



## **Principles and Approaches in Ethics Assessment**

## **Social Responsibility in Science and Engineering**

*Authors:*

*Rok Benčin, Gregor Strle,*

*Scientific Research Centre of the Slovenian Academy of Sciences and Arts (ZRC SAZU)*

*Agata Gurzawska, University of Twente*

June 2015

### **Annex 1.c**

## **Ethical Assessment of Research and Innovation: A Comparative Analysis of Practices and Institutions in the EU and selected other countries**

### ***Deliverable 1.1***

This deliverable and the work described in it is part of the project *Stakeholders Acting Together on the Ethical Impact Assessment of Research and Innovation - SATORI* - which received funding from the European Commission's Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 612231



## Contents

1. Description of the principle.....	3
2. Comparative analysis of scientific fields and disciplines.....	7
3. Corporate social responsibility.....	12
4. Organisations and publication series.....	17
5. International frameworks and standards.....	21
6. References .....	24

## 1. Description of the principle

The aim of this report is to analyse social responsibility as a principle in ethics assessment and ethical guidance of research and innovation (R&I). This section will introduce the principle, both in its use in relation to individual scientists and engineers, and its use in the notion of corporate social responsibility (CSR) in industry. The next section will discuss different understandings and applications of this principle in the major divisions of science, namely the medical and life sciences, social sciences, humanities, natural sciences and engineering. The third section will discuss the notion of corporate social responsibility in more detail. The fourth section will list important organisations, conference series and publication series that are concerned with social responsibility in science and engineering, while the fifth section will discuss national and international legislation, regulation and frameworks related to the principle. The sixth and final section contains literature references for the principle.

As an ethical principle in R&I, social responsibility refers to the responsibility of researchers and innovators for societal impacts of research activities, results and innovations Zandvoort et al. define “social responsibility of scientists and engineers as requiring from them a meaningful contribution to the safeguarding or promoting of a peaceful, just and sustainable world society”.<sup>1</sup> In research ethics, it is a principle that is quite different from other ethical principles, which tend not to be concerned with impacts on society, but with ethical issues within the research practice itself, such as the protection of research subjects and scientific integrity. The principle is nevertheless related to two principles often encountered in (medical) research ethics, those of beneficence and non-maleficence. The principle of non-maleficence states that researchers should avoid harm with their research, and this principle can be extended to impacts of society. The principle of beneficence states that researchers should do good with their research, which by extension means that researchers should consider the benefits their research can hold for society.

While other major principles of ethical assessment, namely the integrity of scientific practice and respect for the dignity and welfare of research participants, are concerned with the way R&I activities themselves are carried out, social responsibility addresses not only the consequences of R&I, but also its aims. In engineering ethics, a similar distinction has been made by some authors between microethics and macroethics, where the former related to the everyday practice and context of research, while the latter “arise[s] out of the use and potential misuse and abuse of research findings”.<sup>2</sup>

Traditionally, the social responsibility of scientists is seen as an attitude that is alternative to the attitude of self-sufficient detachment in pursuing scientific goals. Some scientists claim they were “trained to think of ourselves as working in the ‘ivory tower’ mode – seekers of truth uncontaminated by the outside world”.<sup>3</sup> However, when faced with the consequences of their research being put to questionable use, this detachment is sometimes replaced by ethical and political engagement. The most notorious historical case is most probably the use of physics research in making of the atomic bomb. In the aftermath of the Manhattan project

---

<sup>1</sup> Zandvoort, Henk, Tom Børsen, Michael Denekm and Stephanie J. Bird, “Editors’ Overview: Perspectives on Teaching Social Responsibility to Students in Science and Engineering”, *Science and Engineering Ethics*, Vol. 19, Issue 4, December 2013, p. 1414.

<sup>2</sup> Bird, Stephanie J. “Social Responsibility and Research Ethics: Not Either/Or but Both”, <http://www.aaas.org/news/social-responsibility-and-research-ethics-not-eitheror-both>. See also Herkert, Joseph R., “Ways of Thinking about and Teaching Ethical Problem Solving: Microethics and Macroethics in Engineering”, *Science and Engineering Ethics*, Vol. 11, Issue 3, 2001, pp. 373-385.

<sup>3</sup> Beckwith, Jon and Franklin Huang, “Should we make a fuss? A case for social responsibility in science”, *Nature Biotechnology*, Vol. 23, No. 12, December 2005, p. 1479.

“‘awakened’ scientists started the socially concerned ‘Bulletin of the Atomic Scientists’ and spoke out, lobbied and even went door-to-door seeking a ban on the testing of atomic weapons in the 1950s and 1960s.”<sup>4</sup> A similar example is the development of so-called Agent Orange, a biological weapon used in the Vietnam War, on the basis of botanic research by Arthur W. Galston, who later became an anti-war activist.<sup>5</sup>

The notion of social responsibility, as applied to scientists, requires philosophical justification, since it extends the notion of responsibility from an individual’s direct activity (the manner in which research is being carried out) to indirect consequences of research results that are beyond the influence and power of an individual researcher. As a principle, social responsibility is based on the “idea that the scientist is, at least to some extent, responsible for how his/her findings are put to use in society – by others”.<sup>6</sup> How can one be responsible for something one does not intend and cannot fully foresee? Ethicist John Forge argues that the responsibility of the scientist is based on the knowledge that science affects people and society, which is one of the founding facts of research practice; a researcher claiming ignorance of this proposition would be similar to criminal, claiming ignorance of the law.<sup>7</sup>

R&I affects society directly and indirectly in a variety of ways. Its impacts (potentially negative and positive) include:

- socio-economic (development, wellbeing, job creation or loss)
- environmental (pollution risk, climate change, green technologies, alternative energy sources)
- health, safety and security (health impacts, safety of products, dual use: application in military industry, potential terrorist use)
- privacy and civil liberties (development of ICT and other technologies)
- policy (researchers involved in advisory councils, research used to justify or criticise policies)

Examples of multi-layered impacts of research can be found, for instance, in the application of biological research in agriculture. The so-called “Green Revolution”, referring to the introduction of high-yielding in developing countries, produced the desired effect of increased crop yield, but also had negative impacts on societies and the environment, such as increased pest damage, genetic erosion, specialization of operation, labour displacement, and depressed product prices.<sup>8</sup> Another example is the use of BST, a hormone increasing milk production in cows, which had widely debated negative socio-economic effects on a number of dairy farmers.<sup>9</sup> In a commentary on these effects, Steven E. Smith claims that many of such negative effects can be foreseen by scientists who should include reflections on social responsibility in their research agendas: “I am certainly not suggesting that plant scientists suspend research that might have negative social consequences, but rather that we consider re-

---

<sup>4</sup> Ibid., p. 1480.

<sup>5</sup> Committee on Science, Engineering, and Public Policy, National Academy of Sciences, National Academy of Engineering, and Institute of Medicine, *On Being a Scientist: A Guide to Responsible Conduct in Research*, National Academies Press, Washington, 2009, p. 49.

<sup>6</sup> Gustafsson, Bengt, Lars Ryden, Gunnar Tibell, Peter Wallensteen, “Focus On: The Uppsala Code of Ethics for Scientists”, *Journal of Peace Research*, Vol. 21, No. 4, 1984, p. 313.

<sup>7</sup> Forge, John, “Moral Responsibility and the ‘Ignorant Scientist’”, *Science and Engineering Ethics*, Vol. 6, No. 3, 2000, pp. 341-349.

<sup>8</sup> Smith, Steven E., “Plant Biology and Social Responsibility”, *The Plant Cell*, Vol. 2, No. 5, May 1990, p. 367.

<sup>9</sup> Ibid.

evaluating our research objectives in light of these consequences once they are clearly foreseen”.<sup>10</sup>

Suggestions to suspend certain types of research have, however, been put on the table. Some have argued that the development in biological sciences are confronting society with the same type of dual-use dilemmas as nuclear physics has done in the past century.<sup>11</sup> Publishing research into synthetic viruses and drug-resistant bacteria is often condemned as irresponsible, on the grounds that it can provide the means for the development of biological weapons.

Calls have been made to integrate reflections on social responsibility in the education process of researchers. Zandvoort et al. have concluded that “education aimed at preparing future scientists and engineers for social responsibility is presently very limited and seemingly insufficient in view of the enormous ethical and social problems that are associated with current science and technology”.<sup>12</sup>

On the EU research policy level, social responsibility is embedded in the form of the “Science with and for society” programme in Horizon 2020, the main funding programme of the European Union, and through the concept of “responsible research and innovation” (RRI) that plays a role in EU research and innovation policy.<sup>13</sup> Rene von Schomberg of the European Commission defines RRI as follows:

Responsible Research and Innovation is a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view on the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society).<sup>14</sup>

Critics have, however, argued that the concept of RRI implies a reductive understanding of social responsibility, too focused on steering R&I towards economic goals.<sup>15</sup>

The concept of RRI shifts away the concept of social responsibility somewhat from individual scientists and engineers to the whole system of research and innovation: social responsibility becomes a feature of the whole R&I system by which it becomes responsive to ethical concerns and societal goals. The concept of Corporate Social Responsibility (CSR) similarly abstracts from individuals, and considers social responsibility as a feature of private companies. In recent years, this concept has gained unprecedented momentum in the world among companies, politicians and academia.<sup>16</sup> Currently, the vast majority of multi- and

---

<sup>10</sup> Ibid., p. 368.

<sup>11</sup> Selgelid, Michael J., “Governance of dual-use research: an ethical dilemma”, *Bulletin of the World Health Organization*, Vol. 87, 2009, pp. 720-723, <http://www.who.int/bulletin/volumes/87/9/08-051383/en/>.

<sup>12</sup> Zandvoort, Henk, Tom Børsen, Michael Denek and Stephanie J. Bird, “Editors’ Overview: Perspectives on Teaching Social Responsibility to Students in Science and Engineering”, *op. cit.*, p. 1413.

<sup>13</sup> <http://ec.europa.eu/research/swafs/index.cfm?pg=about>.

<sup>14</sup> Schomberg, Rene von, “The quest for the ‘right’ impacts of science and technology. An outlook towards a framework for responsible research and innovation”, in M.Dusseldorp, R. Beecroft (eds.) *Technikfolgen abschätzen lehren. Bildungspotenziale transdisziplinärer Methoden*, Springer Verlag 2011, p. 394; quoted in Owen, Richard, Phil Macnaghten and Jack Stilgoe, “Responsible Research and Innovation: from Science in Society to Science for Society, with Society”, *Science and Public Policy*, Vol. 39, 2012, p. 753.

<sup>15</sup> Zwart, Hub, Laurens Landeweerd and Arjan van Rooij, “Adapt or perish? Assessing the recent shift in the European research funding arena from ‘ELSA’ to ‘RRI’”, *Life Sciences, Society and Policy*, Vol. 10, No. 11, 2014, p. 16.

<sup>16</sup> Dirk Matten and Jeremy Moon, “‘Implicit’ and ‘Explicit’ CSR A conceptual framework for understanding CSR in Europe”, Research Paper Series *International Centre for Corporate Social Responsibility* No. 29-2004, [p. 1].

transnational corporations have developed CSR strategies. The rise of CSR can be explained to some extent as a result of contemporary economic globalization, which has destabilised the traditional Westphalian state-centred system and challenged national and international legal systems and value systems.<sup>17</sup> These developments, together with increased deregulation and liberalisation, have led to a newfound concern by governments, CSOs and consumers for the social, environmental, ethical, and human rights consequences of business activities, which has prompted a response from industry. As a result, the discussion on responsibility of companies has shifted from general question on whether companies have any responsibility beyond responsibility towards their shareholders, into a multi-layered discussion on the ways how responsible business should be done.

The notion “corporate social responsibility”, refers to the responsibility of companies towards society. Recently, many companies have started to use the term “corporate responsibility” instead. This reflects the intention to broaden the understanding of CSR as society-related obligations to include also other areas such as the environment and human rights. Moreover, CSR is not the only term used by companies regarding their commitment to doing their business in a responsible way. Companies develop and use also such terms as “sustainability”, “sustainable development”, “business ethics”, “corporate social performance” and “corporate citizenship”.

---

<sup>17</sup> Hristova, Mirela, “The Alien Tort Statute: A Vehicle for Implementing the United Nations Guiding Principles for Business and Human Rights and Promoting Corporate Social Responsibility”, pp. 89-108 in *University of San Francisco Law Review*, Vol. 47 U.S.F. L. Rev. 89, Summer 2012, p. 89.

## 2. Comparative analysis of scientific fields and disciplines

This section will compare the occurrence and interpretation of social responsibility as a principle across scientific fields, namely the medical and life sciences, social sciences, humanities, natural sciences and engineering sciences. In addition, the notion of CSR in industry will be taken into consideration. Comparative analysis will for the most part be based on a survey of major documents that specify ethical guidelines in these fields.

We will begin with a discussion of the notion of social responsibility in the medical and life sciences. Basic documents on ethics in the medical and life sciences have traditionally been drawn up to secure the safety of human participants in medical research. Social responsibility is implicitly present as the basic justification of research involving human subjects as such. The *Nuremberg Code* thus states that an “experiment should be such as to yield fruitful results for the good of society, unprocurable by other methods or means of study, and not random and unnecessary in nature”.<sup>18</sup> The World Medical Association’s *Declaration of Helsinki* paraphrases this principle,<sup>19</sup> but the reference to society is lost. (It does, however, state that “caution must be exercised in the conduct of medical research that may harm the environment”.<sup>20</sup>) The Council of Europe’s *Oviedo Convention* goes as far as to declare the primacy of the individual over the interest of society: “The interests and welfare of the human being shall prevail over the sole interest of society or science.”<sup>21</sup>

Social responsibility does play a role in UNESCO’s *Universal Declaration on Bioethics and Human Rights*, which is to a large extent based on “the desirability of developing new approaches to social responsibility to ensure that progress in science and technology contributes to justice, equity and to the interest of humanity”.<sup>22</sup> Without neglecting the protection of human dignity, autonomy and consent of research participants, this document contains important Articles, addressing issues related to social responsibility, most explicitly in Articles 14 and 15:

### Article 14 – Social responsibility and health

1. The promotion of health and social development for their people is a central purpose of governments that all sectors of society share.
2. Taking into account that the enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition, progress in science and technology should advance:
  - a. access to quality health care and essential medicines, especially for the health of women and children, because health is essential to life itself and must be considered to be a social and human good;
  - b. access to adequate nutrition and water;
  - c. improvement of living conditions and the environment;

---

<sup>18</sup> <http://www.hhs.gov/ohrp/archive/nurcode.html>.

<sup>19</sup> “Medical research involving human subjects may only be conducted if the importance of the objective outweighs the inherent risks and burdens to the research subjects.” (World Medical Association, *Declaration of Helsinki - Ethical Principles for Medical Research Involving Human Subjects*, <http://www.wma.net/en/30publications/10policies/b3/>).

<sup>20</sup> Ibid.

<sup>21</sup> Council of Europe, *Convention For The Protection Of Human Rights And Dignity Of The Human Being With Regard To The Application Of Biology And Medicine: Convention On Human Rights And Biomedicine*, <http://conventions.coe.int/Treaty/en/Treaties/Html/164.htm>.

<sup>22</sup> [http://portal.unesco.org/en/ev.php-URL\\_ID=31058&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/en/ev.php-URL_ID=31058&URL_DO=DO_TOPIC&URL_SECTION=201.html).

- d. elimination of the marginalization and the exclusion of persons on the basis of any grounds;
- e. reduction of poverty and illiteracy.

#### Article 15 – Sharing of benefits

1. Benefits resulting from any scientific research and its applications should be shared with society as a whole and within the international community, in particular with developing countries. In giving effect to this principle, benefits may take any of the following forms:
  - a. special and sustainable assistance to, and acknowledgement of, the persons and groups that have taken part in the research;
  - b. access to quality health care;
  - c. provision of new diagnostic and therapeutic modalities or products stemming from research;
  - d. support for health services;
  - e. access to scientific and technological knowledge;
  - f. capacity-building facilities for research purposes;
  - g. other forms of benefit consistent with the principles set out in this Declaration.
2. Benefits should not constitute improper inducements to participate in research.<sup>23</sup>

Other Articles mention equality, justice and equity, non-discrimination and non-stigmatization, respect for cultural diversity and pluralism, solidarity and cooperation, protection of future generations and protection of environment, the biosphere and biodiversity.<sup>24</sup> All these provisions can be understood within the context of social responsibility.

UNESCO's *Declaration* mirrors concerns about social responsibility in biomedicine found in the ethical literature. For example, Charles K. Francis draws attention to how societal issues such as racial and socioeconomic inequalities were the driving forces behind the biggest misconduct scandals in biomedicine (e. g. experiments in Nazi Germany or the Tuskegee Syphilis Study), which in turn provoked the international community to draw up bioethical guidelines.<sup>25</sup> According to Francis, there is “a need to balance medicine's devotion to the wellbeing of the patient and the primacy of the patient-physician relationship against with the need to meet the health care needs of society”, which in turn means “health for all”, regardless of race or socioeconomic circumstances.<sup>26</sup>

Social responsibility takes on a new dimension in the social sciences and the humanities as society and communities within society become research objects themselves. Therefore, protection of research participants does not only concern individuals, but also takes into consideration the effects of research on communities where research is being made. The ethical guidelines of the Association of Social Anthropologists of the UK and the Commonwealth thus states that “anthropologists must reflect particularly deeply on the likely impacts on the communities/cultures/societies they are studying”.<sup>27</sup> This does not only apply to the way research is being conducted on the field, but also to “the way [researchers] represent and publish their results to wider audiences”.<sup>28</sup> According to the ethical guidelines

---

<sup>23</sup> Ibid.

<sup>24</sup> Ibid.

<sup>25</sup> Francis, C. K., “The Medical Ethos and Social Responsibility in Clinical Medicine”, *Journal of the National Medical Association*, Vol. 93, No. 5, May 2001, pp. 157-169.

<sup>26</sup> Ibid., p. 157.

<sup>27</sup> Association of Social Anthropologists of the UK and the Commonwealth, *Ethical Guidelines for good research practice*, 2011, p. 3. <http://www.theasa.org/ethics/guidelines.shtml>.

<sup>28</sup> Ibid.



of the Norwegian National Committee for Research Ethics in the Social Sciences and the Humanities (NESH), researchers “should avoid [when presenting their research results] using classifications or designations that give rise to unreasonable generalisation, resulting in practice in the stigmatisation of particular social groups”,<sup>29</sup> especially vulnerable groups such as minorities, the disabled, etc.

Beyond referring to preventing harm, social responsibility in the social sciences is also formulated in terms of doing good. In the *EU Code of Ethics for Socio-Economic Research*, developed by the RESPECT project, funded by the European Commission, “Responsibilities to Society” are the first out of three sets of ethical principles. The first principle states that the “research aims of any study should both benefit the society and minimise social harm”.<sup>30</sup> Some authors claim that social scientists should be actively engaged in combating social injustices.<sup>31</sup> NESH’s guidelines list a variety of ways in which SSH research can positively contribute to society:

Research can uncover circumstances worthy of criticism, and can help clarify alternative choices of action and their potential consequences. It can also provide correctives, for example, by shedding light on the situation of vulnerable groups.

Research into our own and other cultures can help us explore values and standards that characterise today’s way of thinking, and can disclose underlying power structures. Research on cultural heritage can help substantiate, disprove and review values, standards and institutions that we trust and want to pass on to posterity.<sup>32</sup>

Let us finally turn to the natural sciences and engineering sciences. As many areas of natural sciences and engineering have a substantial impact on the environment and society, ethical assessments cover a broad range of individual and collective responsibilities and put especially strong emphasis on the social responsibility of scientists and engineers. In the context of social responsibility, the ethical questions most often in focus are those of the consequences of applied research and technological development. Safety is a major ethical concern in natural sciences and engineering, much more so than in the social sciences or humanities, and underlies technical standards and codes of ethics. Other issues related to social responsibility concern the impact of science and technology on the environment, health, privacy, access and equality, rights and liberties, autonomy, authenticity and identity, and dual use, among others.

While knowledge and technologies produced by natural sciences and engineering have an immense positive effect on human welfare and environment, they also bring potential for abuse, unforeseen risks, environmental pollution and depletion of natural resources, as well as social conflict. Thus, natural scientists and engineers have the obligation to act in the public’s interests by conducting responsible research, make informed decisions about the use of technology and promote discussions on science-related issues. Hence, it is often recognised, the social responsibility of researchers in natural sciences and engineering should include a

---

<sup>29</sup> The National Committee for Research Ethics in the Social Sciences and the Humanities (NESH), *Guidelines for research ethics in the social sciences, law and the humanities*, 2006, p. 22. <https://www.etikkom.no/In-English/Committee-for-Research-Ethics-in-the-Social-Sciences-and-the-Humanities/>.

<sup>30</sup> Sally Dench, Ron Iphofen and Ursula Huws, *An EU Code of Ethics for Socio-Economic Research*, The Institute for Employment Studies, Brighton 2014, p. 17.

<sup>31</sup> Israel M., Hay I., *Research Ethics for Social Scientists*, Sage Publications, London, Thousand Oaks, New Delhi, 2006, pp. 99-104.

<sup>32</sup> The National Committee for Research Ethics in the Social Sciences and the Humanities (NESH), *Guidelines for research ethics in the social sciences, law and the humanities*, op. cit., p. 8-9.

moral responsibility to critically reflect on the socio-ethical context of their work<sup>33</sup>. Philosophers Stephen Cohen and Damian Grace argue that engineers have an “an obligation to do good”, a duty of social responsibility that is integral and “pro-active”, rather than reactive, part of engineering as a profession.<sup>34</sup>

The influential U.S. National Society of Professional Engineers’ Code of Ethics for Engineers defines social responsibility through the “paramountcy principle”: “Engineers, in the fulfilment of their professional duties shall hold paramount the safety, health and welfare of the public.”<sup>35</sup> These “macroethical” impacts, however, are not entirely within the sphere of influence of the individual researcher/engineer since they arise from the use and the potential misuse of R&I, and as such are part of a wider decision- and policy-making agenda (governmental, commercial, public, etc.).

The safety and welfare of the public are core concerns in all engineering domains, as reflected by the codes and guidelines of various institutions and professional associations, e.g.<sup>36</sup>:

- Institute of Electrical and Electronics Engineers: “We, the members of the IEEE, [...] do hereby commit ourselves to the highest ethical and professional conduct and agree: 1. to accept responsibility in making decisions consistent with the safety, health and welfare of the public, and to disclose promptly factors that might endanger the public or the environment”<sup>37</sup>
- Institution of Civil Engineers: “Members of the ICE should always be aware of their overriding responsibility to the public good. A member’s obligations to the client can never override this, and members of the ICE should not enter undertakings which compromise this responsibility. The ‘public good’ encompasses care and respect for the environment, and for humanity’s cultural, historical and archaeological heritage, as well as the primary responsibility members have to protect the health and well being of present and future generations.”<sup>38</sup>
- American Institute of Chemical Engineers: “[M]embers shall hold paramount the safety, health and welfare of the public and protect the environment in performance of their professional duties.”<sup>39</sup>
- American Nuclear Society: “ANS members uphold and advance the integrity and honor of their professions by using their knowledge and skill for the enhancement of human welfare and the environment; being honest and impartial; serving with fidelity the public, their employers, and their clients; and striving to continuously improve the competence and prestige of their various professions.”<sup>40</sup>

---

<sup>33</sup> Schuurbiens, D. (2010). *Social responsibility in research practice: Engaging applied scientists with the socio-ethical context of their work* (Doctoral dissertation, TU Delft, Delft University of Technology).

<sup>34</sup> Cohen, S., & Grace, D. (1994). Engineers and social responsibility: An obligation to do good. *Technology and Society Magazine, IEEE*, 13.

<sup>35</sup> National Society of Professional Engineers (2003). Code of Ethics for Engineers, <http://www.mtengineers.org/pd/NSPECodeofEthics.pdf>

<sup>36</sup> The list is taken from Wikipedia: [https://en.wikipedia.org/wiki/Engineering\\_ethics](https://en.wikipedia.org/wiki/Engineering_ethics)

<sup>37</sup> IEEE (2006). *Code of Ethics* Canon 1, <http://www.ieee.org/about/corporate/governance/p7-8.html>

<sup>38</sup> ICE (2004). p. 38, <https://www.ice.org.uk/ICEDevelopmentWebPortal/media/Documents/About%20Us/ice-code-of-professional-conduct.pdf>

<sup>39</sup> AIChE (2003). Code of Ethics, <http://www.aiche.org/about/code-ethics>

<sup>40</sup> ANS (2003). Code of Ethics, <http://www.ans.org/about/coe/>

Overall, there is also growing awareness and discussions on the necessity of further integration of ethics, including social responsibility, in education and training of scientists and engineers.<sup>41,42</sup>

---

<sup>41</sup> E.g., Preparing for Social Responsibility, Teaching ethics, peace and sustainability to students in science and engineering. International Workshop at Delft University of Technology, 13th to 15th October 2010. <http://ethicsandtechnology.eu/socialresponsibility>.

<sup>42</sup> E.g., Alpay (2011); Børsen (2008); Børsen et al. (2013); Didier and Derouet (2011); Rathje, Spitzer and Zandvoort (2008); Spitzer (2013).

### 3. Corporate social responsibility

Let us now turn to the concept of corporate social responsibility. CSR is concerned with duties and obligations of companies towards society.<sup>43</sup> Despite a growing popularity of CSR, it still arouses criticism regarding the motivation of companies for engaging in CSR, and the way they understand and use CSR. Some authors argue that corporate approaches to CSR tend to be “symbolic” rather than “substantive”.<sup>44</sup> There is also a lack of a precise definition of the notion of “responsibility in CSR, which may refer to general responsibility (a duty to act with a due-diligence), accountability (a process of the assessment of one’s behaviour) and liability (legal consequences of one’s conduct).<sup>45</sup>

Archie B. Carroll has proposed an influential four-part conceptualization of CSR which includes economic responsibilities (be profitable), legal responsibilities (obey the law), ethical responsibilities (be ethical) and philanthropic responsibilities (be a good corporate citizen).<sup>46</sup> In Georges Enderle’s view, companies have three responsibilities to society: economic, social and environmental.<sup>47</sup> In his argument, he emphasised the role of small and medium sized enterprises in this respect.<sup>48</sup> Among a great number of approaches to companies’ responsibility, CSR can be perceived firstly instrumentally (instrumental theories), as a strategic tool with the economic objective (e.g. Friedman’s view); secondly from the political perspective, where CSR is about the power and position of business in regard to its interactions and connections with other actors (e.g. Corporate Citizenship); and lastly a more integrative approach can be identified, which argues that business existence, continuity and growth depends on society and therefore companies should operate in accordance with societal values.<sup>49</sup>

Actual CSR strategies position themselves in between two opposing approaches. On the one hand, many large companies commit to minimize risks to society due to their business and to also go beyond minimum legal and regulatory standards to make a positive impact on the society and the environment. This position has been inspired by more than thirty years of the rapid and intense development of CSR strategies and initiatives, either by industry or by political actors, such as national governments, international organisations, and a growing engagement of NGOs into the topic. On the other hand, many companies still agree with Milton Friedman’s argument that “there is only one and only one social responsibility of business – to use its resources and engage in activities designed to increase its profits so long

---

<sup>43</sup> Gurzawska Agata, (et al. ), “Ethical Assessment and CSR for Research and Development in Industry”, June 2015, report for SATORI “Comparative analysis of EU and international practices related to ethics assessment and CSR”.

<sup>44</sup> Gurzawska Agata, (et al. ), “Ethical Assessment and CSR for Research and Development in Industry”, June 2015, report for SATORI “Comparative analysis of EU and international practices related to ethics assessment and CSR”. For further discussion see e.g. Luis A. Perez-Batres et al., “Stakeholder Pressures as Determinants of CSR Strategic Choice: Why do Firms Choose Symbolic Versus Substantive Self-Regulatory Codes of Conduct?”, pp. 157–172 in *the Journal of Business Ethics*, 110, 2012.

<sup>45</sup> See the differentiation e.g. in Ivo Giesen, François G.H. Kristen, “Liability, Responsibility and Accountability: Crossing Borders”, in the *Utrecht Law Review*, Volume 10, Issue 3, June 2014.

<sup>46</sup> Archie B. Carroll, “The Pyramid of Corporate Social Responsibility: Toward the Moral Management of Organizational Stakeholders”, *Business Horizons*, July-August 1991, <http://www-rohan.sdsu.edu/faculty/dunnweb/rprnts/pyramidofcsr.pdf>

<sup>47</sup> Georges Enderle, “Global competition and corporate responsibilities of small and medium-sized enterprises”, pp. 51-63 in *Business Ethics: A European Review*, Volume 13 Number 1, January 2004.

<sup>48</sup> Ibid.

<sup>49</sup> Garriga, E. and Melé D., “Corporate Social Responsibility Theories: Mapping the Territory”, pp. 74-104 in Crane A., Matten D. Spence L.J., (ed.), “Corporate Social Responsibility: Readings and Cases in a Global Context”, Routledge 2008.

as it stays within the rules of the game, which is to say, engages in open and free competition, without deception or fraud”<sup>50</sup> and that CSR is against shareholders’ interest.<sup>51</sup> Furthermore, there is an on-going discussion on the real substance of what companies claim to do.<sup>52</sup> Whether in practice CSR initiatives have any positive impact on the society and the environment, or is it still mostly a marketing tool to promote a company as a “responsible/sustainable” business and generate even higher profit.

The rise of cross-border activity of companies and increasing economic power has challenged existing legislation. This state of affairs has triggered a need for international framework that could guide and regulate the activities of transnational corporations.<sup>53</sup> Among various such initiatives, the *UN ‘Protect, Respect and Remedy’ Framework for Business and Human Rights*, supplemented with the *UN Guiding Principles on Business and Human Rights* and the Organization for Economic Co-Operation and Development’s (OECD) *Guidelines for Multinational Enterprises (OECD Guidelines)* have cemented joint efforts of governments, companies and civil society to recognise a broader concept of corporate responsibility.

The UN Framework does not treat companies as independent actors of the international relations, but takes a broader perspective discussing the role of a company, but also a state. The Framework clearly describes the “responsibility” of a company and a state. It was developed by John Ruggie, the Special Representative of the Secretary-General (SRSG) on the issue of human rights and transnational corporations and other business enterprises, and is based on three pillars:

1. The state duty to protect - states have a duty to protect against human rights abuses committed by third parties, including business enterprises, through appropriate policies, regulation and adjudication
2. The corporate responsibility to respect human rights; and
3. The rights of victims of business-related human rights abuses to access to effective remedies.<sup>54</sup>

As far as the state is concerned, its main duty is to protect has both legal and policy implications. It should undertake appropriate steps to prevent, investigate, redress and punish abuses by private actors, including business, affecting the rights of persons within their territory and/or jurisdiction.<sup>55</sup> Companies should to act with due diligence to avoid infringing on the rights of others and addressing harms that do occur.<sup>56</sup> The last point refers to effective grievance mechanisms which is relevant for both the state duty to protect and the corporate responsibility to respect.<sup>57</sup>

In March 2011, the framework was further developed by *the UN Guiding Principles on Business and Human rights: Implementing the United Nations ‘Protect, Respect and Remedy’*

---

<sup>50</sup> Milton Friedman, “Capitalism and Freedom: Fortieth Anniversary Edition”, University of Chicago Press, 15 February 2009, [p. 133], available online.

<sup>51</sup> Based on SATORI interviews. See also Crane A., Matten D. Spence L.J., (ed.), *Corporate Social Responsibility: Readings and Cases in a Global Context*, Routledge, 2008, [p. 49].

<sup>52</sup> Ibid.

<sup>53</sup> Gurzawska, Agata, unpublished work: “From Commitment to Compliance, from Compliance to Practice – the Effectiveness of the Voluntary Principles on Security and Human Rights”, E.MA, 2013, [p. 27].

<sup>54</sup> The UN “Protect, Respect and Remedy” Framework for Business and Human Rights, <http://198.170.85.29/Ruggie-protect-respect-remedy-framework.pdf>

<sup>55</sup> Based on presentation by Dr. Olga Martin-Ortega for the course “Business and Human Rights”, The European Master’s Programme in Human Rights and Democratization (E.MA), 20-22 February 2013, Seville.

<sup>56</sup> Ibid.

<sup>57</sup> Ibid.

*Framework* (UN Guiding Principles).<sup>58</sup> The UN Guiding Principles are based on public consultations via an online forum.<sup>59</sup>

The Guiding Principles make an interesting claim regarding the understanding of “responsibility”, as they make a clear distinction between obligation and responsibility. In this respect, corporate responsibility “means that business enterprises should act with due diligence to avoid infringing on the rights of others and to address adverse impacts with which they are involved.”<sup>60</sup> In a comparison to duty or obligation, responsibility means “that respecting rights is not currently an obligation that international human rights law generally imposes directly on companies, although elements of it may be reflected in domestic laws.”<sup>61</sup> The importance of the UN Guiding Principles is confirmed in practice, as key businesses and organisations have already incorporated the Guiding Principles into their policies and strategies and use it as a benchmark for the assessment.

The second significant CSR framework is the OECD Guidelines for Multinational Enterprises (OECD Guidelines).<sup>62</sup> The first version of the OECD Guidelines was adopted in 1976, and has been revised over the time including the latest revision from 2011. The OECD Guidelines provide “recommendations addressed by governments to multinational enterprises operating in or from adhering countries.”<sup>63</sup> The document serves as a comprehensive code of responsible business conduct determining “non-binding principles and standards for responsible business conduct in a global context consistent with applicable laws and internationally recognised standards.”<sup>64</sup> These principles and standards include: employment and industrial relations, human rights, environment, information disclosure, combating bribery, consumer interests, science and technology, competition and taxation.<sup>65</sup> As was mentioned above, in 2011 the OECD Guidelines were revised. This revision was an important step for the CSR community, because it reflects the support of the OECD members for the UN Guiding Principles.<sup>66</sup> The UN Guiding Principles were incorporated into the OECD Guidelines through introducing a new chapter on human rights comprehensively addressing business-related human rights concerns for the first time.<sup>67</sup> Adding to this, the new version of OECD Guidelines takes a “new and comprehensive approach to due diligence and responsible

---

<sup>58</sup> Human Rights Council, “Guiding Principles on Business and Human rights: Implementing the United Nations ‘Protect, Respect and Remedy’ Framework”, A/HRC/17/31, 21 March 2011, at:

[http://www2.ohchr.org/english/bodies/hrcouncil/docs/17session/A.HRC.17.31\\_en.pdf](http://www2.ohchr.org/english/bodies/hrcouncil/docs/17session/A.HRC.17.31_en.pdf).

<sup>59</sup> Aaronson, Susan Ariel; Higham, Ian, ““Re-righting Business”: John Ruggie and the Struggle to Develop International Human Rights Standards for Transnational Firms”, pp. 333-264 in *Human Rights Quarterly*, Volume 35, Number 2, May 2013, [p. 335-336].

<sup>60</sup> Ibid.

<sup>61</sup> Blitt, Robert C., “Beyond Ruggie’s Guiding Principles on Business and Human Rights: Charting an Embrasive Approach to Corporate Human Rights Compliance”, pp. 32-64 in *Texas International Law Journal*, Vol. 48, No. 1, 2012; University of Tennessee Legal Studies Research Paper No. 158, 1 March 2013, at SSRN: <http://ssrn.com/abstract=1907778> or <http://dx.doi.org/10.2139/ssrn.1907778>, [p. 44].

<sup>62</sup> OECD, “OECD Guidelines for Multinational Enterprises”, 2008, at: <http://www.oecd.org/investment/mne/1922428.pdf> updated edition 2011, at: <http://www.oecd.org/investment/mne/48004323.pdf>

<sup>63</sup> Ibid., [p.3].

<sup>64</sup> Ibid., [p.3].

<sup>65</sup> Ibid., Part I.

<sup>66</sup> Gurzawska, Agata, unpublished work: “From Commitment to Compliance, from Compliance to Practice – the Effectiveness of the Voluntary Principles on Security and Human Rights”, E.MA, 2013, [pp. 34-35].

<sup>67</sup> Blitt, Robert C., “Beyond Ruggie’s Guiding Principles on Business and Human Rights: Charting an Embrasive Approach to Corporate Human Rights Compliance”, pp. 32-64 in *Texas International Law Journal*, Vol. 48, No. 1, 2012; University of Tennessee Legal Studies Research Paper No. 158, 1 March 2013, at SSRN: <http://ssrn.com/abstract=1907778> or <http://dx.doi.org/10.2139/ssrn.1907778>, [pp. 50-51].

supply chain management representing significant progress relative to earlier approaches”.<sup>68</sup> The OECD Guidelines are commonly used by the business community, who refers to this soft law instrument in many codes of conduct and CSR frameworks. The document evolved and developed significantly over time, from a system of norms to a substantially complete principles-based rule code.<sup>69</sup>

In the European context, the European Commission has emphasized the need to ‘integrate social, environmental, ethical, human rights and consumer concerns into their [enterprises] business operations and core strategy in close collaboration with their stakeholders’.<sup>70</sup> The Commission recognizes companies’ responsibility and notes that CSR strategies should focus on ‘maximising the creation of shared value for their owners/shareholders and for their other stakeholders and society at large’<sup>71</sup> and ‘identifying, preventing and mitigating their possible adverse impacts’.<sup>72</sup> The European Commission has developed its own CSR strategy which includes the following steps:

1. *Enhancing the visibility of CSR and disseminating good practices*
2. *Improving and tracking levels of trust in business*
3. *Improving self- and co-regulation processes*
4. *Enhancing market reward for CSR*
5. *Improving company disclosure of social and environmental information*
6. *Further integrating CSR into education, training and research*
7. *Emphasising the importance of national and sub-national CSR policies*
8. *Better aligning European and global approaches to CSR.*<sup>73</sup>

The scope of CSR is not limited to R&I, and corporate responsibility strategies should apply to all activities that a company is engaged in, to all its managers, employees, contractors, sub-contractors, and institutions that a company cooperates with. While the majority of large multinational corporations have CSR strategies, SATORI research has shown that in practice, these strategies to focus on a limited number of activities or issues (e.g. supply chain, the environment, gender equality, non-corruption). Despite greatly advertised CSR strategies and activities, many companies lack a strategic approach to CSR, which would entail a “business strategy that is integrated with core business objective and core competencies of the firm, and from the outset is designed to create business value and positive social change, and is embedded in a day-to-day business culture and operations.”<sup>74</sup>

Moreover, the current legal CSR system has evolved extremely quickly over the last 30 years, reflecting the change of mentality not only of society in general, but also of business itself.

---

<sup>68</sup> OECD, “OECD Guidelines for Multinational Enterprises”, 2008, <http://www.oecd.org/investment/mne/1922428.pdf> updated edition 2011, <http://www.oecd.org/investment/mne/48004323.pdf>

<sup>69</sup> Backer, Larry Catá, “From Institutional Misalignment to Socially Sustainable Governance: The Guiding Principles for the Implementation of the United Nation’s ‘Protect, Respect and Remedy’ and the Construction of Inter-Systemic Global Governance” *Pacific McGeorge Global Business & Development Law Journal*, 2011, 5 September 2011; and pp. 69-171 in *Scholarly Works. Paper 36*, 2012, p. 73, at: [http://elibrary.law.psu.edu/fac\\_works/36](http://elibrary.law.psu.edu/fac_works/36)

<sup>70</sup> Ibid.

<sup>71</sup> Ibid.

<sup>72</sup> Ibid.

<sup>73</sup> [http://ec.europa.eu/enterprise/policies/sustainable-business/corporate-social-responsibility/index\\_en.htm](http://ec.europa.eu/enterprise/policies/sustainable-business/corporate-social-responsibility/index_en.htm)

<sup>74</sup> Kellie McElhane, A Strategic Approach to Corporate Social Responsibility, pp. 30-36, [p. 31], available online:

[http://responsiblebusiness.haas.berkeley.edu/documents/Strategic%20CSR%20\(Leader%20to%20Leader,%20McElhane\).pdf](http://responsiblebusiness.haas.berkeley.edu/documents/Strategic%20CSR%20(Leader%20to%20Leader,%20McElhane).pdf)

The aforementioned international CSR frameworks definitely make a strong point by establishing a clear link between business and human rights and recognising a broader responsibility of business that does not only apply to company's shareholders. The discussion about the actual effectiveness of these frameworks is open to discussion. Some argue that soft-law/non-binding/voluntary initiatives are effective mechanisms, since they are based on companies' desire to retain a good reputation, while sceptics claim that if a company can benefit from doing wrong, it will do that. From the legal perspective, further steps are required to establish a stricter liability of companies in CSR issues. This may be difficult to achieve, but efforts can build on harmonizing already existing frameworks and using already existing recognition of CSR by businesses.



## 4. Organisations and publication series

### 4.1 Organisations

#### a) General organisations that promote social responsibility in R&I:

##### UNESCO

The World Commission on the Ethics of Scientific Knowledge and Technology (COMEST).<sup>75</sup> COMEST is an advisory body and forum set up by UNESCO in 1997. COMEST advises UNESCO in the formulation of ethical principles and guidelines to guarantee that technological progress and the sharing of scientific knowledge are fully consistent with respect to human rights and fundamental freedoms. See: <http://www.unesco.org/new/en/social-and-human-sciences/themes/comest/>

##### The American Association for the Advancement of Science (AAAS)<sup>76</sup>

AAAS is an international non-profit organisation dedicated to advancing science for the benefit of all people. See: <http://www.aaas.org/about-aaas>

##### International Council for Science (ICSU)<sup>77</sup>

ICSU is a non-governmental organisation working on strengthening international science for the benefit of society. See: <http://www.icsu.org/>

##### International Association for Impact Assessment (IAIA)

IAIA is the leading global network on best practice in the use of impact assessment for informed decision making regarding policies, programs, plans and projects. See: <http://www.iaia.org/>

#### b) Organisations that promote Corporate Social Responsibility

The list of organisations engaged in corporate social responsibility, including non-profit organisation active internationally, whose main focus is on business and human rights, or who have a designated business and human rights programme.<sup>78</sup> The list does not provide hundreds of smaller organisations working at the local level or focusing on a particular issues related to CSR.

- [Amnesty International: Business & Human Rights](#)
- [Business & Human Rights Documentation Project \(B-HRD\)](#)
- [Business & Human Rights Resource Centre](#)
- [BSR \(Business for Social Responsibility\) – Human Rights Strategy & Implementation](#)
- [Danish Institute for Human Rights: Human Rights and Business Project](#)
- [ESCR-Net: Corporate Accountability](#)

<sup>75</sup><http://www.unesco.org/new/en/social-and-human-sciences/themes/comest/>

<sup>76</sup><http://www.aaas.org/about-aaas>

<sup>77</sup><http://www.icsu.org>

<sup>78</sup> The list is fully based on the list provided by Business and Human Rights Resource Center, <http://business-humanrights.org/en/international-business-and-human-rights-organizations>

- [FIDH \(Intl. Federation for Human Rights\): Business & Human Rights](#)
- [Global Business Initiative on Human Rights](#)
- [Global Rights: Natural Resources & Human Rights Initiative](#)
- Global Witness
  - [Accountability - Business & Human Rights](#)
  - [Corruption - Business & Human Rights](#)
- [Human Rights First: Business and Human Rights](#)
- [Human Rights Watch: Business](#)
- [Intl. Commission of Jurists: Expert Legal Panel on Corporate Complicity](#)
- [Intl. Corporate Accountability Roundtable](#)
- [Institute for Human Rights & Business](#)
- [Nomogaia - Global Human Rights](#)
- [PODER - Project on Organizing, Development, Education, and Research](#)
- [RAID – Rights and Accountability in International Development](#)
- [SOMO – Centre for Research on Multinational Corporations](#)

#### Intergovernmental Organisations

- [UN Global Compact: Human Rights](#)
- [UN High Commissioner for Human Rights: Business & Human Rights](#)
- [UNICEF: Corporate Social Responsibility - Advancing Children's Rights in Business](#)

#### 4.2 Journals

Science and Engineering Ethics,

<http://www.springer.com/social+sciences/applied+ethics/journal/11948>

Journal of Academic Ethics,

<http://www.springer.com/education+%26+language/journal/10805>

Ethics and Social Responsibility in Science Education. A volume in Science and Technology Education and Future Human Needs. ISBN: 978-0-08-033911-5,

<http://www.sciencedirect.com/science/book/9780080339115>

European Journal of Engineering Education. The Official Journal of the European Society for Engineering Education.

<http://www.tandfonline.com/action/journalInformation?show=aimsScope&journalCode=ceee>  
[20](#)

Special Issue of the European Journal of Engineering Education, 33:2 (2008), 133 -195, containing 7 articles on preparing for social responsibility.

<http://www.informaworld.com/smpp/title~content=g793399109~db=all~tab=toc~order=page>

Journal of Business Ethics <http://link.springer.com/journal/10551>

Society for Business Ethics [http://sbeonline.org/?page\\_id=633](http://sbeonline.org/?page_id=633)

Corporate Reputation Review <http://www.palgrave-journals.com/crr/index.html>

Social Responsibility Journal <http://www.emeraldinsight.com/journal/srj>

#### 4.3 Conferences, Workshops, Reports, Programs

International Workshop Preparing for Social Responsibility: Teaching ethics, peace and sustainability to students in science and engineering.

International Workshop at Delft University of Technology, 13th to 15th October 2010, <http://ethicsandtechnology.eu/socialresponsibility/>

Engineering - Issues, Challenges and Opportunities for Development.

The UN's education and science body, UNESCO, has recently launched a new in-depth report, which focuses on the key issues facing engineering in its attempts to contribute to human development now and in the coming decades. Full report: <unesdoc.unesco.org/images/0018/001897/189753e.pdf>

“Science and Social Responsibility: Rising Problems, Wise Initiatives” – A Pugwash Workshop, UNESCO Headquarters, Paris, March 14.-15., 2012. Meeting by Member States or Institutions. Organised in partnership with UNESCO, this workshop reflected on how scientists can live up to their moral and social responsibility in the current age of globalization. This is particularly important to ensure that scientific and technological innovations are used for the benefit of humankind, and to help the world solve armed conflicts and build sustainable socially inclusive societies where human dignity is respected and environment is protected. [http://www.unesco.org/new/en/unesco/events/social-and-human-sciences-events/?tx\\_browser\\_pi1%5BshowUid%5D=6034&cHash=e6e64927f7](http://www.unesco.org/new/en/unesco/events/social-and-human-sciences-events/?tx_browser_pi1%5BshowUid%5D=6034&cHash=e6e64927f7)

#### **Annual United Nations Forum on Business and Human Rights**

The United Nations Forum on Business and Human Rights is a space for representatives and practitioners from civil society, business, government, international organisations and affected stakeholders to take stock of challenges and discuss ways to move forward on putting into practice the Guiding Principles on Business and Human Rights – a global standard for preventing and addressing adverse impacts on human rights linked to business activity. The Forum was established by the Human Rights Council, and is guided by the United Nations Working Group on Business and Human Rights. See: <http://www.ohchr.org/EN/Issues/Business/Forum/Pages/2015ForumBHR.aspx>

#### 4.4 Websites

1. <http://www.aaas.org/page/professional-ethics-report-archives>

Professional Ethics Report (PER) is published by the AAAS Scientific Responsibility, Human Rights and Law Program, in conjunction with the AAAS Committee on Scientific Freedom and Responsibility. The quarterly newsletter, which has been in publication since 1988, reports on news and events, programs and activities, and resources related to professional ethics issues, with a particular focus on those professions whose members are engaged in scientific research and its applications. PER was first published on the web in the spring of 1995.

2. <http://www.bl.uk/voices-of-science/themes/ethics-and-social-responsibility>

How far can and should scientists and engineers take responsibility for the potential or actual consequences of their research findings and creations? Does the answer to this depend on the kind of research they are doing, its possible consequences and the context in which they are working? Our interviewees suggest strongly that the answer to the second question is firmly yes. Those who worked in defence research during World War Two had few reservations about doing so. The situation during the Cold War could be more ambiguous but the sense of a genuine threat helped to overcome reservations.

3. INES Global – International Network of Engineers and Scientists for Global Responsibility <http://www.inesglobal.com/ines-home.phtml>
4. The INES Global Responsibility Newsletter reports and comments. <http://www.inesglobal.com/newsletter.phtml>
5. INESPE Lecture Series on the Social Responsibility of Engineers and Scientists at <http://inespe.org/lectures>. The Lecture Series is organised in collaboration with Center for the Philosophy of Nature and Science Studies at the University of Copenhagen.
6. The Institution of Mechanical Engineers (IMechE) is one of the fastest growing professional engineering institutions. Headquartered in London, but with operations around the world, the Institution has over 111,000 members in more than 140 countries, working at the heart of the most important and dynamic industries. <http://www.imeche.org/news/engineering/all>
7. The Institution of Mechanical Engineers (IMechE) Engineering Policy Statements and Consultation Responses. <http://www.imeche.org/knowledge/policy>
8. Scientists for Global Responsibility. SGR is an independent UK-based membership organisation of about 900 natural scientists, social scientists, engineers, IT professionals and architects. We promote science, design and technology that contribute to peace, social justice, and environmental sustainability. <http://www.sgr.org.uk>

Note: The websites on corporate social responsibility are related to organisations engaged in this field, therefore the list provided in the section: Organisations provides a sufficient base of information.

## 5. International frameworks and standards

This section lists and discusses international frameworks, guidelines and standards for social responsibility in R&I and CSR in industry. In R&I, social responsibility is usually thought of as one of the research ethics principles and is therefore part of ethical codes and guidelines. In the context of European Commission's governing of R&I, the concept of "responsible R&I" has emerged, where ethics is now considered as one dimension of a broader concept of social responsibility. Global CSR initiatives are also discussed.

### *The Uppsala Code of Ethics for Scientists*<sup>79</sup>

The Uppsala Code was written in 1984 by a group of scientists, meeting at the Uppsala University. It has been proposed by the International Council for Science (ICSU) in 1984 as a possible foundation for future ethical guidelines.<sup>80</sup> The Code goes beyond the general principles of social responsibility of scientists, and emphasises the importance of scientist's proactive stance in relation to wider societal issues, such as weapons research and other scientific research with the potential for detrimental consequences for the environment and society.<sup>81</sup>

### *Standards for Ethics and Responsibility in Science*

ICSU published this empirical study that analysed 115 (39 international and 76 national) standards for ethics and responsibility in science in 2001.<sup>82</sup> The results show an exponential increase in the number of standards formulated over the years, from a mere 6 before 1970 to more than 40 during the past five years.<sup>83</sup> In regard to education and training, ICSU standards report states the following:

Asking scientists to be socially responsible in their capacity as scientists presupposes that they possess the relevant competence. The study of ethics should therefore be an integral part of the education and training of all scientists with the purpose of increasing future scientists' ethical competence. That is essential, notably, in determining where the main ethical differences versus similarities between different parties lie, and in resolving conflicts.<sup>84</sup>

### *Universal Declaration on Bioethics and Human Rights*

UNESCO's 2005 document addresses several important aspects of social responsibility of research in medical and life sciences, which are absent from other important bio-medical ethical codes, such as the Declaration of Helsinki and the Oviedo Convention.

### *EU Code of Ethics for Socio-Economic Research*

This Code was written as a part of the RESPECT project, funded by the European Commission and is based on the study of ethical guidelines in various social science disciplines. "Responsibilities to society" feature as a major category of ethical principles for social science research, such as: respect for gender differences; respect for all groups in

---

<sup>79</sup> <http://www.codex.uu.se/en/texts/Uppsala%20codex.pdf>.

<sup>80</sup> [www.icsu.org/publications/reports-and-reviews/SCRES-Standards-Report-pdf](http://www.icsu.org/publications/reports-and-reviews/SCRES-Standards-Report-pdf).

<sup>81</sup> Gustafsson, B., Ryden, L., Tibell, G., & Wallensteen, P. (1984). The Uppsala code of ethics for scientists. *Journal of Peace Research*, 311-316.

<sup>82</sup> <http://www.icsu.org/publications/reports-and-reviews/standards-responsibility-science/SCRES-Standards-Report-pdf>.

<sup>83</sup> Ibid.

<sup>84</sup> Evers, K., *Standards for Ethics and Responsibility in Science: An Empirical Study. ICSU Report*, 2002, p. 89. <http://www.icsu.org/publications/reports-and-reviews/standards-responsibility-science/SCRES-Background.pdf>

society, regardless of race, ethnicity, religion and culture; respect for underrepresented social groups; addressing concerns of relevant stakeholders and user groups.<sup>85</sup>

### ***Guidelines for Research Ethics in the Social sciences, Law and the Humanities***

The Norwegian National Committee for Research Ethics in the Social Sciences and the Humanities (NESH) drafted the first version of ethical guidelines for SSH research in 1993. Reflections on societal impacts of SSH feature prominently.

### **Science with and for Society & Responsible Research and Innovation**

The European Commission began to systematically address social responsibility in R&I with the launch of the “Science and Society” Action Plan in 2001.<sup>86</sup> In the 7th Framework Programme, the Science in Society (SiS) programme was developed to explore these topics and issues, “with the main objective to foster public engagement and a sustained two-way dialogue between science and civil society”.<sup>87</sup> Since 2010, the aim of SiS was to establish a framework for Responsible Research and Innovation (RRI).<sup>88</sup>

Since then, the concept of RRI “gained particular visibility and traction in an EU, and specifically European Commission (EC) policy context”<sup>89</sup> and became central to Horizon 2020’s Science with and for Society programme. In the context of this programme, RRI is defined as follows:

RRI is an inclusive approach to research and innovation (R&I), to ensure that societal actors work together during the whole research and innovation process. It aims to better align both the process and outcomes of R&I, with the values, needs and expectations of European society. [...] In practice, RRI consists of designing and implementing R&I policy that will:

- engage society more broadly in its research and innovation activities,
- increase access to scientific results,
- ensure gender equality, in both the research process and research content,
- take into account the ethical dimension, and
- promote formal and informal science education.<sup>90</sup>

Currently, the CSR is an internationally recognised concept, acknowledged at the international, regional and country level. Regarding the key examples of global initiatives on corporate social responsibility, these include:

- Universal Declaration on Human Rights (and Charter of Fundamental Rights of the European Union and the European Convention on Human Rights),
- United Nations Guiding Principles on Business and Human Rights,
- United Nations Global Compact,
- OECD Guidelines for Multinational Enterprises (OECD Guidelines),

---

<sup>85</sup> Sally Dench, Ron Iphofen and Ursula Huws, *An EU Code of Ethics for Socio-Economic Research*, The Institute for Employment Studies, Brighton 2014, p. 17.

<sup>86</sup> <http://ec.europa.eu/research/swafs/index.cfm?pg=about>.

<sup>87</sup> Ibid.

<sup>88</sup> Ibid.

<sup>89</sup> Richard Owen, Phil Macnaghten and Jack Stilgoe, “Responsible Research and Innovation: from Science in Society to Science for Society, with Society”, *op. cit.*, p. 751.

<sup>90</sup> <https://ec.europa.eu/programmes/horizon2020/en/h2020-section/science-and-society>.

- The ILO Tri-partite Declaration of Principles on Multinational Enterprises and Social Policy, and the ILO Core Conventions and the Declaration on Fundamental Principles and Rights at Work (Instruments of the ILO),

Furthermore, a number of multi-stakeholder initiatives have played an important role in development of approaches to responsibility of companies towards the society. These initiatives supported the definition of shared practices and methodologies (standards) to define, apply, measure and report CSR actions and performances. Some of these initiatives include:

- Global Reporting Initiative (GRI)
- ISO 26000 Guidance Standard on Social Responsibility (ISO 26000)

## 6. References

This section includes bibliographical items referred to in the report, and suggestions for further reading.

Aaronson, Susan Ariel; Higham, Ian, ““Re-righting Business”: John Ruggie and the Struggle to Develop International Human Rights Standards for Transnational Firms”, pp. 333-264 in *Human Rights Quarterly*, Volume 35, Number 2, May 2013.

Alpay, E. (2013). Student-inspired activities for the teaching and learning of engineering ethics. *Science and engineering ethics*, 19(4), 1455-1468.

Archie B. Carroll, “The Pyramid of Corporate Social Responsibility: Toward the Moral Management of Organizational Stakeholders”, *Business Horizons*, July-August 1991, available at: <http://www-rohan.sdsu.edu/faculty/dunnweb/rprnts.pyramidofcsr.pdf>

Beckwith, Jon and Franklin Huang, “Should we make a fuss? A case for social responsibility in science”, *Nature Biotechnology*, Vol. 23, No. 12, December 2005, pp. 1479-1480.

Børsen, T. (2008). Developing ethics competencies among science students at the University of Copenhagen. *European Journal of Engineering Education*, 33(2), 177–184.

Børsen, T. (2013). Extended report from working group 5: Social responsibility of scientists at the 59<sup>th</sup> Pugwash conference on science and world affairs in Berlin, 1–4 July 2011. *Science and Engineering Ethics*, 19(1), 299–308.

Børsen, T., Antia, A. N., & Glessmer, M. S. (2013). A case study of teaching social responsibility to doctoral students in the climate sciences. *Science and engineering ethics*, 19(4), 1491-1504.

Brey, P. (2009). ‘Biomedical Engineering Ethics.’ Eds. Berg-Olsen, J., Pedersen, S., Hendricks, V. (eds.), *A Companion to Philosophy of Technology*. Blackwell.

Cohen, S. & D. Grace (1994). Engineers and Social Responsibility: An Obligation to Do Good. *IEEE Technology and Society Magazine*, 13(3): 12-19.

Conlon, Eddie, and Henk Zandvoort. (2011) "Broadening ethics teaching in engineering: Beyond the individualistic approach." *Science and Engineering Ethics* 17.2 (2011): 217-232.

Crane A., Matten D. Spence L.J., (ed.), *Corporate Social Responsibility: Readings and Cases in a Global Context*, Routledge 2008.

Didier, C., & Derouet, A. (2013). Social responsibility in French engineering education: A historical and sociological analysis. *Science and engineering ethics*, 19(4), 1577-1588.

Durbin, P. T. (1992). *Social responsibility in science, technology, and medicine*. Lehigh University Press.

Forge, John, “Moral Responsibility and the ‘Ignorant Scientist’”, *Science and Engineering Ethics*, Vol. 6, No. 3, 2000, pp. 341-349.

Francis, C. K., “The Medical Ethos and Social Responsibility in Clinical Medicine”, *Journal Of The National Medical Association*, Vol. 93, No. 5, May 2001, pp. 157-169.



- Garriga E. and Melé D., “Corporate Social Responsibility Theories: Mapping the Territory”, pp. 74-104 in Crane A., Matten D. Spence L.J., (ed.), “Corporate Social Responsibility: Readings and Cases in a Global Context”, Routledge 2008.
- Georges Enderle, “Global competition and corporate responsibilities of small and medium-sized enterprises”, pp. 51-63 in *Business Ethics: A European Review*, Volume 13 Number 1, January 2004.
- Glerup, Cecilie & Maja Horst. (2014). “Mapping ‘social responsibility’ in science”, *Journal of Responsible Innovation*, 1:1, 31-50, DOI: 10.1080/23299460.2014.882077
- Gustafsson, Bengt, Lars Ryden, Gunnar Tibell, Peter Wallensteen, “Focus On: The Uppsala Code of Ethics for Scientists”, *Journal of Peace Research*, Vol. 21, No. 4, 1984, pp. 311-316.
- Hansen, Tom Børsen, 2005. Når fløjten får en anden lyd... In Tidsskriftet SALT, (6) Available at <http://www.modkraft.dk/mprint.php?artid=272&mid=2>.
- Harris, C.E. Jr, M.S. Pritchard, and M.J. Rabins. (1995). “Engineering ethics. Concepts and cases.” Belmont: Wadsworth.
- Harris, Charles E. (1998), "Engineering Responsibilities in Lesser-Developed Nations: The Welfare Requirement". *Science and Engineering Ethics* 4(3): 321-331.  
<http://www.springerlink.com/content/92877755h6m40812/>
- Herkert, Joseph R., “Ways of Thinking about and Teaching Ethical Problem Solving: Microethics and Macroethics in Engineering”, *Science and Engineering Ethics*, Vol. 11, Issue 3, 2001, pp. 373-385.
- Human Rights Council, “Guiding Principles on Business and Human rights: Implementing the United Nations ‘Protect, Respect and Remedy’ Framework”, A/HRC/17/31, 21 March 2011, at: [http://www2.ohchr.org/english/bodies/hrcouncil/docs/17session/A.HRC.17.31\\_en.pdf](http://www2.ohchr.org/english/bodies/hrcouncil/docs/17session/A.HRC.17.31_en.pdf)
- Ivo Giesen, François G.H. Kristen, “Liability, Responsibility and Accountability: Crossing Borders”, in the *Utrecht Law Review*, Volume 10, Issue 3, June 2014.
- Kline, Ronald (2013). Teaching Social Responsibility for the Conduct of Research, *IEEE Technology and Society Magazine* Summer 2013, 52-58.
- Lucas, John Randolph. "Responsibility." (1995). Clarendon Press.
- Luis A. Perez-Batres et al., “Stakeholder Pressures as Determinants of CSR Strategic Choice: Why do Firms Choose Symbolic Versus Substantive Self-Regulatory Codes of Conduct?”, pp. 157–172 in the *Journal of Business Ethics*, 110, 2012.
- Martin, M.W. & R. Schinzinger, (1996). “Ethics and engineering.” 3rd edition. New York: McGraw-Hill, pp. 84-85.
- Milton Friedman, “Capitalism and Freedom: Fortieth Anniversary Edition”, University of Chicago Press, 15 February 2009.
- Mitcham, Carl. (2003). “Co-responsibility for research integrity.” in: *Science and Engineering Ethics*. Vol. 9, No. 2, June 2003.

- Owen, Richard, Phil Macnaghten and Jack Stilgoe, “Responsible Research and Innovation: from Science in Society to Science for Society, with Society”, *Science and Public Policy*, Vol. 39, 2012, pp. 751-760.
- Pimple, K. D. (2002). Six domains of research ethics. *Science and Engineering Ethics*, 8(2), 191–205.
- Pritchard, Michael S. (2001), “Response to "Ordinary Reasonable Care Is Not the Minimum for Engineers"”. *Science and Engineering Ethics* 7(2): 291-297.  
<http://www.springerlink.com/content/a274067644622716/>
- Pritchard, Michael S. (2001), “Responsible Engineering: The Importance of Character and Imagination”. *Science and Engineering Ethics* 7(3): 391-403.  
<http://www.springerlink.com/content/e64563867r335625/>
- Rathje, D., Spitzer, H., & Zandvoort, H. (2008). How to prepare students for a responsible use of science and engineering. Results from the workshop “teaching ethics and peace to science and engineering students”, University of Hamburg, 15–17 October 2008. <http://www.znf.uni-hamburg.de/brochure.pdf>
- Schininger, R. and M. W. Martin. (2000). “Introduction to Engineering Ethics.” McGraw-Hill, New York.
- Schlossberger, Eugene (1997), The Responsibility of Engineers, Appropriate Technology, and Lesser Developed Nations. *Science and Engineering Ethics* 3(3): 317-326.  
<http://www.springerlink.com/content/y6r5085542v4873g/>
- Schuurbijs, D. (2010). *Social responsibility in research practice: Engaging applied scientists with the socio-ethical context of their work* (Doctoral dissertation, TU Delft, Delft University of Technology).
- Schuurbijs, D., Osseweijer, P & Kinderlerer, J. (2007) ‘[Future societal issues in industrial biotechnology](#)’. *Biotechnology Journal* 2(9): 1112-1120.
- Schuurbijs, D., Osseweijer, P & Kinderlerer, J. (2009) '[Implementing the Netherlands Code of Conduct for scientific practise – A case study](#)'. *Science & Engineering Ethics* .15(2): 213-231.
- Schuurbijs, D., Sleenhoff, S. & Bennett, D.J. (2007) Issues to be RAISED: Ethical and social considerations in nanotechnology research. Abstracts of the workshop Philosophy and Engineering 2007, Delft University of Technology, October 29-31, 2007: 72
- Sieghart, Paul. "Science, technology and social responsibility." *Journal of the Royal Society of Arts* (1983): 535-547.
- Smith, Steven E., “Plant Biology and Social Responsibility”, *The Plant Cell*, Vol. 2, No. 5, May 1990, pp. 367-368.
- Spitzer, H. (2013). Introduction of Interdisciplinary Teaching: Two Case Studies. *Science and engineering ethics*, 19(4), 1451-1454.
- The UN "Protect, Respect and Remedy" Framework for Business and Human Rights, <http://198.170.85.29/Ruggie-protect-respect-remedy-framework.pdf>

Verhoog, H. (1980). *Science and the social responsibility of natural scientists: A meta-scientific analysis of recent literature about the role of natural science in society* (Doctoral dissertation, Rijksuniversiteit te Leiden).

Zandvoort, Henk, I. VanDePoel, and M. Brumsen. (2000). "Ethics in the engineering curricula: topics, trends and challenges for the future." *European journal of engineering education* 25.4 (2000): 291-302.

Zandvoort, Henk, Tom Børsen, Michael Denekm and Stephanie J. Bird, "Editors' Overview: Perspectives on Teaching Social Responsibility to Students in Science and Engineering", *Science and Engineering Ethics*, Vol. 19, No. 4, December 2013, pp. 1413–1438.

Zandvoort, Henk. (2009). "Engineering education for a sustainable, just and peaceful society." *Presentation held at the TEK sustainable development seminar*. Vol. 19. 2009.

Zwart, Hub, Laurens Landeweerd and Arjan van Rooij, "Adapt or perish? Assessing the recent shift in the European research funding arena from 'ELSA' to 'RRI'", *Life Sciences, Society and Policy*, Vol. 10, No. 11, 2014.