

# Biotechnology and Ethics:

## A Critical Review of the World Council of Churches' Position on Agricultural Biotechnology

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What is the theological and ethical justification for the World Council of Churches' (WCC) participation in the global movement calling for a ban of transgenic technology in agriculture? The article identifies two phases in which the WCC took an active role in the debates concerning transgenic technology. First, the decade leading up to the General Assembly in 1983, characterised by a vigilant role, by addressing the potentials and threats of new technologies before such technologies were actually brought to the market, including the patenting of plants. Second, the half decade before the General Assembly in 2006, characterised by a rejectionist role, by seeing the technology primarily in the context of corporate power. The article finds that the strong message is modified in the background documents that are presented to the 2006 General Assembly, and in statements that come out of conferences where the WCC is only one of many organisers. While the article confirms the ethical basis for challenging corporate conduct that constitutes a threat to the environment and to human rights, including the rights of indigenous peoples, it is argued that a more nuanced approach is warranted. This approach should emphasise that agricultural research must be adapted to the needs of small farmers, that the real risks of transgenic contamination must be adequately acknowledged, and that justice and stewardship must guide the WCC's approach.

**Keywords:** World Council of Churches, public theology, transgenic technology, Agape document, Ecumenical Advocacy Alliance, human rights

## Introduction

The World Council of Churches published a position on global economy and ecology in 2005.<sup>1</sup> The Agape document ('Alternative Globalisation Addressing Peoples and Earth') was discussed intensively before, during and after the World Council of Churches (WCC) General Assembly in 2006. While the Agape document is interesting from different perspectives, this article specifically analyses how this document, as well as other WCC documents and decisions, address technology concerns, in particular modern biotechnology in the context of agriculture.

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1 World Council of Churches 2005a: Alternative Globalisation Addressing Peoples and Earth; available at: [www.wcc-coe.org/wcc/what/jpc/agape-new.pdf](http://www.wcc-coe.org/wcc/what/jpc/agape-new.pdf).

When this article discusses biotechnology, it refers to the modern forms of genetic engineering or transgenic technology. Hence, this article applies interchangeably the terms 'biotechnology' and 'genetic technology'. The article will particularly analyse biotechnology as it applies to food, as this allows for an analysis which explicitly encompasses both the economical and the ecological dimension of technology.

By addressing these specific dimensions within its broader criticism of the neoliberal economic system, this emphasis on technology can illustrate how this body with a membership of almost 350 churches perceives market-led transformation. The WCC document challenges each and every one of us, including those working in the biotechnology industry, to adopt a critical approach to technology, which is understood as being embedded in a neoliberal economic system.

This article analyses how the WCC justifies its position, based on an understanding of whether technology might cause certain undesirable effects. An earlier study<sup>2</sup> found that the Catholic Church was much more positive to genetic modification in agriculture than the WCC, with the Anglican and Lutheran Churches holding a position somewhere in between the two. A comparison between Protestant and Catholic perspectives on genetic engineering shows that Protestants are more ecologically oriented, more conservative, and more reliant on the Scriptures, while Catholics are more concerned with the natural order.<sup>3</sup> While the WCC represents three of the four main church families, the Protestant, Orthodox and Oriental churches, the Protestant churches are dominant in the organisation.

Hence, the hypothesis is that the WCC holds the presumption that the introduction of new technology will inevitably have negative effects because it interferes in God's creation, results in global power inequities, creates a dependency on technology producers and leads to increased poverty among the most vulnerable.

Building on this hypothesis, this article will attempt to answer the following question: Based on the WCC's predominantly negative perception of modern biotechnology in agriculture, how does the organisation call upon its member churches and individual Christians to respond, and is this type of instruction from the WCC well-founded and justified?

The structure of the article is as follows: first, a brief background on the WCC's involvement in modern biotechnology, analysed in light of academic contributions on theological bioethics, will be provided. This will be followed by a more in-depth analysis of the content of the Agape document, seeking to identify its explicit and implicit underlying approach and its content. In the third part of this article other WCC documents containing more explicit recommendations with regard to biotechnology than those of the Agape document will be analysed. Next, statements from other bodies to which the WCC relates will be analysed. Finally,

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2 Haugen, H. M. (2005) 'Mat og transgene produkter: Hva gjør kirkene?', in *Kirke og kultur*, Vol. 110, No. 4, 553–563

3 Shannon, T. A. (2000), *Made in Whose Image? Genetic Engineering and Christian Ethics*, Amherst, N.Y.

an analysis of the three main issues of adequate food production, appropriate regulatory procedures and well-founded ethical guidance will be provided.

In order to analyse the role of the churches in the public debate in societies characterised by pluralism, secularism and individualism, the term 'public theology' has been introduced. The term seeks to capture how applied Christian ethics can be legitimately communicated in society at large and when seeking to influence relevant policy decisions. According to Audrey Chapman, public theology must fulfil certain criteria. It must be rooted in the church constituency, which requires systematic education and wide-ranging consultations. It must also be timely, understandable also by non-believers, knowledge-based, and explicit as to what is advocated.<sup>4</sup> The first of these requirements seems most demanding, but it must also be considered crucial. It must be expected that the WCC depends on the work of its member churches to ensure this rootedness. This article seeks to identify the extent to which WCC has actually sought to give tools to its member churches to ensure a better understanding of and communication on issues relating to modern biotechnology among the church constituency.

In the absence of such learning tools and processes, it would be tempting to present biotechnology as primarily embedded in a global asymmetrical power relationship, making the rich richer and the poor poorer. While this might be the case, it is too narrow an understanding of modern biotechnology. Moreover, a proactive approach by the world community of states could actually make technology work better for the poor.<sup>5</sup>

## **WCC's Approach towards Human Intervention in Nature**

The WCC has been addressing the ethics of genetic technology since its inception. In 1966 it convened a Conference titled Christians in the Technical and Social Revolution of our Time, addressing how technology resulted in a concentration of power, but subsequently it became clear that more insight was required into technology issues.<sup>6</sup> In 1969 the WCC's Central Committee launched the Five-Year Ecumenical Inquiry into the Future of Man and Society in a World of Science-Based Technology.<sup>7</sup> In 1973 – the same year as recombinant DNA technology was

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4 Chapman, A. (1999), *Unprecedented Choices: Religious Ethics at the Frontiers of Genetic Science*, Minneapolis, 156–160; 252

5 United Nations (2005), *Innovation: applying knowledge in development* (London: Earthscan, in cooperation with the UNDP-sponsored Millennium Project).

6 Lincoln Shinn, R. (1980), *Faith and science in an unjust world: Report of the World Council of Churches' Conference on Faith, Science and the Future. 1 Plenary Presentations [ Vol. II,], Geneva, World Council of Churches, 4*

7 World Council of Churches (1989), *Biotechnology - its challenges to the churches and the world: Report by WCC Subunit on Church & Society*, available at:

developed by Herbert Boyer and Stanley Cohen – a conference entitled Genetics and the Quality of Life was held in Zürich, convened by WCC's Christian Medical Commission. In 1979, the WCC convened a conference with 900 participants at the MIT on Faith, Science and the Future.<sup>8</sup> One of the sessions was devoted to 'Ethical issues in the biological manipulation of life'. In his plenary address, the WCC's Secretary-General Dr. Philip Potter said that "science and technology [...] are instruments of power".<sup>9</sup> In these early stages, to the extent to which genetic technology was addressed, the emphasis was on genetic technology as it applied to human beings.

In 1980 a group of experts was mandated to "advise the churches on the ethical implications and social consequences of rapid developments in genetic and biochemical manipulation".<sup>10</sup> The report from the consultation, *Ethical and social issues in genetic engineering and the ownership of life form*, was approved "with appreciation" by the Central Committee in 1981,<sup>11</sup> and the final publication, entitled *Manipulating Life: Ethical issues in genetic engineering*, did address patenting of plants as well as corporations' control over seeds and farmers' dependency on these corporations.<sup>12</sup> At that stage there were no patents on plants, but the US Supreme Court had in 1980 decided in favour of a patent on microorganisms.<sup>13</sup> This shows that the WCC was most proactive on issues relating to genetic engineering in the first decade of its work on these issues.

The adoption of the Justice, Peace and Integrity of Creation programme took place at the WCC General Assembly in 1983. In the following years, genetic engineering issue was discussed by national churches,<sup>14</sup> but the WCC itself played a less central role. Then, in 1988, a consultation on Integrity of Creation – most likely inspired by Potter's 1979 presentation – viewed technology as "an instrument of power and is itself trapped in vast networks of power which are complex, systemic, often multinational, and exists primarily to maximise profit".<sup>15</sup> The report from the consultation went further, however, by viewing technology as "an ideology".<sup>16</sup>

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[www.oikoumene.org/en/resources/documents/wcc-programmes/justice-diakonia-and-responsibility-for-creation/science-technology-ethics/biotechnology.html](http://www.oikoumene.org/en/resources/documents/wcc-programmes/justice-diakonia-and-responsibility-for-creation/science-technology-ethics/biotechnology.html)

8 Lincoln Shinn: 1980; Abrecht, P. (1980), Faith and science in an unjust world: Report of the World Council of Churches' Conference on Faith, Science and the Future. 2 Reports and Recommendations, Geneva, World Council of Churches.

9 Lincoln Shinn: 1980, 28

10 World Council of Churches 1982: Manipulating life. Ethical issues in genetic engineering, Geneva, World Council of Churches

11 WCC 1982: Appendix 3

12 WCC 1982: 19–21; 27

13 United States Supreme Court (1980), *Diamond v. Chakrabarty*, 447 U.S. 303.

14 Chapman: 1999, 33

15 WCC 1989: note 14 and accompanying text

16 *ibid*, see also Görman, U. (2005), 'Co-Creation or Hubris? Responses to biotechnology in Christianity, Judaism and Islam', in U. Görman/H. Meisinger/W. B. Drees (ed.), *Creative creatures: Values and Ethical Issues in Theology, Science, and Technology*, London, 135

The tone was less confrontational when the Central Committee in 1989 approved recommendations on biotechnology, the last of which called for consultations to “reflect on the political evolution of biotechnology and its impact on global justice, and to make proposals for maximising the benefit to those who are most in need”.<sup>17</sup> While the overall emphasis of both the report and the recommendations are critical to biotechnology, there is no basis for saying that the WCC stood for an outright rejection of this technology, but rather called for “strict international controls on the release of genetically engineered organisms into the environment”.<sup>18</sup> Moreover, neither the background document nor the recommendations can be read to imply that there is an inherent conflict between religion and science.

As an illustration of this approach, a paragraph in the concluding section in the 1989 background document reads:

The arts and ministry of healing can be furthered through the discoveries of biotechnology. Healing the wounds within humanity and creation could be enhanced through the contribution of this knowledge. The wholeness of interrelationship of the world’s life can be understood more profoundly through the insights possible from biotechnology.<sup>19</sup>

This cannot be considered as an outright rejection of biotechnology, but rather a positive assessment of its potential. As the term ‘creation’ is applied without any attempt to restrict its use, it must be presumed that this refers to a broad understanding of the application of biotechnology. The emphasis on how biotechnology can contribute to healing is close to the understanding of humans as being God’s ‘co-creators’.<sup>20</sup>

To specify what is implied by the term ‘co-creators’, Cole-Turner will be analysed in somewhat more detail, without postulating that his position is representative of all the others. In a chapter analysing Protestant perspectives on genetic engineering, Cole-Turner plays a prominent role.<sup>21</sup>

According to Cole-Turner, the keyword for identifying God’s intentions is healing as conducted by Jesus Christ, and the “[...] redemptive purposes of God are disclosed in the relationship between Jesus Christ and nature”.<sup>22</sup> According to Cole-Turner, redemption through healing is accomplished by genetic engineering. Moreover, he applies the term “genetic defect” to justify why healing is neces-

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17 WCC 1989: Recommendation (k)

18 *ibid*, Recommendation (i)

19 WCC 1989

20 Schwartz, H. (1970), ‘Theological implications of modern biotechnology’, in *Zygon*, Vol. 5, 247–268; Peacocke, A. (1979), *Creation and the World of Science*, Oxford; Hefner, P. (1989), ‘The evolution of the created co-creator’, in T. Peters (ed.), *The Cosmos as Creation: Theology and Science in Consonance*, Nashville; Cole-Turner, R. (1993), *The New Genesis: Theology and Genetic Revolution*, Louisville, KY; Peters, T. (1997), *Playing God? Genetic Determinism and Human Freedom*, New York.

21 Shannon: 2000, 63f; 75f; see also Chapman: 1999, 49

22 Cole-Turner: 80

sary.<sup>23</sup> A comprehensive discussion paper available on the web page entitled ‘Faith, Science and Technology’ on the WCC’s website refers to Cole-Turner’s approach as a “deficiency model”, and is highly critical of his approach.<sup>24</sup>

Hence, while Cole-Turner’s position saying that “creation has an imperfect condition”<sup>25</sup> and that “the purpose of genetic engineering is to expand our ability to participate in God’s work of redemption and creation and thereby to glorify God”<sup>26</sup> goes much further than WCC’s position as reflected in the 1989 background document, both the WCC and Cole-Turner emphasise healing. Moreover, it must be acknowledged that also Cole-Turner has a critical approach to modern technology as such: since human beings are affected by the disorder of nature, this also leads to the disordering of human technology. Thus, technology is “constantly on the edge of sin, exploitation and greed”.<sup>27</sup>

In the 1990s the biotechnology issue was a part of the WCC’s overall work on the integrity of creation, but it was less visible, despite the 1989 recommendations calling for broad consultation to address the political evolution of biotechnology.<sup>28</sup> Theological reflection on biotechnology, primarily as applied to human beings, was taken further by a study commissioned by the Lutheran World Federation.<sup>29</sup>

## The Agape Document

The Agape document is primarily about the facets and consequences of the ideology of neoliberalism<sup>30</sup> and the alternatives to this ideology. Hence, the Agape document provides a broad picture of the forces which can contribute to injustice between both persons and nations and to the exploitation of natural resources. Hence, this document also provides a background against which the more specific analyses of biotechnology must be understood. This section will first provide an analysis of the overall approach of the Agape document and then a review of how the document addresses technology.

While the economic crisis of 2007–2009 has considerably reduced faith in an unregulated market, the institutional changes that emerged must be considered

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23 Cole-Turner: 91

24 Wolbring, G. (2007), *The triangle of new and emerging technologies, disabled people and the World Council of Churches; Able-ism: A prerequisite for transhumanism*, available as ‘Related publications’ at [www.oikoumene.org/en/programmes/justice-diakonia-and-responsibility-for-creation/faith-science-and-technology.html](http://www.oikoumene.org/en/programmes/justice-diakonia-and-responsibility-for-creation/faith-science-and-technology.html), 78

25 Cole-Turner: 93

26 Cole-Turner: 51

27 Cole-Turner: 102

28 WCC: 1989, Recommendation (k); see also Chapman: 1999, 32

29 Mortensen, V. (ed.) (1995), *Life and Death: Moral Implications of Biotechnology*, Geneva, WCC Publications.

30 WCC 2005a: 3

to be far from the “transformation of the world” that the 2006 General Assembly was calling for. As acknowledged at an Agape follow-up meeting, however, there were, “differing perspectives around the AGAPE process as well as differing interpretations of key political, economic and ecumenical concepts”.<sup>31</sup>

The “differing perspectives” relate, *inter alia*, to notions of power and empire, the role of global institutions, and whether opposition to the present economic system should be a “confessional issue”. A response from the Church of Norway found the term ‘empire’ to be “too ideological”<sup>32</sup>; that the church “should focus on identifying the mechanisms that result in injustice, rather than rejecting the prevailing arrangements and structures”<sup>33</sup> and that “we must be careful not to make a point of view a matter of faith”.<sup>34</sup>

These three points of disagreement indicate that the WCC document adopts a relatively critical position towards the present economic system. The Agape document builds on other approaches, too. I will refer to the most relevant approaches in the context of food and biotechnology. First, human rights are confirmed by the Agape document as the “[...] reference for planning and implementing development”.<sup>35</sup> Second, the Agape document calls for a move towards food sovereignty, which is never explicitly defined but which is introduced by the phrase: “control over the means to produce the food consumed within its borders”.<sup>36</sup> Third, a move from a power-centred to a life-sustaining economy, also termed an “economy of life”.<sup>37</sup> Each of these three will now be briefly analysed, including how they are presented in the Agape document.

Regarding human rights, they primarily regulate the conduct of state authorities in relation to their inhabitants (not only citizens), but human rights treaties do provide for international obligations, in particular in the context of food and scientific cooperation.<sup>38</sup> Moreover, the rights of peoples to their own natural resources are confirmed and explicitly stated: “In no case may a people be deprived of its own means of subsistence”.<sup>39</sup> Furthermore, both the production and the dissemination of knowledge and science are explicitly acknowledged in the con-

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31 World Council of Churches (2006b), Workshop on deepening the Alternative Globalisation Addressing People and Earth (AGAPE) process and follow-up: Challenges and the way forward; available at: [www.oikoumene.org/en/resources/documents/wcc-programmes/public-witness-addressing-power-affirming-peace/poverty-wealth-and-ecology/neoliberal-paradigm/agape-follow-up.html](http://www.oikoumene.org/en/resources/documents/wcc-programmes/public-witness-addressing-power-affirming-peace/poverty-wealth-and-ecology/neoliberal-paradigm/agape-follow-up.html).

32 Church of Norway (2007), The Church and Economic Globalisation; available at: [www.kirken.no/english/news.cfm?artid=162819](http://www.kirken.no/english/news.cfm?artid=162819), 11

33 Church of Norway: 23

34 Church of Norway: 64

35 WCC 2005a: 7

36 WCC 2005a: 21

37 WCC 2005a:15; 16

38 see International Covenant on Economic, Social and Cultural Rights (ICESCR) Articles 11.1, 11.2 and 15.4; see also Article 2.1

39 ICESCR Article 1.2

text of food.<sup>40</sup> Human rights can thus be a basis on which achievements relating to food can be assessed, both nationally and globally. The Agape document does not, however, elaborate on human rights beyond the passage just quoted.

Regarding food sovereignty, this concept first appeared in the NGO statement to the 1996 World Food Summit.<sup>41</sup> Since then, several definitions have emerged where control over food production and food trade are central.<sup>42</sup> The lack of a concise definition and delimitation is less problematic than the lack of acknowledgement of this concept by states.<sup>43</sup> Hence, while the term ‘food sovereignty’ might have a mobilising power among peoples’ and farmers’ organisations, it also has serious limitations if one seeks to influence decision-makers, nationally and globally, to adopt a different policy in the realm of food and biotechnology. The section entitled ‘From food security to food sovereignty’ in the Agape document makes a brief observation on transgenic organisms (GMOs), linking GMOs directly to commercial crops and dominance of corporations, termed “conglomerates”.<sup>44</sup> Moreover, in the concluding chapter, under the section ‘Life-giving agriculture’, it is clearly stated that churches and congregations are called on to oppose not only the production of GMOs, but also TRIPS (the WTO’s intellectual property agreement) and to join resistance movements against agro-business.<sup>45</sup> While it is acknowledged that the Agape document is relatively brief, these observations are statements rather than observations based on well-founded scientific and ethical analysis.

Regarding the term ‘economy of life’, there is no operational definition of the term in the literature. The Agape document will therefore provide both the definition and the unit of analysis. The Agape document says that one of the characteristics of an ‘economy of life’ is that it replaces capital with people’s work, knowledge and creativity as the driving forces of economic activity.<sup>46</sup> While the term ‘economy of life’ sounds appealing, its operationalisation can be criticised. By attempting to exclude capital and technology as such from an understanding of an ‘economy of life’, this simply leaves out two crucial production factors. Hence, the crucial task of identifying which actors drive the research priorities through its research investments is not properly undertaken. There are no references to technology other than the two references in the context of food sovereignty. The document therefore concludes with general observations of the “dominance of corporations” without providing either a historical account of the partial with-

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40 ICESCR Article 11.1(a); see also Article 15.1(b)

41 FAO (1996), Statement by the NGO Forum to the World Food Summit; available at:

[www.fao.org/wfs/begin/paral/cngo-E.htm](http://www.fao.org/wfs/begin/paral/cngo-E.htm).

42 see Haugen, H. M. (2009), ‘Food sovereignty – an appropriate approach to ensure the right to food?’ in *Nordic Journal of International Law*, Vol. 78, No. 3, 263–292 for a more detailed analysis

43 Haugen: 285

44 WCC 2005a: 21

45 WCC 2005a: 59

46 WCC 2005a: 7



drawal of the state from certain forms of research or analysing whether the state by this partial withdrawal acts in conformity with its human rights obligations.

These three approaches indicate that power analysis is dominant in the Agape document and that ethical analysis applied to new technology is less evident. A power analysis is obviously highly relevant and must be an integral part of Christian social ethics. Shannon also finds that the Catholic tradition can be characterised by “suspicion about power and control”.<sup>47</sup> However, a problem arises if power analysis makes one blind to the positive contributions made by those with power, contributions that can actually be applied for the benefit for humanity.

The Agape document clearly operates on a global level, yet it finds solutions on a local level. One example of this is that churches in the Pacific Islands have presented “an encouraging model of how people in their region might resist the project of neoliberal globalisation by building on their traditional ways of life”.<sup>48</sup> This implies an emphasis on the local economy and reduces reliance on the global economy.

At the 2006 General Assembly of the WCC, a summary of the Agape document was circulated as an official General Assembly document.<sup>49</sup> Under the title ‘Life-giving agriculture’, the Agape background document says: “We recommit ourselves [...] to advocate in various ways for self-determination over food concerns. To oppose the production of genetically modified organisms (GMOs)[...]”.<sup>50</sup> The more controversial issue of “food sovereignty” that is applied in the Agape document is thus replaced with the term “self-determination”. While “self-determination” appears in Article 1 of the International Covenant on Economic, Social and Cultural Rights in the context of both the right of people to “freely pursue their economic, social and cultural development”<sup>51</sup> and to “freely dispose of their natural wealth and resources”,<sup>52</sup> the phrase “self-determination over food concerns” is more innovative and would benefit from being more explicitly linked to human rights. Moreover, rather than “joining resistance movements against agrobusiness”, as is called for in the Agape document, the commitment in the Agape background document is “to stand in solidarity with peasant communities”.<sup>53</sup> It can therefore be argued that the Agape background document is somewhat less confrontational than the Agape document itself.

In a workshop in September 2006 on “deepening the Agape process”, technology is explicitly mentioned once and framed differently than in both the Agape document and the Agape background document. The summary of the workshop states that “economic analyses in the globalisation discourse have to be comple-

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47 Shannon: 2000, 55

48 WCC 2005a: 39

49 WCC 2006a

50 WCC 2006a: paragraph 6

51 ICESCR Article 1.1

52 ICESCR Article 1.2

53 WCC 2006a: paragraph 6

mented by political analyses, i.e. a deeper interrogation of power (e.g. economic, military, cultural, technological and imperial)".<sup>54</sup> From this formulation, it seems clear that technology is primarily viewed as a tool for dominance and power and not as a resource.

While an analysis of who is in control of technology is relevant, it seems too broad an approach to have an understanding of technology as only being embedded in an asymmetrical power relationship. Hence, the positive elements of technology are not acknowledged by such a broad approach.

At the same time, it is crucial to adopt a critical approach to modern forms of technology. First, some forms of transgenic technology – where a gene is transferred to new organisms – do have negative ecological implications, such as the observation that herbicide-resistant canola is considered a “major weed problem”.<sup>55</sup> Second, even if it has not been proven that human health may suffer through eating transgenic food, research on animals points in this direction.<sup>56</sup> Third, this technology is frequently protected by patents, and the scope of a patent can also extend to any plant into which a patented gene is incorporated, independent of how the gene originally became part of that organism.<sup>57</sup> All three of these concerns are real and serious.

The Agape document itself only weakly refers to technology as such. This might be due to the structure of the Agape document, which focuses in its three main chapters on economy of life, trade, and finance. We have, however, seen how the Agape document embeds its analysis of technology, namely in a context of asymmetric power relations, in the context of the alternative vision of an economy of life, and in the food sovereignty-based rejection of GMO. To have a more precise understanding of how the WCC justifies its negative perceptions of technology and how to respond to it, we need to analyse other WCC documents.

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54 World Council of Churches (2006b), Workshop on deepening the Alternative Globalisation Addressing People and Earth (AGAPE) process and follow-up: Challenges and the way forward; available at: [www.oikoumene.org/en/resources/documents/wcc-programmes/public-witness-addressing-power-affirming-peace/poverty-wealth-and-ecology/neoliberal-paradigm/agape-follow-up.html](http://www.oikoumene.org/en/resources/documents/wcc-programmes/public-witness-addressing-power-affirming-peace/poverty-wealth-and-ecology/neoliberal-paradigm/agape-follow-up.html).

55 Royal Society of Canada (2000), Elements of Precaution: Recommendations for the Regulation of Food Biotechnology in Canada; An Expert Panel Report on the Future of Food Biotechnology prepared by The Royal Society of Canada at the Request of Health Canada, Canadian Food Inspection Agency and Environment Canada; available at: [www.canadians.org/food/documents/rsc\\_feb05.pdf](http://www.canadians.org/food/documents/rsc_feb05.pdf), 122

56 Bohn, T. et al. (2008), ‘Reduced Fitness of *Daphnia magna* Fed a Bt-Transgenic’ in Archives of Environmental Contamination and Toxicology Vol. 55, No. 4, 584–592

57 Canadian Supreme Court (2004), 2004 SCC 34: Percy Schmeiser and Schmeiser Enterprises Ltd. v. Monsanto Canada Inc. and Monsanto Company, in particular paragraphs 68 and 77–80

## Faith, Science and Technology Documents: Transforming Life

Once again, genetic engineering came high on the agenda of the WCC around the year 2000. A Working Group on Genetic Engineering was operative until the 2006 General Assembly, and has since been replaced by a project called Faith, Science and Technology under the Justice, Diakonia and Responsibility for Creation Program.

The Working Group on Genetic Engineering was responsible for two documents addressing new forms of technology, both of which were entitled Transforming Life. These documents will now be analysed.

The first volume analyses four so-called converging technologies, referred to as 'BANG' (bits, atoms, neurones and genes) technologies.<sup>58</sup> The report gives a strong warning against these technologies, and identifies a "shift away from science and technology as a tool for human development towards the much more sophisticated notion of its power and capacity to transform and to re-design the basic elements of matter – and thus the building blocks – of the community life as we know it".<sup>59</sup> The concerns relate to the commodification of life, patents, and relationships in and between all life forms.

The final chapter in Volume 1 is entitled 'Ethics and theology'. The references to biblical texts include Prov 2 and 8; Eccl 9; Rom 3 and 8; Phil 2; Rev 21, and say that everything is in God's hands and that God is just and knows what is best for us. One reference to Luke 4 is more direct, stating that "the attraction by science and technology is an expression of the three interrelated temptations of power, property and prestige that are at the centre of sin as illustrated in the Gospel passage on the temptations of Jesus".<sup>60</sup>

This chapter challenges the four technology areas by applying strong wording which is almost condemning in nature. The proponents are claimed to have "faith in technology, which promises immortality".<sup>61</sup> Moreover, "Proponents of converging technologies also justify them from new ethical perspectives. To be able to do so, they reinterpret ethical principles in order to justify their actions".<sup>62</sup> These two observations must be considered to be very simplistic perceptions of both the comprehension and the motives of those involved in new technology.

Another approach starts from acknowledging human beings' partial understanding of complex relationships: "How can disorderly design that is not fully

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58 World Council of Churches and World Association for Christian Communication (2005a), Transforming Life; Volume 1: Convergent Technologies; available at:

[www.oikoumene.org/fileadmin/files/wcc-main/documents/p4/pa-booklet-nano1.pdf](http://www.oikoumene.org/fileadmin/files/wcc-main/documents/p4/pa-booklet-nano1.pdf).

59 *ibid*, 6

60 *ibid*, 87

61 *ibid*, 84

62 *ibid*, 85

understood by its human designer hope to replace God's design?"<sup>63</sup> This line of thinking is not, however, taken further, but rather abruptly discontinued by claiming that proponents of new technology consider such reflections as "blasphemous thinking".<sup>64</sup>

There can be no doubt, therefore, that the authors of the volume believe there to be a veritable clash between two irreconcilable perceptions, saying that this situation involves "the challenge of reassessing faith and ethics and liberating them from abuse".<sup>65</sup>

Later in the same chapter there is a call for a transformation of ethics, calling for the "Christian principle of love (agape) to become the general principle for all relations in the world community".<sup>66</sup> This is a more appropriate approach than ascribing motives and opinions to researchers, seemingly without any adequately sound basis.

It cannot be denied, however, that there are real challenges of reducing life to mere chemical or nucleus material which can be modified and inserted into any organism or object in order to pursue commercial objectives, thereby risking destruction of or at least the good functioning of the complex balance of nature.

The second volume is presented as a "discussion document".<sup>67</sup> It was published parallel to the first volume and emphasises both the implications of genetic engineering applied to human life and the implications for agriculture. This document states that its perspective is that of small-scale farmers and indigenous peoples, as these "challenge the broader public [...] to be vigilant regarding issues like power, profit and control".<sup>68</sup> This perspective is similar both to the Agape document and Volume 1. While Volume 1 addressed the research priorities in general, Volume 2 looks at the consequences of a market- and technology-led development in agriculture. Moreover, both Volume 1 and 2 address persons with disabilities, but the focus of this article does not allow for an in-depth analysis of these issues.

While it must be acknowledged that Volume 2 has a clearly normative basis, leading it to label the claims of the benefits of industrial agriculture as "myths",<sup>69</sup> the document does not seriously describe the real challenge of food production and hunger. The challenge is that global production of grain has to grow by at least 70 per cent as populations increase and diets change. Moreover, almost all of the population increase will take place in developing countries where climate change already affects food and water accessibility. Developing countries are in-

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63 *ibid*, 84

64 *ibid*

65 *ibid*, 85

66 *ibid*, 87

67 World Council of Churches and World Association for Christian Communication (2005b), *Transforming Life; Volume 2: Genetics, Agriculture and Human Life*; available at: [www.wcc-coe.org/wcc/what/jpc/pa-booklet-bio.pdf](http://www.wcc-coe.org/wcc/what/jpc/pa-booklet-bio.pdf).

68 *ibid*, 7

69 *ibid*, 34

creasing their dependency upon imported food.<sup>70</sup> There is currently enough food production on a global scale, but not in those regions which are most food-insecure. The most pressing task is to assist the small-scale farmers in developing countries to increase their productivity, which can be done with conventional technologies.<sup>71</sup> This acknowledgement, which is based on the simple fact that small-scale farming currently feeds the majority of the world's population, cannot, however, imply that industrial agriculture is not important for global food security.

Volume 2 presents both theological and ethical arguments to justify that food should not be modified or appropriated by some to the exclusion of others. Four perspectives are emphasised in the chapter on theology: first, God is the ongoing food provider, referring to Gen 1, 29-31, and Ex 23, 16. Second, labour is a gift from God, referring to Gen 2, 15, as contrasted with Gen 3, 17-19. Third, food must be assessed in the context of the community, referring to 1. Cor 11, 18-23. Fourth, freedom cannot be sacrificed in order to have access to food, referring to Ex 16, 2-8. All these perspectives provide a basis for assessing food, dependency and poverty. It cannot, however, be asserted that this is an exhaustive list of theological approaches to human dignity, work and technology.

A most interesting aspect of the two volumes is the call in Volume 1 to the scientists. They are held responsible for the developments, as “a majority of them have accepted a more and more corporate dominated and market-driven approach to scientific research”.<sup>72</sup> This statement can be criticised for lacking precision. First, it does not define relevant terms such as ‘scientists’, ‘accepted’, ‘corporate dominated’ and ‘market-driven’. Second, there is no reference to any investigation documenting attitudes among scientists to justify the term ‘majority’. The reference to “the three interrelated temptations of power, property and prestige that are at the centre of sin”<sup>73</sup> was – as seen above – placed specifically in the context of science and technology, which are referred to as “modern gods”.<sup>74</sup>

This criticism is relatively harsh, and the fact that theological language and terms such as ‘sin’ are applied makes it difficult to challenge it on rational grounds.

Volume 2 ends by presenting a call to *Christians*. Under the heading “The ethical-theological critique of genetic engineering in agriculture” seven “forms of action” are introduced, the second being to “challenge Christians working for

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70 FAO (2008), Food Outlook 2008: Market Indicators and Food Import Bills; available at: [www.fao.org/docrep/011/ai474e/ai474e15.htm](http://www.fao.org/docrep/011/ai474e/ai474e15.htm).

71 International Assessment of Agricultural Knowledge, Science and Technology for Development (2009), Global Report, Island Press, Washington D.C.; see also Ecumenical Advocacy Alliance (2010), Contributions to the Revision of the Comprehensive Framework of Action, available at: [www.e-alliance.ch/typo3conf/ext/naw\\_securedl/secure.php?u=0&file=fileadmin/user\\_upload/docs/All\\_Food/EAA\\_contributions\\_to\\_the\\_CFA.pdf&t=1297510549&hash=6937802ae0a4939a76997d98d73c1e6d](http://www.e-alliance.ch/typo3conf/ext/naw_securedl/secure.php?u=0&file=fileadmin/user_upload/docs/All_Food/EAA_contributions_to_the_CFA.pdf&t=1297510549&hash=6937802ae0a4939a76997d98d73c1e6d)

72 WCC and World Association for Christian Communication 2005a, 6

73 *ibid*, 87

74 *ibid*

those promoting genetic engineering to reflect upon the implications of their work in the light of the Gospel's concern for truth and justice, and to consider the possibility of being whistle-blowers and conscientious objectors".<sup>75</sup> The WCC thus seeks to influence individual researchers to change the direction of their research. Exactly what is meant by "whistle-blowers and conscientious objectors" is not explained. Ordinarily, the respective meanings of these two terms imply going public with what one knows about irregularities or harmful conduct, and refusing to take part in forms of action which are contrary to one's deep-seated convictions. While this "form of action" cannot be seen as a form of 'berufsverbot', it does apply a relatively strong moral language directed towards one specific employment group.

Moreover, through the first and seventh "forms of action", Christians should be "opposing the science, philosophy and practice of genetic engineering in agriculture" and prepare an agape meal as a "sacrament of resistance against those who seek to control food", respectively. The strong wording in these "forms of action" can be explained by the fact that they are addressed both to Christians and to "people of good will".

Another part of the ethical-theological critique contained in Volume 2 argues against transgenic technology from seven different approaches. Such technologies are said to mess with life, truth, our common inheritance, justice, health, agency – implying that the farmers of the south are unable to enhance food production themselves – and relationships between God, man and nature.<sup>76</sup> This overwhelming ethical condemnation of transgenic food implies that it is not easy to raise alternative views. Thus, a plant which is resistant to drought or locust, and which is available to farmers of developing countries for free due to the efforts of international public agricultural research, is not possible to endorse within the prevailing perceptions of the WCC. This does not seem wise. There are, however, negative effects of transgenic technology if such technology is applied unwisely or only on conditions set by the private sector.

These two documents thus stand out as the most comprehensive documents published by the WCC regarding the assessment of new technology. Both documents build on the WCC's general approach, seeing new technology as embedded in a neoliberal world order and as a means whereby large corporations can maintain power and control. The main conclusion is nevertheless unequivocal: this technology is always bad – for humanity and for the whole of creation.

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75 WCC and World Association for Christian Communication 2005b, 56–57, see also World Council of Churches (2005b), *Justice, Peace and Creation Concerns: Faith, science and technology*; available at: [www.wcc-coe.org/wcc/what/jpc/ecearth-biotech.html](http://www.wcc-coe.org/wcc/what/jpc/ecearth-biotech.html) [old home page of 'Faith, science and technology'].

76 WCC and World Association for Christian Communication: 2005b, 53–56

## Approaches taken by Other Church Bodies with which the WCC is Associated

A plethora of church-based alliances have been formed in order to address the dissemination of transgenic crops, some of whose member churches are also members of the WCC.<sup>77</sup> The WCC itself also takes part in some of these networks, and these will be the focus of this section. A 2007 Global Consultation and the 2009–2012 strategy of the Ecumenical Advocacy Alliance will be analysed.

The Global Consultation on Genetics and New Biotechnologies and the Ministry of the Church was held in Johannesburg in 2007, hosted by the South African Council of Churches (SACC) in cooperation with the US and Canadian church councils (NCCCUSA and CCC) as well as the WCC. The Aide Memoire that came out of the conference does not call for an outright rejection of transgenic crops. Rather, it calls for: “strict standards for the planting and transborder trade of GMO products; protection of the human rights of the farmers that are being affected by monoculture GMO crops”.<sup>78</sup> The lack of a call for a ban is somewhat surprising, given the explicit condemnation by the WCC Secretary-General<sup>79</sup> and the strong wording used elsewhere in the document and in presentations given during the conference: “Biotechnology in many of its current applications, like the apartheid system before it, thrives on and leads to the indignity of persons and communities”.<sup>80</sup> Moreover, there is a reference to the spread of transgenic maize in Mexico: “The commodified crop has nothing in common with the sacred plant, the gift of creator God”.<sup>81</sup>

Does this absence of the explicit call to resist or reject transgenic crops which we have seen in other WCC documents indicate that those who attended the conference acknowledged that this technology was here to stay, and that the challenge was to enhance the regulation of such technology? A considerable number of participants came from countries where transgenic crops are becoming dominant. Does this imply a change in approach, a shift away from a principled rejection? There is no indication, however, that the absence of an explicit call for resistance to or rejection of transgenic technology signals any shift in WCC’s position.

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77 Maryknoll Office for Global Concerns (2005), Ecumenical Consultative Working Group on Genetic Engineering in Agriculture, available at: [www.maryknollogc.org/ecology/ecug\\_gea.htm](http://www.maryknollogc.org/ecology/ecug_gea.htm).

78 SACC, CCC, NCCCUSA and WCC (2007), Aide Memoire from the Global Consultation on Genetics and New Biotechnologies and the Ministry of the Church; Appendix 3 in the ‘Long report’ from the Consultation; available at: [www.oikoumene.org/de/programme/gerechtigkeit-diakonie-und-die-verantwortung-fuer-die-schoepfung/glaube-technik-wissenschaft/global-consultation-on-genetics.html](http://www.oikoumene.org/de/programme/gerechtigkeit-diakonie-und-die-verantwortung-fuer-die-schoepfung/glaube-technik-wissenschaft/global-consultation-on-genetics.html), 29

79 World Council of Churches (2006c), ‘Take action to stop terminator seeds demands WCC general secretary’, WCC Press Release 15 May 2006; available at: [www.oikoumene.org/en/news/news-management/eng/a/browse/45/article/1634/take-action-to-stop-termi.html](http://www.oikoumene.org/en/news/news-management/eng/a/browse/45/article/1634/take-action-to-stop-termi.html).

80 SACC, CCC, NCCCUSA and WCC: 2007, 27

81 *ibid*, 28

The World Council of Churches is one of the members of the Ecumenical Advocacy Alliance (EAA), which is now in its third campaign period (2009–2012). While the two campaigns during the two first periods were on Ethics of Life (HIV/AIDS) and Trade for People, the latter of which was replaced by a Food for Life campaign in 2009.<sup>82</sup> Elements of the work of the trade campaign are included in the new campaign on food.<sup>83</sup> GMOs (genetically modified organisms) are not mentioned among the ‘Goals and objectives’ in the 2009–2012 Food Campaign Framework for Action. This is interesting, in particular as the bulletin summing up the global trade campaign explicitly mentions GMO as “possible areas” of priority for the upcoming campaign.<sup>84</sup> The 2009–2012 strategy document only refers to certain provisions of patent agreements which affect the “ability of farmers to save and exchange their own seeds”.<sup>85</sup>

Can the fact that GMOs are not explicitly referred to be interpreted to imply that there is disagreement on this issue among the EAA members? As we have seen, the WCC has frequently reiterated its resistance to transgenic crops. The awareness among the EAA members should therefore be high. The fact that the EAA decided not to express opposition to transgenic plants must be understood to imply that there was no adequate consensus, especially as it was highlighted in the last bulletin from the global trade campaign. GMOs are barely referred to by the EAA, one exception being the expression of “concern” over the frequent references to the Comprehensive Africa Agriculture Development Programme (CAADP), which actively promoted GMOs.<sup>86</sup>

An explanation for these different positions between WCC and EAA is that the church-related agencies have stronger influence in the EAA than in the WCC. These agencies seem more likely to be cautious supporters of transgenic crops.<sup>87</sup> This cautious but positive view of transgenic technology might cause some tension between the WCC and these agencies. First, the WCC itself has been clearly warning against such technology. Second, the tensions that became apparent during the Agape process were an indication of the divisions within the ecumenical family between churches and agencies in the south, which are very concerned

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82 Ecumenical Advocacy Alliance (2009a), Food Campaign Framework for Action 2009–2012, Geneva, EAA.

83 Ecumenical Advocacy Alliance (2009b), Trade for People, Not People for Trade, Global Trade Campaign Bulletin no. 01/2009; available at: [www.e-alliance.ch/en/m/news/bulletins/single-view-bulletin/article/2009/01/28/trade-for-people-not-people-for-trade-campaign-bulletin-no-1-2009](http://www.e-alliance.ch/en/m/news/bulletins/single-view-bulletin/article/2009/01/28/trade-for-people-not-people-for-trade-campaign-bulletin-no-1-2009), 4

84 *ibid*, 6

85 Ecumenical Advocacy Alliance: 2009a, 8, objective 1.2.e

86 Ecumenical Advocacy Alliance (2010), Contributions to the Revision of the Comprehensive Framework of Action, available at: [www.e-alliance.ch/typo3conf/ext/naw\\_securedl/secure.php?u=0&file=fileadmin/user\\_upload/docs/All\\_Food/EAA\\_contributions\\_to\\_the\\_CFA.pdf&t=1297510549&hash=6937802ae0a4939a76997d98d73c1e6d](http://www.e-alliance.ch/typo3conf/ext/naw_securedl/secure.php?u=0&file=fileadmin/user_upload/docs/All_Food/EAA_contributions_to_the_CFA.pdf&t=1297510549&hash=6937802ae0a4939a76997d98d73c1e6d)

87 *Vårt Land* (2008), ‘Åpner for genmodifisering’ (15. April); available at: [www.vl.no/verden/article3475639.ece](http://www.vl.no/verden/article3475639.ece); *NTB* (2008), ‘Genmodifisert løsning på matkrise?’ (15. April) [printed in *Vårt Land*]; see: <http://www.vl.no/verden/article3474968.ece>.



about all manifestations of a capital-led globalisation, and churches and agencies in the north, which have a more 'pragmatic' approach to the forces of globalisation.

## Analysing WCC's Approach

This author rejects neither the fact that the market-forces are becoming more dominant in the context of science and research nor the fact that there are fundamental challenges in the alteration of the web of life that is taking place through genetic modification. Nor does the author reject the immoral practice of USAID of dumping transgenic surplus production on developing countries' markets and labelling it "food aid".<sup>88</sup>

Three issues highlighted by the WCC need further elaboration: first, how to increase food production in developing countries; second, how to ensure appropriate procedures for reviewing transgenic technologies; third, how to establish an adequately robust ethical analysis to approach the issues of modern technology in general.

Regarding food production, it must be acknowledged that there are many ways to improve food production, most of which have received inadequate attention and investment. The best approach is a participatory process in which the knowledge of farmers and the knowledge of breeders and scientists are mutually enriching, in what is termed 'participatory plant breeding'. Locally owned and easily accessible seed banks are crucial for breeders and farmers alike, and it must be acknowledged that farmers are also breeders. In this way, traditional and modern knowledge are combined. Any agricultural improvement efforts must learn from both the positive and the negative experiences of the green revolution, which some say has not arrived in most parts of the African continent. Technology must be based on the existing knowledge and on the specific circumstances of the most food-insecure regions where water and finance are scarce.

Can this approach be compatible with continued research in and application of transgenic technology? The latter technology has been dominated by corporate actors whose main motivation has been to produce plants which survive when their weed-killing herbicides are sprayed on fields. The best-known example is Monsanto's RoundUp Ready products, which survive the use of RoundUp. On the other hand, there has been suspiciously little attention devoted to identifying traits which make plants grow under harsh conditions such as drought, salination or locust attacks. Because transgenic corporations invest in technologies for which they expect to find a reliable market and because it can easily require 15 years from the start of a research project until the final product is on the market, the focus has been on agriculture in developed countries.

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88 WCC and World Association for Christian Communication 2005b, 39

As we saw when reviewing the Ecumenical Advocacy Alliance above, one of the areas of work identified was to oppose patent agreements,<sup>89</sup> which must also be understood to encompass plant breeders' rights agreements. While this article has not analysed patents or plant breeder' rights systems in detail, it is fair to say that there is general agreement that the introduction of such time-limited exclusive rights do contribute to dependency on technology producers. Thus, if increased dependency is the inevitable outcome of applying transgenic technology, the author would also agree that the WCC should work against such technology and call upon its member churches to do the same.

The increasing number of patents worldwide has also been a cause of concern to the patent offices themselves, pointing to "blockages" to research.<sup>90</sup> Moreover, there is an increased tendency for publicly funded research to result in end products that are also patented. The high proportion of patents in transgenic research that are held by private actors is another cause of concern. On the other hand, transgenic technology is not *predetermined* to be controlled by corporate actors such as patent holders. While the scope of patents is a fully legitimate concern, there is nothing inherent in transgenic technology which says that such technology could not be developed by public actors and provided to farmers for free or for a reasonable payment.

Second, there are concerns relating to the negative ecological and human health consequences resulting from the introduction of transgenic technology in food plants. On the one hand, the WCC's outright rejection of GMOs is formulated in such broad and frightening terms that one is inclined to believe that the world will be fundamentally changed.<sup>91</sup> On the other hand, the US applies the so-called "substantial equivalence" doctrine, implying that transgenic food shall be subject to similar regulatory review mechanisms as all other food.

This author believes that a middle approach between these two, based on the precautionary principle, is more appropriate. Starting with human health, the health consequences for people eating varied diets might be very different from the health consequences for people who depend on one staple food, such as maize, for two or three meals a day. Together with soy, maize is the food crop which is most subject to genetic engineering. The research undertaken so far has been on persons with a varied diet, not on persons depending on one staple crop. Research is urgently needed in order to identify the health impact of relying on transgenic maize.

Concerns about the ecological consequences of the spread of transgenic canola in Canada and transgenic maize in Mexico are difficult to dispute. Hence, transgenic plants dominate over naturally occurring plants, with the risk of a spread of

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89 Ecumenical Advocacy Alliance: 2009a, 8, objective 1.2.e

90 European Intellectual Property Organisation (EPO) (2007), *Scenarios for the Future: How might IP regimes evolve by 2025? What global legitimacy might such regimes have?*, Munich, EPO, 9; see also 71 and 91

91 WCC and World Association for Christian Communication 2005b, 53–56

transgenic plants in the wild. Moreover, while an important argument for the introduction of transgenic technology has been that it would substantially reduce spraying, the weed develops new forms of resistance, which might lead to increased spraying of herbicides.<sup>92</sup> These effects can be considered as being unintentional, but relying on large-scale monocropping as the agricultural model will inevitably lead to ecological vulnerability. Hence, there could be inherent problems with the transgenic technology, but the problem could also relate to how this technology is actually applied.

Third, there is a need to identify a basic ethical-theological approach which could be applied by the WCC. As shown in this article, concerns over power and control are becoming increasingly prevalent in WCC's strong antagonism towards transgenic technology. This approach has its merits, as a technology developer will always seek to reimburse all costs arising from the development as quickly as the market will allow. Moreover, the prevailing strategy is to introduce transgenic technology at favourable prices – or for free – and then introduce stringent terms and substantially higher prices in subsequent years.

It is, however, reasonable to state that the WCC primarily addresses the results of an exploitative application of transgenic technology rather than seeking to review the potential of the technology as such. It is obviously easier to reject all transgenic technology than to adopt an approach whereby technology is assessed on a case-by-case basis. To some extent, the WCC has adopted a differentiated approach, as the rejection of transgenic technology in agriculture must be considered as more absolute than the approach taken in the realm of human medicine, as seen by the use of the term 'healing' in the concluding section in the 1989 background document.<sup>93</sup>

It is justifiable to warn against and also condemn corporate strategies seeking to gain increased control over the farmers. This includes 'technology use fees' and contracts which purchasers of seeds are obliged to sign when purchasing transgenic seeds in the USA. Corporate control can also be achieved through 'product packages', implying that one can only purchase from one company or through sterile seeds, termed 'genetic use restriction technologies', which are patented in the US, but are not in commercial use.

On the other hand, there could be good reasons for strengthening research on some transgenic technologies. To provide farmers in developing countries with plants that will have enhanced drought resistance or locust resistance might improve yields significantly. As stated in the introduction to this section, there are alternative approaches to improving yields that might be more appropriate, more economically accessible and quicker to develop than relying on transgenic tech-

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92 United States National Research Council (2010), *Impact of Genetically Engineered Crops on Farm Sustainability in the United States*, Committee on the Impact of Biotechnology on Farm-Level Economics and Sustainability, The National Academies Press, Washington D.C.; New York Times (2010), "Resisting Roundup" (16. May).

93 WCC 1989

nology. This should therefore be the preferred strategy. There are, however, convincing reasons to seek to develop such resistance through transgenic technology, and public research institutions should take the leading role in order to make the resulting technology economically accessible to farmers.

Finally, on the ethical approach, the WCC should seek to emphasise rather than demonise Christian teaching on justice in all relations and God's love for all of creation, (Gen 1, Gen 9) and that Christ's mission of reconciliation extends to the whole of creation (2. Cor 5,19; Col 1,20). Man should not pretend to know God's views on specific matters relating to nature, except that we should be stewards, called upon to uphold life for every living creature. Our contributions until now have led to loss of biological diversity and depletion of the soil, consequently threatening the survival of crucial plants. This is not in accordance with the task of being stewards of God's creation, a creation which God himself declared to be "very good" (Genesis 1, 31).

## Conclusion

As a global church body and on the basis of theological and ethical reasoning, the WCC is fully justified to take a stand against the exploitation of nature, injustice within and between countries, and mechanisms that contribute to greater exclusion and dependency. The first of the five requirements presented by Chapman, namely systematic education and wide-ranging consultation on the issues so that relevant positions can be rooted in the churches,<sup>94</sup> cannot be said to be fulfilled. The only period when the WCC could be said to have provided its member churches with substantial resources was in the early 1980s, following the publication of two volumes<sup>95</sup> and a booklet.<sup>96</sup> To invite scientists to contribute to the debates in the churches on these issues is warranted due to the complexities of modern biotechnology, but the 2005 reports<sup>97</sup> hardly seem to be a good basis for starting dialogues with scientists.

Certain issues would, however, be uncontroversial for the WCC member churches. The notion of 'co-creation', which has been interpreted by some to mean that by involving ourselves in genetic science we are "serving the order God intends",<sup>98</sup> should be rejected on both ethical and theological grounds because we are unable to grasp God's intentions and because we should not seek to 'play God'. When the WCC addresses 'healing' in the context of transgenic technol-

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94 Chapman: 1999, 157; 252

95 Abrecht: 1980; Lincoln Shinn: 1980

96 WCC 1982

97 World Council of Churches and World Association for Christian Communication 2005a; World Council of Churches and World Association for Christian Communication 2005b

98 Cole-Turner: 1997, 86

ogy,<sup>99</sup> it is reasonable to read this as primarily relating to modern biotechnology in the realm of human medicine, not in the realm of agriculture, even if the term 'creation' as applied in the same paragraph provides a comprehensive understanding of the term 'healing'.

On the other hand, what must be understood as a demonisation of science and technology<sup>100</sup> is too general to be appropriate, even if churches must be wary of the unjust and unfounded acquisition of power, property and prestige. Enhanced public research that seeks to benefit developing countries, both bilaterally and through international cooperation, are identified as obligations in the ICESCR and should be given more emphasis. If public research and international research cooperation are strengthened, the private sector will no longer be able to dominate agricultural technology as it has done in recent decades.

This article has observed that the WCC itself does give clear recommendations both to its member churches and to individual Christians. When the WCC operates together with other church-based organisations, however, the wording is less explicit.

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99 WCC 1989

100 WCC and World Association for Christian Communication 2005a, 87