Evaluation of Sciencehorizons

Final report annexes

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August 2008

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Annexes

Annex 1

Strand 1: Deliberative panel. Questionnaire analysis

Bristol, 14 April and 12 May 2007
Total number attended: 31 first day; 27 second day
Total number of questionnaires completed (second day only): 25 out of 27 participants = 93%

1 **What did you find most exciting about the new developments in science and technology that the panel discussed?**

• Robotics	12 (48%)
• Impact on health/medical issues	5 (20%)
• How to combat climate change	4 (16%)

The biggest issue by quite a long way was robotics (12 mentions), followed by improvements in health and medical issues (5 mentions, 6 if you count genetics in here), and how to combat climate change (4).

Quotes from questionnaires

"*The effect we can have on climate change on a day to day scale i.e. turn telly off, insulation etc.*"

"*The medical benefits of genetics*"

"*The fact that ethical and moral issues are (hopefully) being addressed*"

"*Being used to save lives and make life easier*"

"*The professionals coming in to talk to us*"

"*The fact that experts explained new developments in a way I could understand*"

"*I thought that most of it was exciting. It is hard not to [be] enthusiastic about things that will benefit society*"

"*Information about climate change and how we can make a difference*"

2 **What concerned you most about the new developments in science and technology that the panel discussed?**

• Genetics (technology)	7 (28%)
• Lack of trust	3 (12%)
• Regulations/'policing'	3 (12%)
• Misuse of technology	2 (8%)

The biggest issues here were genetics (7 mentions), and data protection and cyber security (7). Quite a long way behind but still clearly important issues were lack of trust (e.g. in politicians, government, companies), which got 3 mentions, and problems around regulation / policing (also 3 mentions). Misuse of technology was mentioned twice. Other issues mentioned were designer babies, impact on unemployment, robotics for the military, carbon credits and lack of personal control.

Quotes from questionnaires

"*Cyber security. I still have concerns on who where and how much information is gained and stored on an individual and can it be used negatively against this person*"

"*Issues like cyber security and genetics need much more monitoring / security. Robotics for the military i.e. war offensive very disturbing*"

"*Mis-use of technology*"

"*Misuse of technology. Lack of trust*"

"*Lack of personal control. Distrust politicians etc. Legislation not keeping pace with developments. Issues regarding impartiality of developers / government. Enthusiastic about technology but not about the people / companies that fund it*"

"*Lack of information the public are given on genetic / stem cell growth etc*"

3 **What are your views on the following?**

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Don't know
I had heard about the Sciencehorizons project before being invited to the event	1 (4%)	3 (12%)	1 (4%)	12 (48%)	8 (32%)	
The information provided was fair, balanced and helpful	7 (28%)	17 (68%)	1 (4%)			
I would have liked more information	8 (32%)	13 (52%)	4 (16%)			
I was able to say everything I wanted to	5 (20%)	17 (68%)	2 (8%)	1 (4%)		
I found the events enjoyable	14 (56%)	11 (44%)				
I understand how the results of this process will be collected and used	8 (32%)	17 (68%)				
I think government, scientists and policy makers will take the results of our discussions into account	2 (8%)	10 (40%)	8 (32%)		1 (4%)	4 (16%)
All participants were treated equally and respectfully	9 (36%)	14 (56%)				
No single view was allowed to dominate unfairly	9 (36%)	13 (52%)	3 (12%)			
Attending the events has helped me think more clearly about these issues	15 (60%)	9 (36%)	1 (4%)			
I learnt something I did not know before	14 (56%)	11 (44%)				

In summary, participants' views on the process were as follows:

- The biggest positive feedback was for the following:
  - I learnt something I did not know before: 100% agreed, including 14 (56%) agreeing strongly
  - I found the events enjoyable: 100% agreed, including 14 (56%) agreeing strongly
  - Attending the events has helped me think more clearly about the issues: 24 (96%) agreed, including 15 (60%) agreeing strongly. I person neither agreed nor disagreed.

- There was also positive feedback on the following, although not quite so enthusiastic - i.e. fewer strongly agreeing):
  - I understand how the results of this process will be collected and used: 100% agreed, including 8 (32%) agreeing strongly
  - The information provided was fair, balanced and helpful: 24 (96%) agreed, including 7 (28%) strongly
  - All participants were treated equally and respectfully: 23 (92%) agreed, of which 9 (36%) agreed strongly
  - No single view was allowed to dominate unfairly: 22 (88%) agreed, of which 9 (36%) agreed strongly (3 neither agreed nor disagreed)
  - I was able to say everything I wanted to: 22 (88%) agreed, of which 5 (20%) agreed strongly (2 neither agreed nor disagreed, and 1 disagreed)

- There was slightly less positive feedback on the following:
  - 21 (84%) agreed they would have liked more information (8 (32%) agreed strongly; 4 (16%) neither agreed nor disagreed)
  - Only 12 (48%) agreed that government, scientists and policy makers will take the results of our discussions into account and only 2 (8%) of those strongly agreed; 8 (32%) neither agreed nor disagreed but 5 (20%) disagreed of which 4 (16%) strongly disagreed.

4 (16%) people said they had heard of the Sciencehorizons project before being invited to the event; 20 (80%) said they had not heard of it (1 seemed unsure).

4 What were the best aspects of the panel meetings / what worked best?

• Small group discussions	10 (40%)
• Discussions with experts	9 (36%)
• Others views	2 (8%)

The most popular aspect of the meetings were the small group discussions (10 mentions for that), followed closely by the input from experts (9 mentions including 2 specific mention of being able to discuss directly with experts and not just listen to their views). That the best aspect was hearing other peoples' views was mentioned twice.

This suggests a very good balance between input from experts and discussions among participants (and with experts).

Quotes from questionnaires

"*The speakers were 'hands on' and involved in the subject they were discussing and not just giving their thoughts and opinions*"

"*Freedom to express views*"

"*Small group discussions*"

"*The people were able to present and answer questions*"

"*Learning how other people think*"

"*Finding out what others thought. Having chance to discuss with experts*"

"*Being able to talk to people on subjects in their field*"

5 What were the worst aspects of the panel meetings / what worked least well?

• None	8 (32%)
• Not enough time (to absorb information for discussion)	5 (20%)

The biggest single answer to this question was 'none', which was mentioned specifically by 8 (32%) people (not including those who left this question blank). Otherwise the main criticism (5 (20%) mentions) was that there was not enough time - for discussion and to absorb information - some ways of remedying this were identified in the answers to the next question.

Quotes from questionnaires

"*Some inputs from 'experts' could have been better from factual viewpoint (cyber security, genetics)*"

"*Lack of time*" "*Not enough time to discuss scenarios*" "*Too short. Would have like to discuss in more detail*"

"*A bigger range of people to come in and talk, so there [are] two views*"

6 What do you think would improve events like this?

• Get more/wider range of people involved	4 (16%)
• More expert input	3 (12%)
• More and longer events	3 (12%)
• More time	3 (12%)
• More time in smaller groups	2 (8%)
• Work in smaller groups	2 (8%)
• Views listened to	2 (8%)

There were less definitive answers to this question, not surprisingly, but the suggestion made most often (4 / 16% times) was that these processes should involve more and a wider range of people (a wider cross section of the public). Working in smaller groups was also mentioned 4 times, 2 of which specifically mentioned spending more time working in smaller groups. 3 mentioned more time (as identified in previous question), and 3 mentions were made of the need to have more of these events and for them to go on for longer (3-4 days rather than 2), although it seems that this was to mean meeting 3-4 times rather than one event that lasts 3-4 days. There were also 3 mentions of wanting more expert input.

Quotes from questionnaires

"*Only to go to more groups of people to discuss and involve*"

"*A much wider cross-section of the public*"

"*Odd MP attending*"

"*[People's views} are taken seriously*"

"*More input from experts*"

"*Hold more events, 3 or 4 days instead of 2*"

"*Being able to discuss with decision-makers*"

"*Have them more often*"

7 **How satisfied were you with the following?**

	Very satisfied	Fairly satisfied	Neither satisfied nor dissatisfied	Not very satisfied	Not at all satisfied	Don't know
The written information provided	13 (52%)	12 (48%)	-	-	-	-
The information provided by experts at the events	14 (56%)	10 (40%)	1 (4%)	-	-	-
The way the panel meetings were run	16 (64%)	9 (36%)	-	-	-	-

Overall, participants were very satisfied with the event:

- 100% were satisfied with the way the panel meetings were run; 16 (64%) of these were very satisfied
- 100% were satisfied with the written information provided; 13 of them being very satisfied.
- 24 (96%) were satisfied with the information provided by experts at the events; 14 of these very satisfied.

These are very high satisfaction rates, showing significant enthusiasm in the numbers being very satisfied, particularly with the way the meetings were run.

8 **Has being involved in this whole consultation process made any difference to what you think about science and technology?**

Yes • Learning and understanding new things • More interested and enthusiastic • Knowledge of robots	**19 (76%)** 7 (28%) 5 (20%) 2 (8%)
No	**2 (8%)**
Don't know	**4 (16%)**

19 (76%) respondents said that being involved had made a difference to the way they think (4 / 16% didn't know and 2 said it had not made any difference). This is very significant influence on people's thinking when taken in comparison to other similar events.
In terms of what sort of difference it made, there were no overwhelming conclusions. Almost all comments were different but:

- 7 mentions (28%) were made of learning, being informed and understanding a lot more plus another 2 on learning about robotics.

- 5 (20%) specifically mentioned that they were more enthusiastic, more positive and/or more interested and less worried about science and technology, which is a good positive shift in thinking.

Quotes from questionnaires

"*I am more likely to notice news / information reports*"

"*Learning is always good*"

"*Less worried about the future development of science*"

"*I feel more involved, knowledgeable and informed on where to find information*"

"*More interested*"

"*Its needs for progression and its dangers*"

"*More enthusiastic*"

"*Concerns of the moral and ethical uses of technology*"

"*Enabled me to understand what science has planned for the future*"

"*More positive about technology*"

"*I can understand better things I knew very little about*"

9 **What did you get out of your involvement in the panel personally?**

• Greater information, knowledge and understanding	11 (44%)
• Hearing others views	4 (16%)
• Sense of involvement	3 (12%)
• Expressing/having own views and opinions heard	2 (8%)

Again the focus here was on greater information, knowledge and understanding of the future of science and technology (with 11 / 44% mentions). Other benefits mentioned were hearing others views (4 / 16% mentions), sense of involvement (3), and expressing / having own views heard (2).

Quotes from questionnaires

"*A sense of involvement*"

"*Its nice to know what other people think*" "*Enjoyed listening to others' views*"

"*Knowledge about what is possibly going to happen in the future*"

"*The opportunity to explore the future and put into perspective where the technology really is and not what the media tell me*"

"*The process was fascinating and should be replicated at all levels of education*"

"*Information on how others feel*"

"*More knowledge of future developments planned*"

"*Feeling of able to contribute*"

"*Made me think a lot more*"

"*Much more understanding*"

"*I feel more enthusiastic about science and technology*"

"*A great deal of understanding*"

10 **How important do you think it is to involve the public in discussing these sorts of science and technology issues?**

Very important	22 (88%)
Fairly important	2 (8%)
Not very important	0
Not at all important	0

11 **Do you think more events should be held for the public to discuss science and technology issues?**

Yes • Health/medical • Climate change/greenhouse effect • Identity cards/privacy/cyber security • Genetics • Robots	24 (96%) 9 (36%) 8 (32%) 4 (16%) 3 (12%) 2 (8%)
No	0
Don't know	0

Other issues mentioned once included alternative energy, how to make a difference, computer advances and politics.

Quotes from questionnaires

"*At the meeting I suggested that this kind of forum should be carried out nationally at least yearly with local MP present to discuss / feedback on issues like identity cards, global warming*"

About the panel

12 **Have you been involved in a consultation like this before?**

Yes	2 (8%)
No	22 (88%)
Don't know	0

13 **Are you currently involved in science and technology (e.g. in your job, as a student)?**

Yes	2 (8%)
No	22 (88%)
Don't know	0

14 **Gender**

Male	9 (36%)
Female	15 (60%)

15 **Age**

16 - 24	3 (12%)
25 - 39	5 (20%)
40 - 54	9 (36%)
55 - 65	5 (20%)
Over 65	2 (8%)

16 **Would you describe yourself as:**

White British	20 (80%)
Black or other ethnic minority (including non-white British)	3 (12%)

Annex 2

Strand 2: Facilitated group events. Questionnaire analysis

Total Strand 2 events: 36 events, run by 18 organisations
Total questionnaires returned: 14, covering at least 22 events = return rate of 78% of groups covering 61% of events

1 **How many people attended the event you organised?**

• Up to 5 participants	0
• 6 - 10 participants	2
• 11 - 20 participants	5
• 21 - 30 participants	1
• over 30 participants	8

2 **How many were invited?**

So few respondents provided this information, it has not been analysed.

3 **What sort of people attended (e.g. school children, people over 50, special interest groups)? Please specify.**

Age	
• School students	6
• Adults generally	12
• Over 50's specifically mentioned	4

Types of groups (not all gave this information)	
• School groups	6
• Science centres / cafes / museums	6
• Others (Womens Institute, drama group, mothers group working online)	3

4 **How many scientists attended (total number and what was their role)?**

Almost all groups had at least one scientist, with some of the larger groups having 3 or 4 scientists making presentations, joining in with the discussions and / or facilitating groups.

5 **How satisfied are you with the information you have received from the Sciencehorizons project about running the project?**

Very satisfied	5 (36%)
Fairly satisfied	5 (36%)
Not very satisfied	3 (21%)
Not at all satisfied	0
Don't know	0

6 **Did you receive any other support from the Sciencehorizons project (e.g. enabling grant, telephone advice)? Please specify.**

Enabling grant	13 (93%)
Telephone advice	7 (50%)
Attended working lunch	4 (29%)
Publicity for event given on website	2 (14%)

7 **How satisfied are you with the support you have received from the Sciencehorizons project?**

Very satisfied	6 (43%)
Fairly satisfied	6 (43%)
Not very satisfied	1 (7%)
Not at all satisfied	0
Don't know	0

8 **Do you have any suggestions for how to improve support for these types of events in future?**

• Give clearer guidance on how to run events	2

Quotes from questionnaires:

"*The timetable from information to results deadline was a bit tight!*"

"*Give guidance which is clearer on how events could be run - there are a lot of issues to tackle in limited time (and public concentration)*"

"*More support could have been provided on the way of running the event on the day*"

"*We are experienced in running dialogue events so don't need much support although it is very welcome*"

"*Material was rather simplistic for our audience*" *[adults]*

"*For running an online meeting a Powerpoint presentation of the stories would have been helpful*"

"*Ready marketing materials and a more catchy / appealing description to use in advertising*"

9 **How much has running this event made you feel part of the Sciencehorizons project nationally?**

Very much part	3 (21%)
Fairly	7 (50%)
Not very much part	3 (21%)
Not at all part	0
Don't know	0

10 **Why did you organise the event?**

• To have a discussion linked to national policy-making	4 (29%)
• To try a new format for discussion	2 (14%)

Others included:

- To reach new audiences
- To hear a range of public views
- To raise the profile of science
- Because it is part of our mission

Quotes from questionnaires:

"*I believed it was a good opportunity to express opinion, it was well within our branch remit for events and I thought it would be enjoyable - which it was!*"

"*Was very interested to run a public engagement session that in theory had direct connection to policy making*"

"*Chance to be part of national project - run unique event at Festival of Nature - opportunity for dialogue event*"

11 **To what extent did the event deliver what you hoped / expected it would?**

Completely	3 (21%)
Mostly	7 (50%)
Partly	2 (14%)
Not really	0
Not at all	0

12 **What do you think were the best parts / what worked best in the event you organised?**

• Guest speakers	2
• Stories / scenarios effective in promoting discussions	2
• People enjoyed doing it more / materials worked better than the organisers expected	3

Other single mentions included that it provided an opportunity for active participation, an opportunity for the public to meet scientists, people liked the materials as a basis for discussion, the facilitation advice, the use of drama (for those who used it), an online event that allowed mothers to participate without worrying about childcare.

Quotes from questionnaires:

"*The material was generally good and provoked discussion. The facilitation advice was good, everyone had their say - and the 2 discussion leaders did a good job - fair and even-handed*"

"*The software and scenarios were very effective in promoting discussions - which were v. interesting.*

"*Having initially been sceptical about the packages I was really surprised about their effectiveness*"

"*The stories were very good at promoting discussions and enabled everyone to express their opinions freely*"

"*People enjoyed doing them more than I expected*"

"*Engaging with active participants; sixth form group most rewarding*"

"*To give members of the public the opportunity to meet with and talk to scientists working in related fields to the technologies discussed*"

"*Using materials as starting points for free range discussions - amazing how well it worked!*"

13 What do you think was the worst thing / what worked least well in the event you organised?

• Recruitment was a struggle	4 (29%)
• The stories were too simplistic / not strong enough on facts	4 (29%)
• The response forms were not well structured / designed	3 (21%)
• The focus on likes and dislikes was too limited	2 (14%)
• There was not enough time to discuss all scenarios	2 (14%)

Others mentioned once included that the resources supplied were not good, and that the questions did not focus the discussion.

Quotes from questionnaires:

"*The resources supplied were <u>not</u> particularly well thought through - the stories were not set in contexts that would promote discussion being very simplistic and patronising. Use of cartoons was not appropriate to a serious discussion*"

"*The forms were very poorly arranged. To expect 'discussions' to be reduced to 'likes' and 'dislikes' seems to defeat the purpose which is surely to gauge people's feelings and ambiguities about the future*"

"*The space which was assigned for recording the information was too small*"

"*Lack of participation / audience despite time-consuming publicity efforts*"

"*The take-up and interest in the event was poor - recruiting numbers was a struggle. The CD / scenarios were also visually quite poor and the DNA vaccines scenario seemed weak and with little factual content*"

"*One of the stories really confused the groups!*"

14 **Did you get any feedback from those attending the event you organised on what they thought of it? If so, can you summarise the main points (positive and negative)?**

• Positive feedback - they all enjoyed it	5 (36%)
• People liked the idea that someone was interested in their views	3 (21%)
• Inappropriate materials and simplistic questions did not provoke appropriately detailed discussions	2 (14%)

Quotes from questionnaires:

"*Generally positive, everyone enjoyed it and ask[ed] if we would hold another but there isn't time now. After 2 hours some people had to go but the rest wanted to stay and discuss more so I consolidated into a single group and discussed another scenario*"

"*Inappropriateness of materials supplied was raised several times. Simplistic 'questions' on response forms seem to contradict the aim of promoting proper public debate, it was difficult to keep groups discussing likes and dislikes given the importance of the wider issues*"

"*Everyone who attended really enjoyed it and said they liked the fact that people were interested in their views and glad to express them*"

"'*A nice way to end the day!*' *They enjoyed explaining their thoughts and were interested in the government listening to what they said. They did question the government's 'agenda*'"

"*Positive: nice to have our views recorded (but only valuable if genuinely followed through beyond this stage. Negative: (WI) [said] 'not wasting my time on this' and [asked] how much money was spent on packs and what happens to rest of unused materials*"

"*Cynthia and the gas bill scenario was too broad - covered too many possibilities / alternative energy sources. Emily and the vaccines scenario would have prompted a different response if it was about pandemic flu. People really enjoyed the event and were very positive about the experience*"

Two participants from one group wrote:

- "The materials were simplified but this was perhaps necessary. Assumption of technologies as already in use was effective in engaging with issues around them"
- "Not very specific questions. Doesn't explain the technology in question. Consultations should be targeted at specific groups"

15 **What do you think would improve events like the one you organised?**

• Better and more marketing [nationally] to attract more people	3 (21%)
• Better timing (longer deadlines and better timed e.g. for school input	3 (21%)

Other single mentions included that the questions needed to relate more to the scenarios, some of the scenarios were not very technology based, more sets of materials made available so everyone could have a copy, and that the questions did not relate directly to the scenarios.

Quotes from questionnaires:

"*The packs themselves whilst simple to complete didn't provide explicit questions related to topic . 'People and Planet' wasn't always technology based*"

16 **How important do you feel it is to involve the public in discussing these sorts of science and technology issues?**

Very important	12 (86%)
Fairly important	1 (7%)
Not very important	0
Not at all important	0
Don't know	0

17 **Do you think more events should be held for the public to discuss science and technology issues?**

Yes	11 (79%)
No	0
Don't know	1 (7%)

Quotes from questionnaires:

"*Are they really informative for policy-makers? Is it an exercise done for appearance only?*"

18 **What topics do you think are the most important to discuss in these sorts of events?**

• Stem cell research etc.	4 (29%)
• Greener alternatives / sustainable living	2 (14%)

The other ideas that were mentioned once each (in alphabetical order) were:

- Animal testing
- Biodiversity
- CCTV / surveillance
- Conservation
- Entertainment technologies
- Environmental changes
- Genetics
- Health
- How science works (research and implementation)
- Medical technologies
- Nuclear power
- Science funding
- Security

Annex 3

Strand 3: Small group events. Questionnaire analysis

Total number responses: 392 (253 on paper; 139 online)
Total number of groups responding: 78 (some groups ran more than one event)
Total number of questionnaires returned: 32 = return rate of 41% of groups

1 **How many people attended the event you organised?**

• up to 5 participants	5
• 6 – 10 participants	11
• 11 – 20 participants	7
• 21 – 30 participants	6
• over 30 participants	2

2 **What sort of people attended (e.g. school children, people over 50, special interest groups)? Please specify.**

Age (not all gave this information)	
• School students	7 (22%)
• Adults, parents, self-analysed as 'middle aged'	6 (19%)
• Over 50's	16 (50%)

Types of groups (not all gave this information)	
• Womens Institute groups	9 (28%)
• School groups	7 (22%)
• Humanist groups	4 (13%)
• Others (Scouts, group with learning difficulties, National Women's Register group and University of Third Age group)	4 (13%)

3 **How many people who took part had a science or technology background?**

Almost all groups had at least one person with a science or technology background; only 4 groups had no-one with this background (4 respondents did not answer this question). Often there was more than one person with a science or technology background. Usually this person was simply a member of the group, rather than taking a specialist role.

4 **How satisfied are you with the information and instructions in the Sciencehorizons pack and/or on the website?**

Very satisfied	12 (38%)
Fairly satisfied	16 (50%)
Not very satisfied	2 (6%)
Not at all satisfied	1 (3%)
Don't know	0

5 **How easy did you find it to have a discussion using the pack and/or website?**

Very easy	11 (34%)
Fairly easy	17 (53%)
Not very easy	3 (9%)
Not at all easy	0
Don't know	0

6 **How clear were you about the purpose of having the discussions?**

Very clear	10 (31%)
Fairly clear	15 (47%)
Not very clear	5 (16%)
Not at all clear	1 (3%)
Don't know	0

7 **How clear were you about how the results will be used?**

Very clear	6 (19%)
Fairly clear	7 (22%)
Not very clear	12 (38%)
Not at all clear	6 (19%)
Don't know	0

8 **Why did you organise the discussion?** (some gave several answers)

• As secretary to an existing group (eg WI, Humanists)	17 (53%)
• As a school project	8 (25%)
• To have an interesting discussion	6 (19%)
• To take part in something national Government would take notice of/listen to	3 (9%)
• Want to influence the future	2 (6%)
• To stimulate interest in science and technology	1 (3%)

9 **What do you think were the best parts / what worked best in the event you organised?**

• The scenarios / case studies / stories	9 (28%)
• Design of materials (colourful, liked cartoons)	3 (9%)
• Content of materials generally	2 (6%)
• That it provided a framework for discussion	2 (6%)

Other single mentions included that people liked the 'real life' quality of the stories, the controversial examples, the likes and dislikes approach [school students], just the idea of a public debate on science, and the topics that were good for school students (e.g. energy).

Quotes from questionnaires:

"*The ones with some controversy*"

"*The idea of stimulating public debate on science*"

"*Information about current state of research etc*"

"*The material raised many issues for discussion and made the group aware of new developments. With the references to the scans there was much useful information*"

"*The discussion of the scenarios rather than trying to answer the questions*"

"*All worked very well. Pupils very interested and involved*"

"*The amount of info on reverse of story sheets. Very thought provoking*"

"*The scenarios did help focus the discussions*"

"*Thinking of how the technology would be of use to us as individuals*"

"*Interested and intrigued with the imaginative extrapolations made of science and technology towards the year 2025 but thought much of it unrealistic and a touch distasteful when viewed in the context of a world faced with more pressing problems*"

"*The kits were imaginative and stimulating in suggesting aspects to discuss*"

"*The use of stories which helped the group to focus on the social consequences of new technologies in the conversations*"

"*It all went well. Everyone took an active role in discussion. We thought the information on the pack was well written and clear*"

"*Most helpful to have 'where we are now'. Liked the cartoon presentation. Certainly started off discussions and made up re-think*"

"*We each had a different background and experience to draw on. A small group allows everyone to have their say*"

"*The story format of introducing the issues to be discussed helped us to focus. The 3 character comments were also useful. As each member of the group had a 'pack' they were able to prepare their input and this worked well*"

"*The colourful material - fit for purpose*"

"*Students liked the interactive clips on CD although there wa a lot of text. Spoken words would have been better*"

10 What do you think was the worst thing / what worked least well in the event you organised?

• Too much to discuss in the time suggested (especially too many scenarios)	7 (22%)
• Timescales / deadlines for sending in answers too tight	2 (6%)
• Scenarios too much like today and not futuristic enough	2
• Complicated jargon / high reading age needed for materials	2
• CD Rom added nothing	2
• Questions did not seem to relate to the stories	2
• Had problems managing the group discussions	2
• It was hard to keep the focus on technology issues when social factors were so important as well	2

Others mentioned once included poor technology research, choosing the most important factor, there was nothing on cost, the scenarios were artificial, there was not enough global context or competition for resources, the sheets were confusing.

Quotes from questionnaires:

"*The tight timescales - if we'd known about this 12 - 18 months ago, we could have engaged more WIs*"

"*Poorly researched technology details*"

"*Scenarios that seemed like today, nothing new*"

"*Condescending, information-free materials; lack of distinction between science and technology; insufficiently forward-looking; superficiality*"

"'*Interactive*' *stories on CD ROM a waste of resources. Situations felt very artificial. Far too much to discuss. Time suggested much too short*"

"*Encouraging pupils to think beyond the obvious advantage / disadvantage. They are not used to being asked for their opinions in lessons*"

"*The material was very middle-England with few extremes. The group thought it lacked context in global terms and did not acknowledge the competition for resources. We were disappointed that the programme did not make more impact*"

"*The questions did not seem to reflect the points in the scenarios - we didn't discuss likes and dislikes but advantages and problems*"

"*There were too many scenarios to discuss and not enough time to discuss the. Most people felt that science and technology were leading the general population very forcefully by their noses*"

"*Some people found the sheets confusing and found their topic far-fetched*"

"*The stories were written in a way to force rhetorical outcomes. Not balanced enough with a non-science approach*"

"*Having to divide up the likes and dislikes into rigid categories which we felt might be appropriate for school children but not for adults who do not think in such clear-cut ways*"

"*Trying to confine ourselves to technology as we all felt human / personal concerns or impact on social life were vitally important*"

"*In the 'Mind and Body' theme there was some hesitation because some people had direct experience of the conditions, some had had very painful and distressing experiences*"

"*Youngsters found it boring and pointless*" *[scouts]*

"*Big issues like 'gas bill' where government's attitudes difficult to predict and hard to get facts. Hard to narrow down response to technology alone*"

"*We would have liked more that 2 meetings before the deadline. We all found that trying to categorise our opinions into 'like or dislike' was extremely limiting. We would have preferred 'approve / disapprove' or 'acceptable / unacceptable' to offer us more scope for moral judgements*"

"*One person dominated - difficult to equally allocate discussion to ensure all took part all the time*"

11 Would you like to have another discussion on science and technology issues in the future?

Yes	24 (75%)
No	2 (6%)
Don't know	4 (13%)

12 Have you been involved in a consultation like this before?

Yes	2 (8%)
No	22 (88%)
Don't know	0

13 What topics would you like to discuss in future, if any?

• Food industry	3
• Genetic modification / engineering	3
• Farming / agricultural practices	2
• Environmental topics generally	2
• Ethical and moral issues	2
• Travel and transport	2
• Waste	2

There were lots of ideas that were mentioned once each (in alphabetical order)
• Carbon footprint of new technology • Climate change and space research • Cloning • Clothing manufacture • Computer-controlled cars for safety • Computer technology • Contraception • Control of technology • Education for life / jobs • Education and integration of religious and ethnic groups • Energy • Entertainment technology • Foreign policy • Improving IQ • Media • Natural environment losses • Risks • Science and political spin • Science funding • Science versus technology • Scientific heritage • Social status of scientists • Stem cell research • Surveillance / monitoring

- Technological development process
- Technology and democracy (how technology can make society more democratic)
- Technology in schools
- Tolerance
- Weaponry
- World finance

Annex 4

BA working lunches for Sciencehorizons questionnaire analysis

There were 4 BA working lunches to launch / publicise the Sciencehorizons programme:

- Cardiff 12 December 2006 (9 completed questionnaires; 12 participants)
- Manchester 8 January 2007 (14 completed questionnaires; 20 participants)
- Edinburgh 12 January 2007 (14 completed questionnaires; 16 participants)
- Oxford 25 January 2007 (11 completed questionnaires; 11 participants)

Total questionnaires received = 48; total participants = 59. This is an 81% return rate which provides a very good and robust sample.

The lunches are two-hour events run regularly by the BA; these four events were run specifically for Sciencehorizons. Participating organisations included BA regions, museums, science centres, universities, learned societies, public bodies and one voluntary body (a regional branch of the Womens Institute).

The main reason for participants attending was to find out about the Sciencehorizons programme (what materials would be available, how to run events etc). The other reasons mentioned for attending were networking, and to learn about public engagement.

Most people heard about the event through emails lists (23), with hearing from a friend or colleague the next most likely source (12). 9 people mentioned web or other publicity and 7 had received direct invitations.

Not all questionnaires asked whether the event met expectations (one had a couple of different questions in error), but of the 34 questionnaires that did include this question:

- 9 (26%) said the event met their expectations completely
- 22 (65%) said mostly
- 9 (26%) said partly

There was generally very positive feedback about the experience of taking part in the workshop:

- 45 (94%) agreed (28 / 58% strongly agreed) that they felt welcome to comment and ask questions
- 45 (94%) agreed (23 / 48% strongly) that they enjoyed taking part
- 42 (88%) agreed (15 / 31% strongly) that they understood the purpose of Sciencehorizons and how they could take part
- 36 (75%) agreed (12 / 25% strongly) that they were more likely to organise a Sciencehorizons event. The most positive feedback on this was the Manchester workshop (12 / 86% agreed, and 8 / 57% agreed strongly); the least positive was Edinburgh (8 agreed but 0 strongly agreed).
- 40 (83%) agreed (5 / 10% strongly) that the workshop was well structured

There was less positive feedback on there being enough time:

- 29 (60%) agreed that there was enough time for discussion, but only 8 (17%) agreed strongly and 18 ((28%) disagreed.
- 26 (54%) agreed that there was enough time for networking, but only 2 (4%) agreed strongly and 20 (42%) disagreed.

One person commented that the BA working lunches never had enough time, so this could be a complaint that people have about the overall format rather than these particular Sciencehorizons meetings.

Overall, however, 40 (83%) out of 48 were satisfied with the working lunch - 12 (25%) very satisfied. 8 (17%) were neither satisfied nor dissatisfied; none were not satisfied.

In terms of the makeup of the audience at the working lunches:

- 25 (52%) said their work involved engaging the public a lot, plus another 20 (42%) said their work involved engaging the public to some extent. Only 2 (4%) said their work involve engaging the public 'not much'; none said 'not at all'.
- 28 (82%) out of 34 (the questionnaires that included this question) were mainly involved in science communication; quite a few were involved in education and research (often as well as science communication).

Finally:

- 43 (90%) out of the 48 thought it was very important to involve the public in these issues; plus another 5 (10%) thought it fairly important. No-one thought it was not important - not surprising given the audience but still a very positive result.

An analysis of the organisations that attended the working lunches, compared to the organisations that ran Strand 2 events (facilitated public events), shows that:

- 1 organisation at the Cardiff working lunch went on to run 2 events
- 2 organisations at the Manchester working lunch then ran 5 events.
- 3 organisations that attended the Edinburgh working lunch then ran 4 events
- 1 organisation at the Oxford lunch went on to run 3 events

This means that a total of 14 events (from the total of 36 that were run) were run by 7 organisations (from the 18 different organisations that ran events). Thus, a total of 39% of the events were run by people who attended the working lunches, and 39% of the organisations running events had attended a working lunch. So, almost 40% of the Sciencehorizons events were run by someone who attended a working lunch, and almost 40% of the organisations that ran events had attended a working lunch. 7 (14%) out of the 49 organisations that attended the working lunches (some organisations were represented by more than one person) went on to run an event.

Annex 5

Guiding principles for public dialogue

DIUS Sciencewise:
The government's approach to public dialogue on science and technology

The need for public dialogue on science and technology

1 The Government believes that If the UK is to take full advantage of the opportunities for creating wealth and improving quality of life offered by scientific discovery and technological development, it is crucial that we develop new approaches to bring scientists and the public together in a constructive dialogue to explore emerging issues.

2 Our **aim** is for a society where the public, the broad science community and policy makers feel comfortable in handling issues raised by science and technology and feel a joint sense of purpose in ensuring that the full benefits of science and technology are realised for society.

3 Our **objective** is to build confidence in decision-making related to the undertaking, development and overall governance of science and technology; to build on the public's generally positive views of science - and to both maximise the opportunities offered by new areas of science and technology and minimise potential downsides.

4 We want to elicit both the aspirations and concerns of the UK population in the development of new areas of science and technology. Our **approach** will be to enrich decision-making by gathering and analysing broad intelligence on the full range of issues (technological, scientific, environmental, social, ethical, legal and economic) related to emerging new areas of science and technology and their governance. Such dialogue will inform, rather than determine policy and decision-making by those empowered to do so.

5 We will **facilitate** this through robust, timely, inclusive and properly resourced dialogue that is clearly linked into decision-making processes around science and technology. Such dialogue will involve the public, scientists (both publicly and privately funded), policy makers and other perspectives, and will explore existing or potential opportunities as well as concerns related to ethical, health, safety and environmental issues.

6 We will ensure that dialogue is **informed**, drawing on evidence and information from a wide variety of sources. It will operate according to the principles of **openness, honesty and fairness**, designed to generate **mutual understanding** of views and underpinned by a **willingness to take account of the outcomes** of such dialogue in decision-making. We will communicate the reasons for our decisions widely and in a clear and timely manner.

7 We are committed to **listening to and taking account** of views expressed in our policy and decision making. We believe strongly that public dialogue will help us to identify and deal with the issues arising.

8 We are committed to **embedding and improving our approach** to public dialogue on science and technology. We will promote a coherent approach across Government and beyond; continually reviewing policy, guidance and experience to ensure that our approach is compatible with and contributes to good practice. We will ensure that the learning gained from this approach is disseminated widely within the science, engineering and technology community and beyond.

Principles for public dialogue on science and technology

9 Based on theoretical understandings and practical experience, the essential elements of public dialogue on science and technology are set out below. The Government has adopted the approach set out in this document, but recognises that this guidance will continue to be refined as experience grows.

10 The key principles for public dialogue seek to ensure that:
- the conditions leading to the dialogue process are conducive to the best outcomes (**Context**)[1]
- the range of issues covered in the dialogue are relevant to participants' interests (**Scope**)

[1] The means by dialogue can impact upon policy and decision-making will be specific to each organisation involved in the dialogue process and each issue under consideration. It is important, therefore, that organisations involved dialogue address their own institutional arrangements and working practices to ensure effective application of dialogue processes.

- ensuring that the dialogue process itself represents best practice in design and execution (**Delivery**)
- the outputs of dialogue can deliver the desired outcomes (**Impact**)
- the process is shown to be robust and contributes to learning (**Evaluation**).

11 In fulfilling these principles, it is recognised that the specific context of each issue will determine the relative importance of each of the following principles. However as far as practicable, public dialogue on science and technology aims to:

12 Context[2]

a) Be clear in its purposes and objectives from the outset
b) Be well timed in relation to public and political concerns. It will commence as early as possible in the policy/decision process
c) Feed into public policy – with commitment and buy-in from policy actors
d) Take place within a culture of openness, transparency and participation with sufficient account taken of hard to reach groups where necessary
e) Have sufficient resources in terms of time, skills and funding
f) Be governed in a way appropriate to the context and objectives.

13 Scope

a) Cover both the aspirations and concerns held by the public, scientists in the public and private sector, and policy-makers.
b) Be focussed on specific issues, with clarity about the scope of the dialogue. Where appropriate we will work with participants to agree framings that focus on broad questions to encourage more in-depth discussion. For example we might start by asking, "How do we provide for our energy needs in the future?" rather than starting by asking "should we build new nuclear power stations?"
c) Be clear about the extent to which participants will be able to influence outcomes. Dialogue will be focussed on informing, rather than determining policy and decisions.
d) Involve a number and demographic of the population that is appropriate to the task to give robustness to the eventual outcomes[3]

14 Delivery

a) Ensure that policy-makers and experts promoting and/or participating in the dialogue process are competent in their own areas of specialisation and in the techniques and requirements of dialogue. Measures may need to be put in place to build the capacity of the public, experts and policy makers to enable effective participation.
b) Employ techniques and processes appropriate to the objectives. Multiple techniques and methods may be used within a dialogue process, where the objectives require it.
c) Be organised and delivered by competent bodies
d) Include specific aims and objectives for each element of the process
e) Take place between the general public and scientists (including publicly and privately funded experts) and other specialists as necessary. Policy-makers will also be involved where necessary.
f) Be accessible to all who wish to take part – with special measures to access hard to reach groups, including considerations of appropriate venues and technical equipment in line with the Disability and Discrimination Act 1995[4]. Where the objectives require it, media partners may be needed to ensure that the process reaches the wider population.
g) Be conducted fairly - with no in-built bias; non-confrontational, with no faction allowed to dominate; all participants treated respectfully; and all participants enabled to understand and question experts claims and knowledge.
h) Be informed - This will include providing participants with information and views from a range of perspectives, and access information from other sources.
i) Be deliberative – allowing time for participants to become informed in the area; be able to reflect on their own and others' views; and explore issues in depth with other participants. The context and objectives for the process will determine whether it is desirable to seek consensus, or to map out the range of views.

[2] It is probably advisable to embark upon a dialogue process, where these requirements cannot be met.
[3] Where advice is sought very early on in decision-making on an issue that is not yet known about by the public this may be a "narrow but deep" approach, where there is some knowledge and the impact is likely to be wide-ranging, soon, and or controversial, an approach involving a wider number of people may be appropriate. This must be decided on a case by case basis.
[4] Download the Disability Rights Commission's very useful guide to access at http://www.drc-gb.org/library/publications/services_and_transport/organising_accessible_events.aspx?basket=add&pub=Organising+Accessible+Events%7cSP13

j) Be appropriately 'representative' – the range of participants may need to reflect both the range of relevant interests, and pertinent socio-demographic characteristics (including geographical coverage). At times, there may be a need to enable participants to be self-selecting. In these circumstances, there will be measures in place to take account of potential any bias this may cause.

NOTE: Public dialogue does not claim to be fully representative, rather it is a group of the public, who, after adequate information, discussion, access to specialists and time to deliberate form considered advice which gives a strong indication of how the public at large feel about certain issues. The methodology and results need to be robust enough to give policy makers a good basis on which to make policy.

15 Impact

a) Ensure that participants, the scientific community and policy-makers and the wider public can easily understand the outputs across the full range of issues considered.
b) Ensure that participants' views are taken into account, with clear and transparent mechanisms to show how these views have been taken into account in policy and decision-making.
c) Influence the knowledge and attitudes of the public, policy-makers and the scientific community towards the issue at hand.
d) Influence the knowledge and attitudes of the public, policy-makers and the scientific community towards the use of public dialogue in informing policy and decision-making.
e) Encourage collaboration, networking, broader participation and co-operation in relation to public engagement in science and technology
f) Be directed towards those best placed to act upon its outputs[5].

16 Evaluation

a) Be evaluated in terms of process and outcome, so that experience and learning gained can contribute to good practice
b) Ensure that evaluation commences as early as possible, and continues throughout in the process
c) Ensure that evaluation addresses the objectives and expectations of all participants in the process
d) Be evaluated by independent parties (where appropriate)

The purpose and status of this document

17 This document sets out a set of guiding principles by which the process of public dialogue on science and technology-related issues might effectively be taken forward. This has been developed by the OSI in collaboration with policy-makers, practitioners, academics and representatives of the scientific and business communities working in the areas of science policy and public engagement. The OSI is very grateful to all those who have contributed to the development of these principles.

18. These guidelines are compatible with the Government's code of practice on consultation (published January 2004)[6], and provide more detail on the Government's proposed approach to public dialogue set out in the Science and Innovation Investment Framework 2004-2014 (published July 2004)[7].

19. This document should, therefore, be considered in relation to the following:

- Consultations and Public Dialogue activities on specific science and technology related issues to be carried out by (or on behalf of) departments, advisory committees, agencies or Non Departmental Public Bodies (including Research Councils).

20. This document will be kept under review, and the guidance will be revised and reissued periodically.

[5] For example, directing dialogue on aspirations to the scientific and business communities will help to inform decisions on setting research priorities. Similarly, Government will gain a better view of the potential of new technologies. Directing dialogue on concerns to the Government will help inform decisions on regulatory responses - scientists and businesses will also increase their understanding of (and responsiveness to) the public.
[6] www.cabinet-office.gov.uk/regulation/consultation/code.htm. As with the code on consultation, UK non-departmental public bodies and local authorities are encouraged to follow this guidance. Devolved Administrations are free to adopt this guidance should they wish to do so.
[7] www.hm-treasury.gov.uk./spending_review/spend_sr04/associated_documents/spending_sr04_science.cfm