the fact that people really wanted to help both the environment and the community in whatever ways they could, but weren't sure about, say, the reliability of public transport. Although we were trying to tackle some tricky subjects, everything seemed to remain friendly and relaxed – although sometimes a person would take more of a 'co-ordinating' role, mostly we just chipped in with whatever thoughts we had and let the discussion develop from there (although sometimes the facilitators had to step in to stop us getting too side-tracked...).

The second session started with more role-playing. Our group had a difficult brief – to talk about the costs of environmental damage caused by global warming in human terms, and especially the discrimination felt by the victims of climate change – and we were only partly successful. We portrayed the tensions in a Norfolk coastal community facing sea-level rises, with myself cast as an amiably monstrous stock-broker with a second home in the area, whilst other members played an engineer from New Orleans, Defra officials trying to prioritise their response and indigenous villagers concerned with looking after their community. I think explored the tensions within local communities well, and the fact that these problems fall more heavily on the less well-off. However, our attempt to introduce a refugee from climate change never really fitted in and he ended up turning into a rather unforgettable grotesque called 'Mr X'. I don't think he'll easily be forgotten... This did rather illustrate that it's much easier to appreciate issues at the local level, and getting the broader picture was hard. Oh, and England won.

Unfortunately, I missed the third session, which would have brought local experts in to try to address our concerns, for example by providing us with local information sources. Despite missing the ending, I found the experience both valuable and enjoyable. I'd gone in wondering if I'd encounter a lot of different opinions, but in the end I was struck by how many people seemed to share my own thinking and concerns. As far as I could tell, this was not limited to people of my own age group or to the few other people with scientific backgrounds – even some of our 'solutions' were quite similar (renationalise the railways!). Similarly, although there were times when I volunteered information that I'd garnered during my scientific training, my view-point didn't seem far removed from anybody else's.

I certainly came away from the community x-change with a lot of food for thought, as well as a lot of optimism about people's enthusiasm for dealing with problems within local areas. Like most of us, I'll be interested to see what becomes of the outcome – what thoughts it provokes when shown at the Festival, and how it compares with the results of other similar exercises. I particularly hope it is followed up on by local government, and attracts interest from the local press as opportunities to hear people frankly discussing their thoughts in an unpressured environment are all too rare.

Jacqueline Smith, PhD student, University of East Anglia

Before:

I wanted to take part in the project because it appeared interesting and relevant to my studies. I left teaching for a year to study environmental impact assessment (a MSc at UEA) and my project led to a local controversy about a shoreline management plan. I became personally involved as a secretary to a new planning partnership formed as a result of local concerns. I like people and wanted to make a contribution to help resolve disputes, understand them and find a way to make people feel they could have an influence in decision making, if they so desired.

My expectations of the project were that it would allow me to hear from people that I would not normally have the opportunity to meet or talk to about their concerns. I had an open mind about the outcomes and no clear idea about the structure except that we were to discuss environmental possibly climate issues. I expected my role to be mostly of observer.

During:

The meetings allowed people to mix well and it was interesting to work out where people were coming from. This took some time and somewhat deflected from the discussion. However part of a group dynamic is understanding why people hold their views. It may be more comfortable in the long term and more productive for people to make their own conclusions about others, rather than have labels put on them. The disadvantage of this is that it takes more time.

I feel I did have a scientific agenda and was interested in group dynamics, due to my studies of public participation. I also floated the idea of flooding because this too is part of my area of research. However because of where I live, on the coast and I sail, I have a personal interest in coastal protection and did not feel too guilty about suggesting this idea. It was apparent that people were motivated by their personal experiences.

After:

I think it could be productive to use the group again. It takes time for people to trust a process and I think the people who persisted could productively discuss other issues that concern them or be asked for their opinion. I missed the last session so don't know how more information was used. Participation in this process has given me more experience with a focus group. The particular mix of this one, although diverse, showed that people have concerns that they can agree on and empathise with others about.

Appendix three - Resource pack for roll out events following East Anglia phase



Funding opportunity

...contribute to the community x-change

Brief summary

The BA Science in Society team has funds to offer you to run an event shaped by the outcomes of the community x-change project. Up to £500 is available per event. All events should have **climate change** as the broad theme; however there is great scope for you to plan the sort of event that you would like to run. Maybe you want to target your regular local audience or maybe you would like to take the opportunity to target a different audience. The event can be run at any point up until the end of National Science Week 2008. See below for more details.

The community x-change

The first year of the community x-change project was based in East Anglia. A diverse group of people were brought together to discuss local issues. They were particularly asked to reflect on, and debate, their local environment, including **climate change**. They also explored their thoughts, feelings and ideas for possible actions.

Why this approach?

Consultations on numerous different issues are now widespread in today's society. However, in many instances, the people who become involved in these sorts of discussions become disillusioned with the process. This may be for a number of reasons; however two issues are particularly common. The first is that the participants have had little, or no, input into the way that the issues are discussed and the second is that they are not kept informed about how their views are acted upon.

The community x-change project seeks to address these two concerns, firstly by giving participants space to determine some of the issues themselves. Time was given within the workshops for participants to decide the issues they wanted to discuss and time was also spent framing the issue of **climate change** in a way that related to the day to day lives of the participants. Secondly, the BA has been working with policy makers since the start of the project to engage them with the process, with the aim of increasing the likelihood that the views of the participants will be heard and acted upon. At the same time, we are also providing funds for BA Branches to run events based on the themes that have emerged in the **climate change** strand of the project. In this way, we are seeking to value the time and effort that participants have invested in sharing their views.

The stated aims of the project are, to:

- improve practices of dialogue, particularly those that allow currently excluded voices to influence policy
- learn how to improve involvement processes on issues of concern to communities and decision-makers
- provide opportunities for scientists and the public to develop common language through discussion and dialogue
- develop the capacity of our elected representatives, policy makers and the media to engage with participatory processes

How can our Branch be involved?

The Science in Society team will provide up to £500 for you to run an event, the theme of which must fall into the broad category of **climate change**. We are very happy for you to devise an event format with which you are comfortable. There is no correct format, though we would encourage you to be creative in devising your event.

In particular, bids will be given precedence which seek to address the following:

- potential barriers to participation, e.g. the venue, location, format

Questions to consider:

Does your selected venue decrease the likelihood of certain groups of people attending? Could the event be held in a community centre/café rather than a

venue normally associated with science? Would food attract a broader cross-section of people to the event?

- involving scientists as citizens, not just as experts

Questions to consider:

Are scientists only attending in the event as experts? Can the views of scientists, who are non-experts in the topic under discussion, be incorporated?

What sorts of issues should the event explore?

Whilst **climate change** is now a big issue in the media, many people would argue that it is yet to be taken seriously by many of us in society. This is, of course, one of the reasons for the BA's three year strategy focusing on **climate change** through all our main programmes. Many individuals feel that they can have no impact on such a significant, global issue and therefore, so far, they have made no changes to their lifestyle. We therefore strongly encourage you to devise your event such that it addresses **climate change** in a way that people can imagine themselves responding.

For example, we suggest that you do not plan an event where two academics discuss the validity of the latest global climate models. Whilst this sort of discussion is, of course, valid in some contexts we are seeking to put forward the following messages on **climate change**:

- **climate change** is a reality in everyone's environment
- **climate change** is an issue relevant to all
- there are local and personal level actions that can be taken
- we all have the capacity and the opportunity to make a difference
- together we can formulate, and convert into action, plans for positive change
- we can all have an equally valid opinion on **climate change**

During the workshops held in East Anglia as part of the community x-change, the following issues were chosen by the participants as being relevant to them, regarding **climate change**.

- ❖ **Transport**
- ❖ **Energy**
- ❖ **Sea level rise**

The following are the sorts of questions and issues that were discussed in the community x-change workshops:

Transport

- **Cars:** Should we limit the use of our cars? What sort of cars should we buy? Should cars which are less environmentally friendly be taxed more highly? What role should car sharing schemes, multiple occupancy car lanes, congestion zones and park & ride schemes play in towns and cities?
- **Air travel:** What impact are cheap flights having on the environment? What attitude should we have to new airports/runways? Should we buy local/organic/seasonal produce rather than foreign produce?
- **Public transport:** How does the lack of public transport in some areas impact car usage? Are bus routes a reasonable alternative to driving? Can rail travel be subsidised to get people off the roads?
- **Cycling:** What impact do road safety and lack of cycle paths have?

Energy

- **Alternative sources:** Is there enough money being invested in alternative energy sources, e.g. wind, wave, tidal, solar, biomass, hydroelectric? What attitudes do we have to wind turbines being built near our homes?
- **Nuclear power:** Should we invest in nuclear power? Do the “dangers” outweigh the benefits? Where should nuclear power stations be built?
- **Recycling:** How easily accessible are recycling schemes? How can junk mail be avoided/reduced? Do supermarkets have a socially responsible attitude to packaging?
- **Home:** How can we reduce our household energy consumption?

Sea level rise

Are local agencies/councils taking issues around sea level rises sufficiently seriously?
What support are rural communities affected by these changes receiving?

You might like to address some of these issues in your event and/or select issues that you know are more pertinent for your audience/location.

Below are a couple of examples of events which we would happily fund:

Example 1

A panel discussion on “personal responses to **climate change**”.

Panel consisting of

- scientist working in the area of **climate change** e.g. **renewable energy sources**
- local councillor with responsibility for recycling
- environmental campaigner

Short 5 minute introductions from each panel member followed by an hour of discussion with the audience.

Example 2

An event run in collaboration with a local community group.

EITHER a lunch or light evening meal followed by a short presentation from a local environmental campaigner with a Q&A or discussion afterwards

OR a visit to a wind farm, including a tour/discussion

Where can I find other resources?

The following list of websites may stimulate further ideas or be useful in planning and preparing for your event.

- BBC Climate Change
<http://www.bbc.co.uk/sn/hottopics/climatechange>
- British Council – ZeroCarbonCity
<http://www.britishcouncil.org/zerocarboncity.htm>
- CRed
<http://www.cred-uk.org>

- Defra's Climate Change Champions
http://www.climatechallenge.gov.uk/whats_being_done/champions.html
- Defra's Climate Challenge Communication Initiative
<http://www.climatechallenge.gov.uk>
- Environment Agency
<http://www.environment-agency.gov.uk>
- Friends of the Earth – The Big Ask
http://www.foe.co.uk/campaigns/climate/big_ask
- Green Party
<http://www.greenparty.org.uk>
- Renewables East
<http://www.renewableseast.org.uk>
- The Carbon Trust
<http://www.carbontrust.co.uk>
- The Energy Saving Trust
<http://www.est.org.uk>
- Tyndall Centre
<http://www.tyndall.ac.uk>

Contact info

Should you wish to discuss your application with a member of the Science in Society team at the BA, please contact:

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