

“Modern biology and its social impact”

**Report on the ESRC Genomics Forum / National Science
Foundation of China Expert Meeting**

22-24 March 2006

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List of Attendees

About the ESRC Genomics Policy and Research Forum

The ESRC Genomics Forum is a key component of a major investment by the Economic and Social Research Council (ESRC) in the area of genomics. It is part of the ESRC Genomics Network (EGN) which is examining different aspects of the relationship between genomics and society.

The Forum, based at the University of Edinburgh is a novel initiative working to integrate the diverse strands of social science research in the EGN and connect it to policy makers in the UK and abroad as well as business, the media and civil society. It also seeks to develop links between social scientists and scientists working on genomics in areas as diverse as plant and animal genetics, embryonic stem cell research, and associated health applications.

This is a challenging role but one which presents a huge opportunity for the Forum to widen the reception of social science research beyond existing audiences and building capacity amongst social scientists in policy engagement.

1 Background

The rapid pace of Chinese economic growth in recent years has been well documented. Much of this development is attributed to life sciences research – in particular in the area of genetic modification and genomics – and the growing biotechnology sector. For example, China has developed a host of GM plants, most notably BT Cotton, as well as decoding the rice genome largely independent from the West.

The Chinese government is keen to create an attractive research environment, invest public capital and encourage private investment in support of the development of industrial applications of biotechnology. Life scientists in China express a growing interest in reflecting on social issues surrounding these developments. At the same time, social scientists in the West are keen to learn about the Chinese research environment and biotech market, and to explore its impact on science policy cultures and the risk society.

A collaboration between the ESRC Genomics Forum and Chinese Research Institutions to explore such issues was first discussed in autumn 2004 when Prof Michael Banner met Prof Zhu Zuoyan, Vice-Director of the National Science Foundation China (NSFC) on Prof Zhu's visit to the University of Edinburgh. In April 2005 Prof Banner joined a University of Edinburgh delegation visiting Beijing. During this visit, Prof Banner met with Prof Lu Rongkai, Director of the Division of Western Europe in the Bureau of International Cooperation at the NSFC (National Science Foundation of China) as a follow-up to the meeting with Prof Zhu in Edinburgh. Here, the exchange of visiting fellows and the idea of a jointly organised workshop or seminar was formulated. Both parties considered this a good opportunity for starting the process of collaboratively exploring social issues in the life sciences. The long-term goal was to advance mutual understanding of biological research and technology through dialogue between China and the UK.

2 Practical details

In collaboration with his colleagues, Prof Lu suggested the seminar topic "Modern Biology and its Social Impact" and the dates of 22-24 March 2006. The meeting was planned as the first in a series of UK/China collaborations on social issues in the life sciences. The general idea was to provide a platform for discussion of the social impact of modern biological research and biotechnology and for

the development of further collaborations. In this first seminar the focus was not on one particular example within the life sciences or biotechnology. The idea was rather to introduce the wider range of social issues which are on need to be addressed, and to learn about public engagement strategies employed by each country. To this end, five sub-topics were agreed in late 2005, which became the basis of the seminar sessions.

Chinese delegates were chiefly leading life scientists. From the UK, the majority of delegates were social scientists but medical and natural scientists also attended. We invited at least two representatives from each of the EGN centres with an interest in China, as well as researchers from other leading UK social sciences research institutions such as BIOS, SATSU, IGBIS, and PEALS. We also involved speakers or discussants from public institutions such as the Wellcome Trust, the Natural History Museum or HTA.

To allow each participant to present, sessions included between 2-4 presentations followed by questions to the speaker, and 20-30 minutes of discussion. The sessions were chaired alternately by UK/Chinese participants.

3 Overview of sessions

Session One: Shape of Modern Biology

The first session on Wednesday afternoon aimed to give an idea of modern biological research development in both China and the UK. To this end, Zhang Chuanmao (Professor of Cell Biology and Genetics, College of Life Sciences, Peking University) introduced the research landscape and progress in restructuring the university environment in China. To give a flavour of the opportunities of modern biological research, Prof Veronica van Heyningen (MRC Medical Genetics Unit at the University of Edinburgh) spoke about her own research in the molecular genetics of eye disease in humans, and Prof Li Xuejun (Professor of Pharmacology & Vice Dean, School of Basic Medical Sciences, Beijing) about her research that uses genomics knowledge and its applications for new drugs at Peking University.

Session Two: The Role of Modern Biology and Biotechnology in the Chinese Economy

Prof Chu Chengcai (Professor of Genetics and Developmental Biology, Institute of Genetics and Developmental Biology, Chinese Academy of Sciences, Beijing) introduced the areas of BT cotton (now 75% of total cotton planting in China) and of transgenic rice as a top priority in plant biotechnology. He emphasised that the combination of the world's biggest population and only 7% of the world's arable land makes the issue of agricultural technology & innovation very pressing. His presentation touched upon the issue of commercial exploitation and exploitability of research knowledge as well as the translation of research into technologies and applications. It was complemented by Dr Xiaobai Shen's paper (Management School, University of Edinburgh) on the importance of rice in the context of China's economy which introduced historical and cultural dimensions of rice in Chinese agriculture. The session was rounded off by CESAGEN's professorial fellow Prof Peter Whittaker, who assessed the potential and problems of biotechnology in the genetics and genomics area more generally.

Session Three: Impacts on Social Relationships

The opening session on Thursday addressed modern biology's impact on human relationships in their wider societal context as well as ethical issues surrounding modern biology in the reproductive area.

On the UK side, presentations included a reflection on how the public understands and recognises relationships in the context of reproductive technologies (Prof Janet Carsten, Professor of Social and Cultural anthropology, Edinburgh) and how professionals in assisted conception clinics reflect on the socio-technical changes they mediate and how these changes transform families in society (Prof Anne Kerr, Professor Sociology, Leeds). Prof Wang Yanguang (Professor of Medical Ethics, The Center for Applied Ethics, Chinese Academy of Social Sciences, Beijing) introduced China's ethical guidelines on human embryonic stem cell research, and explained the position on the status of the 14 day embryo, which is held to be human life but not a human person. Prof Ma Weijun (Professor of Biology, Institute of Health Science, Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences, Shanghai) introduced bioethics initiatives in relation to the research projects in the Shanghai Institutes. He emphasised the progress made in the protection of the rights and welfare of research subjects. The research projects conform to, as he put it, the universal norms of bioethics.

Session Four: Impact on Health Policy

In this session, delegates moved on to address the implications of modern biology for national health policies. Prof David Porteous (Professor of Molecular Genetics & Director Wellcome Trust Clinical Research Unit, University of Edinburgh) spoke about the Generation Scotland Project as an example for health and wealth creation through genomics and as a project where life and social sciences collaborate and share benefits. Prof Xu Ningzhi (Laboratory of Cell and Molecular Biology, Cancer Institute, Chinese Academy of Medical Sciences, Beijing) spoke about the challenge of oesophageal and lung cancer (high risk and mortality in China), and basic research and education programmes into the area.

Session Five: Risk, Regulation and Innovation in the life sciences

By way of introducing the themes, Prof Li Zhou (economist; Senior Research Fellow, Deputy Director Rural Developmental Institute, Chinese Academy of Social Sciences, Beijing) spoke about the institutional arrangements for coping with risks and promoting development of the bio-industry in China. Dr Les Levidow (Senior Research Fellow, Developmental Policy and Practice, Open University) overviewed EU regulation of agricultural biotechnology and Prof Brian Salter (Professor of Biopolitics, Global Biopolitics Research Unit, University of East Anglia) reflected on the global politics of human embryonic stem cell science.

Session Six: Impact of Biological Advances on 'the public'

On Friday delegates met at the Genomics Forum for this last session which included issues such as public awareness, public knowledge of scientific issues, perceptions of technologies and services available, educational programmes for the public, and the engagement of the public in science policies and research programmes. Both Prof Gong Yandao (Professor of Biological Sciences, Tsinghua University, Beijing) and Prof Wu Qingyu (Professor of Biology, Tsinghua University, Beijing) spoke about the state of biological education in China today. They emphasised that the number of students of biology increased steadily, and that teaching and research at university were constantly improving. Prof Wu introduced his own textbook as an example of modern teaching facilities available. Both mentioned the role of museums in education of the public, which was the focus of Dr Johannes Vogel's presentation. Dr Vogel is Keeper of Botany at the Natural History Museum in London, and introduced its numerous impressive initiatives to meet the public. Prof Richard Shepherd (Professor of Psychology, ESRC Genomics Survey, University of Surrey) and Dr Mairi Levitt (Deputy Director, CESAGEN) reflected on UK public attitudes to the application of genetic sciences and DNA databases as two contrasting models of public engagement. The session was rounded off by Baroness Hayman (Chair of the HTA) who spoke more generally about how policy makers seek to reach out and engage the public in the UK.

4 Outcomes

Perhaps the most important outcome was furthering knowledge of research and development in both countries, about the state of research and biotechnology regulation & governance in China and the UK, public engagement strategies in as well as education programmes in biology.

The seminar offered ample opportunities for networking between UK and PRC researchers: Information on research projects was displayed. Between and after seminar sessions intensive talks took place about research projects and future collaborations. Contact details were exchanged.

Many of the messages that evolved from the wide-ranging presentations and discussions will be taken forward in future projects both by individual researchers and their institutions.

Chinese delegates expressed keen interest in the ESRC Genomic Forum's visiting fellowship programme. This will clearly strengthen links between NSFC, the University of Edinburgh as well as the EGN network and ensure visibility and use of the work of the EGN.

A second ESRC Genomics Forum/NSFC seminar is envisaged for Spring 2007 in Beijing.

Modern biology and its social impact

**Joint expert meeting hosted by the ESRC Genomics Policy and Research Forum
And the University of Edinburgh,
With the National Natural Science Foundation of China
Edinburgh, 20.03.-25.03.2006**

Delegate List

Professor Michael Banner	ESRC Genomics Policy & Research Forum	University of Edinburgh
Dr Adi Bharadwaj	The School of Social and Political Studies	University of Edinburgh
Dr Samuel Bridgewater	Natural History Museum	London / Edinburgh
Professor Janet Carsten	The School of Social and Political Studies	University of Edinburgh
Ms Almut Caspary	ESRC Genomics Policy & Research Forum	University of Edinburgh
Professor Chengcai Chu	Institute of Genetics & Developmental Biology	Chinese Academy of Sciences
Dr Fillippa Corneliussen	BIOS	London School of Economics
Professor Sarah Cunningham-Burley	Public Health Sciences Section	University of Edinburgh
Professor Yandao Gong	Biological Sciences and Biotechnology	Tsinghua University
Dr Matthew Harvey	ESRC Genomics Policy & Research Forum	University of Edinburgh
Dr Christine Hauskeller	EGENIS	University of Exeter
Baroness Helene Hayman	HTA	London
Dr Rebecca Hodges	The Royal Society	London
Professor Steve Hughes	EGENIS	University of Exeter
Ms Nadja Kanellopoulou	ESRC Genomics Policy & Research Forum	University of Edinburgh
Professor Anne Kerr	School of Sociology and Social Policy	University of Leeds
Ms Kerstin Klein	BIOS	London School of Economics
Dr Mairi Levitt	CESAGEN	University of Lancaster
Professor Xue-Jun Li	Department of Pharmacology	Peking University
Professor Zhou Li	Rural Development Institute & Research Centre for Ecological and Environmental	Chinese Academy of Social Sciences
Professor Rongkai Lu	Bureau of International Cooperation (NSFC)	National Natural Science Foundation
Professor Wei-Jun Ma	Biological Research Ethics Committee	Shanghai Institutes for Biological Sciences

Dr Paul Martin	IGBIS	University of Nottingham
Dr Clare Matterson	Wellcome Trust	London
Dr Janice McLaughlin	PEALS	University of Newcastle
Professor David Porteous	Wellcome Trust Clinical Research Unit	University of Edinburgh
Dr David Reece	EGENIS	University of Exeter
Professor Nikolas Rose	BIOS	London School of Economics
Dr Alessandro Rosiello	ESRC Genomics Policy & Research Forum	University of Edinburgh
Ms Ros Rouse	ESRC	
Professor Brian Salter	Global Biopolitics Research Group	University of East Anglia
Dr Xiaobai Shen	Management School and Economics	University of Edinburgh
Professor Richard Shepherd	Food, Consumer Behaviour, Health Research Centre	University of Surrey
Mr Jonathan Suk	ESRC Genomics Policy & Research Forum	University of Edinburgh
Professor Joyce Tait	Innogen	University of Edinburgh
Dr Rod Taylor	ESRC Genomics Policy & Research Forum	University of Edinburgh
Professor Veronica van Heyningen	MRC Medical Genetics Unit	University of Edinburgh
Dr Johannes Vogel	Natural History Museum	London
Dr Helen Wallace	GeneWatch UK	
Mei Wang		University of Edinburgh
Shasha Wang		University of Edinburgh
Professor Yanguang Wang	The Centre for Applied Ethics	Chinese Academy of Social Sciences
Professor Peter Whittaker	CESAGEN	University of Lancaster
Professor Robin Williams	Innogen	University of Edinburgh
Professor Qingyu Wu	Biological Sciences and Biotechnology	Tsinghua University
Professor Ningzhi Xu	Laboratory of Cell and Molecular Biology	Chinese Academy of Medical Science
Professor Steve Yearley	The School of Social and Political Studies	University of Edinburgh
Professor Chuanmao Zhang	Department of Cell Biology & Genetics	Peking University
Professor Qimin Zhan	National Laboratory of Molecular Oncology	Chinese Academy of Medical Sciences
Professor Zhu Zuoyan		National Natural Science Foundation