

Chapter 1

Introduction: Embedding Ethics in Science and Technology Policy—A Global Perspective

Miltos Ladikas, Sachin Chaturvedi, Yandong Zhao and Dirk Stemerding

1.1 Introduction

Ethics is important. No one doubts this. Yet no one knows with certainty what ethics is. Since historical records began, the question of what ethics is or what it means to live ‘ethically’ has been akin to the well-known eternal riddles about the origins of humanity and the will of God (or the gods) for humankind. From the Vedic scriptures to the teachings of Confucius and the philosophical debates of ancient Greece and Rome, questions on ethics have been asked and answers have been given in different forms and shapes, some evidently in direct contradiction. And the debates are continuing with the same intensity and urgency as ever.

This book is about ethics, but it does not try to answer any of the basic questions that have tormented humanity for the past 3,000 or 4,000 years. It has a much more modest aim that is also quite important in its own area, as it focuses

M. Ladikas (✉)

Centre for Professional Ethics, School of Health, University of Central Lancashire,
Brook 317, Preston PR1 2HE, UK
e-mail: mladikas@uclan.ac.uk

S. Chaturvedi

RIS, Zone IV-B, Fourth Floor, India Habitat Centre, Lodhi Road, New Delhi 110003, India
e-mail: sachin@ris.org.in

Y. Zhao

Chinese Academy of Science and Technology for Development (CASTED),
Beijing, People’s Republic of China
e-mail: zhaoyd@casted.org.cn

D. Stemerding

Rathenau Institute, Koninginnegracht, 2514 AE The Haag, The Netherlands
e-mail: d.stemerding@rathenau.nl

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on a unique feature of modern societies: technological developments. Never before have technologies reached such a level of penetration in people's everyday lives or been used so widely by citizens from every walk of life. Rich and poor, young and old, educated and unschooled, male and female—everyone uses modern technologies and everyone is deeply influenced by them. The effect that technologies have on our psychological and physical functioning is unprecedented and has reached high levels of intimacy (van Est 2014). Therefore questions on ethics in science and technology developments are crucial and urgent: How ought we to view new technologies? How are we to control their effects? On what should we base our thinking and decisions on technological developments? Whom should we rely on to advise us?

These are some of the questions that became the focus of analysis for the European Commission-funded project Global Ethics in Science and Technology policy (GEST), which ran from 2011 to 2014.¹ The main aim of GEST was to analyse the concepts and issues surrounding ethics in science and technology in Europe and the two main technology-intensive emerging economies of China and India, in order to create a robust global debate that directly informs science policy.

China and India are strong contenders in the production of science and technology, new ideas and knowledge. They make up roughly half the world's population and one fourth of its economic output, and there is little doubt that both contributions will increase significantly. Europe, India and China are at different stages of economic and social development, but all face similar challenges with regard to ethics issues in science and technology.

In Europe, and in the West in general, scandals associated with scientific misconduct and food technologies have been publicized and debated in recent decades, resulting in a series of policy initiatives, and similar debates have taken place in China and India. In China, for instance, recent public controversies in areas such as scientific misconduct, food safety and public health have proven to be a catalyst for science and technology debates (Xie 2013). These controversies have raised a host of ethics issues, highlighted limitations in science and technology governance and also eroded public trust in science (Zhao and Ma 2009). This has increased calls for debates on policy-making processes that incorporate socioethical considerations alongside economic ones. Similarly, India is seeing debates on new technological developments, with contributions from lay people and stakeholders alike, triggered by scandals in clinical trials and the introduction of genetically modified crops. Views on the ethical and social implications of science and technology are increasingly being discussed as part of the standard approach to assessing the implications of new technologies, and processes of wider consultation are gaining policy acceptance (Chaturvedi 2013; Mashelkar 2008).

¹ The project was funded by the European Commission's Seventh Framework Programme under grant agreement 266592 (see http://www.uclan.ac.uk/research/environment/projects/global_ethics_science_technology.php).

1.2 The Project's View of Ethics

During the past two decades, with debates on ethics in science and technology developments reaching a level of public significance, it has become clear that the meaning of the term 'ethics' is at best debatable. What is an ethical consideration for some people might be considered an economic matter by others, and when it comes to deeply held values on life, in many instances it is even more difficult to separate opinion from dogma, or belief from religious prescription.

The chorus (some might call it a cacophony) of voices in ethical debates has abated somewhat in recent years, as more and more lay people have found a common voice to express opinions that cannot easily be accommodated within standard belief systems, whether ideological or religious. Debates have become less 'expert' and more 'open' to participation by groups or individuals that do not necessarily claim any particular expertise in the scientific subjects under discussion, but are nevertheless persuaded that their voice is as valid as those of the experts. Whether this constitutes a revolutionary step in science and technology debates is the business of future historical analysis. At present, while some argue that ethical debates have crystallized in a form that allows unconditional input from experts and lay people alike through means that range from typical opinion surveys to atypical participatory policy discussions, others claim that dynamic new forms of public participation are required to avert a crisis of international governance regarding new and emerging technologies (Grunwald 2007; Owen et al. 2012; Stilgoe et al. 2014).

It is for this reason that GEST has adopted a view of ethics as a non-disciplinary, public area of social interaction that encompasses a plethora of forms of expression. Our definition of 'ethics debate' is thus:

A common platform for deliberation and discussion of values in society that is based on perceptions of right and wrong, is influenced by cultural norms, and aims at informing policy making.

The emphasis on 'perceptions of right and wrong' pertains to the need to acknowledge the importance of public perceptions in the debate, regardless of their origin (e.g. religious vs. secular). Public perception research, whether quantitative or qualitative, is nowadays an integral part of the ethics debate around any new science and technology development. What has been termed 'lay morality' is often even more evident in debates than the opinions of expert ethicists, and no decision can easily be taken in direct opposition to public sentiment (see Decker and Ladikas 2004).

The influence of cultural norms in ethics debates is a key subject for a project whose work has a global perspective. It is clear that ethical opinions do not appear out of a void and, whether or not one believes in an innate human nature, that upbringing plays a significant role in shaping notions of right and wrong. We therefore focus on how value systems in society influence ethical debates in the public and expert domains alike. We believe that ethics debates cannot be dissociated from cultural norms and values.

The aim of ethics debates in influencing policy-making forms another part of our definition. Ethics debates are by default policy debates. They are at core

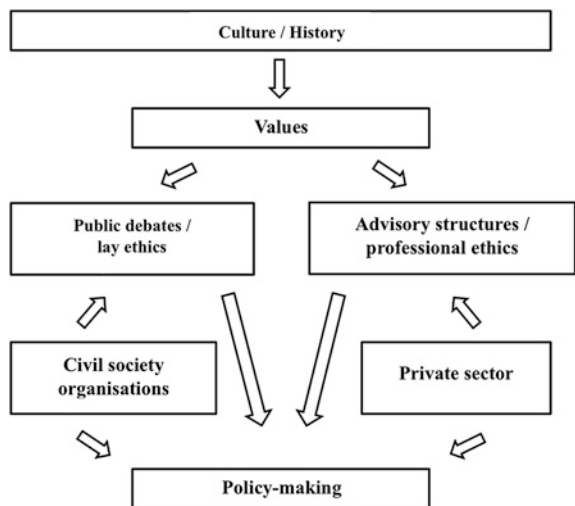
action-oriented in that they set out to allow or prohibit certain activities. As such, these debates aim to influence policy-making, and the opinions expressed are also policy opinions. Therefore it would be wrong to dissociate ethics debates from policy or doubt their impact on policy-making.

1.3 The Incorporation of Ethics in Science and Technology Policy

The incorporation of ethics in policy-making does not happen in isolation, as if ethics were a stand-alone concept. Ethics is inextricably connected to culture, and this affects its expression in a multitude of respects: dominant values, history and official governmental structures all influence the expression and direction of ethics debates. At the same time, private concerns, whether business-related or not, influence ethics debates by promoting moral arguments over certain world-views and policy choices. Figure 1.1 graphically depicts the position of ethics in a typical policy-making apparatus.

The first vital distinction to be made is that ethics can be both ‘formally’ and ‘informally’ expressed. ‘Formal’ expression occurs through the official structures in the decision-making system that have been created specifically to provide informed reflection on ethics issues. From government advisory bodies on science and technology to informal arms-length, quasi-governmental organizations, there is a plethora of ways to debate ethics in a reflective, formalized and disciplined manner. This contrasts with the spontaneous, public perspective on ethics expressed by lay people with little or no formal education in the field. This type of ‘informal’ lay view of ethics is more akin to morality, but nevertheless important in its expression of ethics in public debates (Burgess 2014). Lay morality is an

Fig. 1.1 Incorporation of ethics in science and technology policy



integral part of the incorporation of ethics in policy-making, although it requires different analytical methodologies (e.g. public surveys and citizens' dialogues).

Whether formalized or not, ethics derives from the dominant values that are held dear by society at the time of the debate. These values are easily recognized since they are promoted in official documents that organize society and policy priorities. National constitutions are the most relevant documents that describe dominant values, closely followed by international treaties, government white papers and key political speeches. In any case, ethics debates relate directly and indirectly to the dominant values in their content structure.

Also in the background is the historical and cultural context from which the dominant values, and therefore ethics views, are derived. The development of culture depends on historical events such as population movements, wars and occupations, and creates a distinct regional form expressed as much in arts and literature as in world-views and prescriptions of social behaviour. This results in specific values systems, as described above. Therefore a view on relevant history and culture in the analysis of ethics debates is necessary in order to explain the state of affairs and the main argumentation used.

Looking at the effect of ethics debates on policy-making, one ought not to disregard private activities that influence the direction of decisions. Such activities are organized in some form, for instance in terms of business interests or bringing together like-minded individuals, with the aim of influencing policy via lobbying. Business has traditionally been the most active private concern to lobby policy, but in recent decades we have seen the rise of civil society organizations as successful lobbyists. Both business and civil society organizations influence ethics debates by employing moral arguments and leading information campaigns.

The GEST project and the current book analyse in detail the most vital parts of the structure of the incorporation of ethics, namely formal and informal ethics discussions, regulatory mechanisms and dominant values systems. A perspective on history, culture and lobbying is given, but the work does not concentrate on these issues. Three regions as different as Europe, India and China offer a wealth of material for social scientists to analyse—in fact, much more than one could possibly digest in just 3 years of effort. To fully understand the antecedents and origins of three major world cultures would take a significant international effort. What we have done is to provide a snapshot of certain ethics debates in enough detail to enhance our understanding of the arguments involved, the decisions made and the values they represent. Most importantly, though, we point the way towards a common approach to ethics that can be followed at a global level with a global audience.

1.4 Structure of the Book

The book is divided into 12 chapters in three parts. Part 1 serves as the background to the remainder of the book, in that it conveys sufficient basic knowledge in relevant areas of academic research and policy to give a reader without significant prior knowledge an appreciation of the subtleties of the topic.

Chapter 2, explores the way in which ethical discussions are organized as part of the official science and technology policy-making process in the three regions. As each region has unique arrangements for ethics discussion, the development of the official structures is analysed in terms of the science and technology priorities that each region promotes, but also critically reviewed in terms of the regional needs and how these are covered by the existing structures. It shows that although overlapping structures do exist, the actual embedding of ethics in the regulatory process depends on the concrete characteristics of decision-making in each region.

Chapter 3, provides a basic comparative analysis of public perceptions of science and technology in the three regions. Comparable surveys, mainly from Europe and China, are analysed in terms of interest, information, attitudes etc. The results show remarkable similarities, but also significant differences, that have a direct influence in the dominant view of ethics in each region.

Chapter 4, addresses the societal governance issues in the three regions that are leading to increasing calls for and practice of public engagement in science and technology policy-making. It is a welcome fact that lay morality is an important analytical component of ethical debates in all regions, and that this is translated into public engagement. The processes and location of public engagement vary, though, and also depend on the context of policy-making, as discussed in this chapter.

Part 2, which discusses the value systems in the three regions, is the backbone of the book. The discussion is conducted from two perspectives: values as reflected in the dominant culture, and values as evident in official legislation in relation to science and technology governance. Based on this, the project's common analytical framework for the incorporation of ethics in decision-making process in the three regions is developed.

Chapter 5, discusses European constitutional values in terms of their influence in the governance of science and technology. Fundamental European values enshrined in the Charter of Fundamental Rights of the European Union and the Treaty of Lisbon are described and their relationship to existing science and technology policy-making is analysed.

Chapter 6, offers a similar analysis by describing the traditional Chinese concept of values in the tripartite culture of Confucianism-Buddhism-Taoism and explaining how the modernization process in China has brought in contrasting Western values and new value discourses such as scientism and developmentalism.

Chapter 7, describes the evolution of science and technology policy in India as part of the effort to promote socioeconomic development in the country. The role of science and technology in nation-building and modernization processes is analysed, along with the dominant values of equitable distribution, access and inclusion.

Chapter 8, uses the preceding analyses to develop a practical framework supporting a comparative analysis of the ethical debates in the three regions. The framework differentiates three public discourses focusing on innovation, risk, and power and control, and two reflective discourses focusing on ethics and lay morality. These form the categories that, along with the dominant values in each region, direct the analysis of the ethical debates.

Part 3, synthesizes the preceding analyses of perceptions, value systems, engagement and regulations using three major and emerging technologies for illustrative purposes. The three technologies chosen represent key science and technology aspects in all three regions and are in urgent need of further governance policies, especially at the global level.

Chapter 9, deals with the most intensely debated technology in the three regions. The chapter focuses on values and controversies relating to food technologies, including transgenic, traditional and organic perspectives as well as ‘productivist’ and ‘post-productivist’ agricultural models. It analyses the public discourses on the themes of risk, innovation, and power and control and their socioeconomic impacts so as to understand the utility of novel and emerging food technologies in the regional context and frame issues associated with ethical and broader societal discourses and consumer perceptions.

Chapter 10, offers an analysis of the ethics debates in the three regions and exposes the framing and dominance of discourses and underlying value concepts in each region. The predominance of the innovation discourse in India and China focuses on grand societal challenges and economic growth, while in Europe the strong involvement of nongovernmental actors offers alternative discursive framings and value concepts, resulting in a critical assessment of nanotechnologies.

Chapter 11, provides a comparative analysis of emerging debates on synthetic biology in the three regions in terms of the dominant discourses and themes, and their roots in the regional value systems. As this is a new technology, the formulation of the ethical debates and their anchoring with existing ones is of particular interest.

Finally, the overall conclusions of Chap. 12 bring together the insights gained throughout the book, along with policy recommendations. These aim at creating common institutional structures and common research programmes in the three regions with the object of achieving a truly global platform on which ethics can be debated and policy initiatives initiated according to a common road map.

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