



End Review of GenØk's Biosafety Capacity Building Program

Final Report

13.1.2016



Glossary

AHTEG	Ad Hoc Technical Expert Group
BAT	Biosafety Assessment Tool
CBD	Convention on Biological Diversity
CEO	Chief Executive Officer
COP-MOP	Conference of Parties, Meeting of the Parties to the Protocol
CPB	Cartagena Protocol on Biodiversity
FK	FK Norway – <i>Fredskorpset</i> (the peace corps)
FUSC	Federal University of Santa Catarina
GMO	Genetically Modified Organisms
NGO	Non-Governmental Organisation
NISIR	National Institute of Scientific and Industrial Research
NOK	Norwegian Kroner
NWU	North-West University
ODA	Official Development Assistance
TWN	Third World Network
UiT	UiT The Arctic University of Norway

Acknowledgements

The review team wishes to thank all those who assisted us in conducting the review. Thanks to the GenØk office for arranging and hosting interviews in Tromsø, and providing the necessary introductions and a steady flow of information on request. Thanks to NISIR organising a full schedule in Lusaka and to NWU for hosting interviews in their offices in Potchefstroom. Thanks to all who gave us time for interviews, whether in person or on skype. We are also grateful to the GenØk partners in the Thirld World Network and the Federal University of Santa Catarina who prepared reports to the review team detailing the programme outputs. Thanks also to Norad for assistance throughout the review.

Geir Sundet, Oslo 22 December 2015

Contents

Glossary	i
Acknowledgements	ii
Executive Summary	1
1 Introduction	3
2 Methodology	3
3 Background to programme	4
4 How effective and efficient has the programme been?	5
4.1 What are the results of the Programme?	6
4.2 How has the Programme delivered in relation to its goals?	13
4.3 To what extent could the observed results have been achieved without the Programme?	16
4.4 Are there any un-intended consequences of the Programme?	16
4.5 Has the delivery been cost-effective, or are there other ways that the results could have been achieved in a more cost-effective manner?	17
5 How sustainable is the Programme?	17
5.1 To what extent and how are the interventions consistent with the partners' needs and priorities?	17
5.2 How well are the interventions supported by local / national institutions and integrated with local / national conditions?	18
5.3 What is the quality of management and organisation in the partner institutions and has the Programme contributed to its strengthening?	19
5.4 What is the lasting impact of the interventions in partner organisations / country systems after the end of Norad support, and do they have the financial capacity to maintain the benefits from the interventions?	19
6 How well has the Programme managed risks?	20
6.1 In terms of risk management	20
6.2 In terms of anti-corruption	20
6.3 Has the Programme led to a strengthening of risk management in partner institutions?	21
7 How well have cross-cutting issues been handled?	21
7.1 Gender mainstreaming	21
7.2 Environment	21
8 Discussion and conclusion	21
Appendix 1 Terms of Reference	23
Appendix 2 Amended Review questions	32
Appendix 3 Reviewed documentation	33
Appendix 4 Interviews conducted	34
Appendix 5 Genøk alumni holding international and national level positions under CBD	35



Executive Summary

KPMG presents the end review of GenØk's Biosafety Capacity Building Programme, that Norad has financed in two phases, 2008 – 2012 and 2013 – 2014. The review has been conducted by a four-person team in the period 1 October – 21 December 2016, and has included visits to GenØk's offices in Tromsø, and GenØk's partners National Institute of Scientific and Industrial Research (NISIR) in Zambia and North-West University (NWU) in South Africa.

The principal aim of this review is to assess the goal achievement and sustainability of the programme.

The programme has had a significant impact in strengthening cooperating countries capacity to implement international agreements. More than 500 key stakeholders have been trained and 35 of these currently occupy official positions at the national and international level under the Cartagena Protocol. This has considerably strengthened the contribution of ODA countries in international processes. According to the Head of the Biosafety Division of the CBD Secretariat, GenØk has been "a very important component feeding services to all developing countries under the Cartagena Protocol."

The GenØk programme has played an important role by improving ODA countries' capacity to perform risk assessments and safety evaluations regarding biosafety. GenØk support has both helped build the capacity to perform risk assessments and enabled citizens to demand that risk assessments are performed in a responsible way. This has led to observably strengthened national processes in, for example, South Africa and Uruguay. Efforts to support risk assessments through making information available online have been less successful.

GenØk has provided pivotal support to key partners for the strengthening of research and teaching capacities and for knowledge sharing through collaborative networks. While the earlier partnerships in China and Zambia have not succeeded in providing a sustained strengthening of research capacities, the subsequent partnerships with NWU in South Africa and the Federal University of Santa Catarina (FUSC) have been very successful. Both universities refer to GenØk's support as a "game changer". They have both established regional research networks and have demonstrated ability independently to raise funding for research that will help them sustain their programmes.

At the overall level it is clear that GenØk has made a significant contribution to the safe use of modern technologies. GenØk's holistic approach and wide reach puts the institution in a unique position in the global field of biosafety.

All respondents concur that no other institutions would have taken the place of GenØk had the programme not existed. GenØk is a unique type of institution, combining science with a socio-economic approach and engaging with a wide range of stakeholders. GenØk is also one of very few institutions with such a scientific competency and capacity that is not financed by the GMO industry.

The programme had un-intended consequences. In Brazil, the programme partner was surprised by the hostile reaction to their research from the national regulatory council and from industry. But mostly, the un-intended consequences were positive. The developed course material was applied independently of the programme in Francophone Africa. Moldova emerged as a key partner, following an independent initiative from a course alumni. A regional workshop in Uruguay came about as a result of a surprise request from the government there, who also funded the workshop.

At the overall level, the programme has provided good value for money. The programme has left a considerable footprint in the world of biosafety. There are, however, elements of the programme that could have been more effective. Weak practices of planning and budgeting may have contributed to some of less successful elements of the programme, such as the M.Sc. modules that were only used once and the online Biosafety Assessment Tool which was developed and since abandoned. Both of these projects were started without a budget for continued use. The high administrative costs of the Tromsø courses could also have been trimmed.

The team considers the sustainability of most of the observed results to be good. The sustainability of support to the early partners in Zambia and China is weak, whereas the sustainability of the support to the research partners in South Africa and Brazil is strong. Their research capacity appeared to have reached a critical mass, and it is likely that their research programmes are becoming self-sustaining.

The main weaknesses of the Programme arguably stem from weak planning and budgeting and poor routines of results based management. The Programme has not had solid result frameworks, and reporting has not been according to predefined goals. The Programmes were essentially clusters of projects, and although there were clear links between most of them, they were not organised in a goal hierarchy which indicated how the projects fit together. The lack of a planning culture is reflected in the descriptive statement of one of the senior GenØk team who said about the Programme that "the road has been made as we walked it." This is the one area where it became clear that the expertise of GenØk is within research, biosafety risk assessment and international negotiations, and not development assistance.

The investment in human resources has played a significant part in enabling ODA countries to implement international agreements as confirmed by the CBD Secretariat. The support to ODA countries' capacity to conduct their own risk assessments has started a process that is likely to continue, and which will be helped by the networks that GenØk has fostered.

Risk management under the programme has been poor or absent. There was no form of risk assessment integrated in the process of selecting partners. The negative impact of this can first and foremost be seen in Zambia, where the weak implementing capacity of the partner obviously came as a surprise. The programme did not seek to strengthen risk management for any of its partners.

The programme did not have an articulated anti-corruption policy. Although no major corruption risks were observed in the programme, evidence of corruption was observed during the field visit to Zambia, which had not registered centrally by GenØk, even if observed by GenØk staff on the ground.

The cross-cutting issue of gender was well integrated in the programme in terms of consistently ensuring a gender balance among participants, lecturers and researchers in the various programmes. There was no particular gender focus in the research or in the international negotiations.

The overall objective of the programme is to safeguard the environment, so this is a cross-cutting issue that is well covered. One environmental hazard was, however, observed by the team during the field visit to Zambia, where the lab did not have an incinerator for responsible condemnation of material from the lab.

The review team recommends that GenØk takes the end of the Biosafety Capacity Building Programme as an opportunity to pause and reflect on what has been achieved, and if there is still a wish to continue working on supporting ODAs under the Cartagena protocol, to discuss and plan how to move ahead. GenØk might find it useful to develop a long-term strategy and establish some principles and practices for systematic planning, reporting and learning.

The review team also has one final note to Norad. GenØk has found reporting to Norad difficult, particularly seeing that they have had five or more people to report to in the course of the programme, under two different departments. GenØk has missed what they feel to be clear instructions on what are the reporting requirements. Difficulties in reporting come in no small degree from having weak results frameworks to start with, and Norad is encouraged to continue its ongoing work of requiring clear results frameworks from partners and assisting them to develop them.

1 Introduction

This is the final report for the End Review of Norad's support to GenØk – Centre for Biosafety for a Capacity Building Programme - through two projects: GLO-08/089 and OZA-12/0706. The first project was for the period 2008 – 2012, and the second project for 2013 – 2014.

Through the projects, GenØk sought to support the strengthening of member countries to fulfil their obligations under the Cartagena Protocol on Biosafety (CPB) to the Convention on Biological Diversity (CBD). The CPB is an international regulatory instrument concerning the safe transfer, handling and use of living modified organisms (LMOs) resulting from modern biotechnology. The objective of the CPB is to provide an adequate level of protection from potential adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health. The projects were designed to support cooperation at the national, regional and international levels, and to support developing countries to put in place national systems of regulation and management of biosafety concerns.

The goal of the first phase project was "to contribute to a sustainable management of biological diversity and natural resources," and the goal of the second phase project was "Safe use of modern biotechnologies according to the goal to ensure a sustainable management of biological diversity and natural resources." The projects sought to achieve these goals through the design and delivery of courses and workshops, training and research cooperation, and the development and delivery of a Biosafety Forecast Service.

The principal aim of this End Review is to assess the goal achievement and sustainability of the programme. The review only considers programmatic issues, and does not consider the financial aspects of the programme in any detail.

The second section of the report outlines the methodology of the review. The following section provides a brief background to the reviewed programme. The fourth section considers the effectiveness and efficiency of the programme. The fifth section discusses the sustainability of the programme. The sixth section looks at how well the Programme has managed risks and the seventh section considers the handling of cross-cutting issues. The final section discusses and concludes.

2 Methodology

The review has been conducted by a team of 4 consultants: Geir Sundet (Team Leader) and Silje Hanstad (Research Assistant) from KPMG Norway, Kathy Tyacke (Regional Consultant) from KPMG South Africa and Jonathan Mufandaedza (Regional Consultant), who is the Chief Executive Officer of the National Biotechnology Authority of Zimbabwe. Dr. Mufandaedza replaced an original member of the team who dropped out before the assignment started. Norad approved the switch of consultants. The review took place in the period 1 October to 22 December 2015.

According to the Terms of Reference, "[t]he main purpose of the review is to provide information to Norad and GenØk about the results of GenØk's capacity building programmes supported by Norad with focus on outcome and impact-level and whether sustainability of the Programme has been ensured." (ToRs attached as Annex 1). The consultants did a slight revision of the review questions, as proposed in the Inception Report of 15 October 2015. Following the first meeting with Norad on 17 October 2015, the questions have been further amended. The amended review questions are attached in Annex 2.

The overall approach of the review has been geared towards mapping the lasting results of the programme, principally at the institutional and national levels, but also at the international level,



through established networks. The assignment has been conducted using a combination of document review, interviews and direct observation.

The documents reviewed include project documents, contracts and reports, as well as a number of reviews. In addition to the documentation provided by Norad and GenØk, both Federal University of Santa Catarina and the Third World Network prepared reports for the review team, summarising the results of their cooperation with GenØk (FUSC 2015 and TWN 2015).¹

A total of 28 semi-structured interviews were conducted.² The team visited GenØk's offices in Tromsø, The offices and laboratory of the National Institute of Scientific and Industrial Research (NISIR) in Lusaka, Zambia, and North West University in Potchefstroom, South Africa.

In addition, skype interviews were conducted with Third World Network in Malaysia, and The Federal University of St. Catarina in Brazil, as well as with the CBD Secretariat in Montreal, Canada.

The respondents from GenØk and partner institutions included leaders, administrators and researchers. A number of researchers financed by a separate programme through FK Norway were also interviewed.

Two people were selected for interviews, who were not direct beneficiaries of the GenØk programme. This enabled the reviewers to provide a check on the responses from the programme participants. These were the CEO of the National Biosafety Authority of Zambia and the Head of the Biosafety Division of the CBD Secretariat.

A draft report was submitted 27 November, and this Final Report incorporates comments received from NWU, TWN, GenØk and Norad.

In the text, direct citations or specific information from the interviews are referenced. The exception is cases that may be sensitive, where there is only an indication of the designation of the respondent. Exact references can be provided to Norad on request.

3 Background to programme

The first phase of the programme under review lasted for five years, from 2008 to 2012. The programme is a collection of projects under the umbrella of a Capacity Building Programme for Biosafety. The programme consisted of 10 projects.

GenØk was established in 1998 and some of the projects were a continuation of the activities that had already started, such as the Tromsø courses. GenØk's capacity building activities have been running from 2003 to date, and the Gateways programme started in 2005, but the review only covers the two cited Norad projects over the period 2008 – 2014.

The programme had five higher level purposes:

1. Strengthen the cooperating countries capacity to take into consideration sustainable environmental management
2. Strengthen the cooperating countries capacity to collect information and assess possible health effect of genetically modified organisms (GMOs)
3. Strengthen the cooperating countries capacity to implement international agreements
4. Strengthen the cooperation within environmental issues and build capacity through research and education
5. Strengthen the South-South cooperation

By 2012, Norad had made a decision to end support to the programme. The stated reasons for this were as follows:

¹ A full list of documents is presented in Appendix 3.

² A list of interviews conducted is presented in Appendix 4.

- The programme no longer fit with Norad's objectives, one problem being that the support was more aimed towards individuals than institutions.³ Also, there was an opinion that too much of the funds were spent in the north (in particular through the Tromsø courses).
- This also made it harder to justify continuation of a grant that was not subjected to tender.
- Financing of GenØk would be more appropriately financed through research funding mechanisms, rather than Norad's Official Development Assistance.

Rather than abruptly severing financing, Norad agreed a two-year bridging programme, from 2013 to 2014, where financing of the activities were gradually wound down. This second phase programme had three projects and 3 higher level objectives:

1. Contribute with necessary scientific and social scientific risk-related knowledge and institutional capacity. This will support governments and authorities and enable them to build up their own system of regulation and management.
2. Strengthen ODA-countries' ability to perform risk assessments and safety evaluations.
3. Contribute to the development of strong academic research and teaching environments within an institution that can act as a hub for other institutions within the country or region.

By the time of this review, the programme has been completed, but the final programme report has not yet been approved (although both annual reports for 2013 and 2014 have been approved).

4 How effective and efficient has the programme been?

There are obvious challenges connected to assessing the goal achievement of the programme, due to the absence of clearly quantified goals and results. The first Project Document, for the period 2008 – 2012, did not present a results framework. From 2012, the annual progress report started to report at output, outcome and impact level, with targets for each level provided. There are problems relating to this type of "retro-fitting" of targets, as they can easily become moveable goalposts. The definition of the various results are also often questionable, with outputs, such as workshops, described as outcomes, and outcomes, such as networks, described as impact.

GenØk says they were not aware of the requirement of having a results framework at the time the first programme was signed. That may be correct, and it is the case that Norad approved the Programme Document without one. That does not alter the fact that it is good management practice to prepare a goal hierarchy and a results framework with baseline indicators, milestones and targets. Particularly seeing that this was a five year programme, with 10 sub-projects and a budget close to 50 million NOK.

The project document for the second phase programme (2013 – 2014) does have a result framework, but it is not placed in a clear goal hierarchy where it can be seen which projects are contributing to which outputs and outcomes. Also, results are not quantified above activity level. The reporting in the second phase is at output, outcome and impact level, but does not follow what has been set out in the results framework of the project document. And like in the first phase, there is a tendency to report results at a higher level in the goal hierarchy than is the convention. For example, increased capacity of course participants is reported at impact level.

The following subsection summarises the results the programme has achieved, the second subsection considers the goal achievement at purpose level, while the following subsections look at the counter-factual, unintended consequences and cost-effectiveness.

³ GenØk disagrees with Norad's observation that support was more aimed at individuals than institutions. In their response to the first draft of this report they state that capacity building activities had as its primary aim to strengthen partner institutions and that invitations for participating in courses were aimed at institutions and not individuals.

4.1 What are the results of the Programme?

The observed results of each of projects are presented in this subsection. We first present a brief assessment of the 10 projects that are part of the first programme (2008 – 2012), and then the 3 projects under the second programme (2013 – 2014). The outputs of each project are explained in brief, and for each project an assessment is given with one of three grades – *achieved targets*, *partially achieved targets*, or *did not achieve targets*. A brief justification is given for each assessment.

First phase, 2008 - 2012

Project 1 - Core capacity building course in biosafety

Budget: NOK 14 186 250

This is a continuation of an activity that started in 2003. It was run annually till 2008, after which it was run every two years. It was run three times in the course of the programme, in 2008, 2010 and 2012. It is a two week course given in Tromsø that provides basic information on biosafety. In total, since the first course in 2003 and up to the final course in 2012, the courses had participants from 115 countries. The three course given during the programme had a total number of 126 participants.

The course is commonly referred to as the *Tromsø course* and came to be something of an institution among people dealing with biosafety. Participants included all groups of stakeholders: regulators, policy makers, academics, researchers, civil society and industry representatives. It was recognised as the most comprehensive course, and universally seen as useful among participants. For many this was their first introduction to the science of GMO and biosafety, and to getting hands-on experience with laboratory methods. The course was also useful for networking, not least because it went over two weeks, with participants staying at the same hotels together.

The last course was held in 2012 and these courses are not offered anymore due to lack of funding. Many of the participants in the biannual Conference of Parties, Meeting of the Parties to the Protocol (COP-MOP) have approached GenØk saying that they miss these courses.

20 of the participants of the Tromsø courses are currently holding leading positions at international and national level, as members of Ad Hoc Technical Committees under the Cartagena protocol and / or national focal points for the protocol or the Biodiversity Clearing House. In total, 35 alumni of GenØk courses currently hold such positions (see Appendix 5 for a complete listing).

The first courses were perhaps too scientific and had to follow for some of the participants who didn't have a strong scientific background. This was reportedly less of a problem in the latter courses.

Assessment: The project achieved its targets. Course played an important role in providing scientific information to key players in government, scientific institutions and civil society. They were considered valuable opportunities for building knowledge on biosafety, and were also a good opportunity for networking.

Project 2 - Specialised capacity building course and conference

Budget: NOK 7 318 500

Two courses were held in 2009 and 2011, and 40 sponsorships were made available for each course for ODA participants. In 2009 there was the Specialised course in Hazard Identification and Risk Assessment of (Trans)gene Flow, and the 2011 course was on Special topics in biosafety training: Insects, vaccines and stress-tolerant plants.

The courses strengthened South – South cooperation and improved cooperating countries capacity to take into consideration sustainable environmental management and capacity to implement

international agreements. They were arranged in the same format as the regular Tromsø courses, over two weeks, but were more specialised and assumed a basis competency in biosafety among participants.

Assessment: The project achieved its targets. The courses contributed towards participating countries capacity for biosafety Risk Management. They were positively assessed among participants, many of which hold lead roles in their national regulatory frameworks.

Project 3 - Regional capacity building courses

Budget: NOK 4 525 000

These constituted a condensed version of the Tromsø courses (one week) with a focus on region-specific issues. The courses all targeted high-level policy makers, regulators, scientists and NGOs/civil society from developing countries. The following courses were held:

- Biosafety Course for Southern Africa: June –July 2009 – Bloemfontein, South Africa.
- Holistic Foundations for Assessment of Regulation of Genetic Engineering and Genetically Modified Organisms: 2010 – Florianopolis, Brazil.
- Holistic Foundations for Assessment and Regulation of Genetic Engineering And Genetically Modified Organisms, 2011- Hyderabad, India
- Holistic foundations for Assessment and Regulation of Genetic Engineering and Genetically Modified Organisms, 2012 – Dar es Salaam, Tanzania

The objective of the courses was to provide the above participants with knowledge and training in crucial GE/biosafety issues.

Of the four courses, particularly the Brazilian one had a positive impact on regional cooperation. A closer relationship was developed between the South American regulators, and independent biosafety meetings in Bolivia and Peru were promoted. Plans were also made for NGO research training in Uruguay and Peru, and the course participants established an internet discussion group.

Assessment: The project achieved its targets. The regional courses provided important knowledge to participants on biosafety. The courses were seen as a valuable complement to the Tromsø courses. They may not have had the same depth and quality, but had added value through the regional focus, and were useful in building regional networks. In the case of the Brazilian course, the participants also felt a clear advantage in that the main language of the course was Spanish. The opportunity provided to organisers to run a regional course provided them with experience and valuable capacity to run future courses of this nature.

Project 4 - International conference on biosafety research, Penang, 2012 - Setting the Stage; Agriculture in Perspective, Agriculture for the Future; GM Innovations and Challenges in Environmental Risk Assessment; and Precautionary Principle as the Basis for Sustainability.

Budget: NOK 968 500

A four-day international conference was organised and carried out jointly by GenØk and TWN. The aim was to contribute to state-of-the-art scientific information and discussions on bio-safety between key figures in science and regulatory bodies. It emphasised the development of research capacity in developing countries.

Of 282 applications, 81 participants attended. The majority of participants were from academic and research institutions; few regulators attended. Key stakeholders from a wide range of developing



countries presented papers and participated in proceedings. A conference report was produced with key recommendations for action on each of the themes, identified in the conference title above.

Assessment: The project achieved its targets. The conference was effective in sharing and distributing cutting edge information on the themes identified for the gathering. Many of the recommendations presented in the organisers' report are, however, targeted at government and regulators who did not attend the conference in significant numbers. It is also unclear from the report how the recommendations will be taken forward and used to lobby for appropriate regulatory frameworks. In this sense, the conference was less successful.

Project 5 - International workshop - Dar es Salaam, 2012 - GMO options in agriculture to address climate change adaptation

Budget: NOK 885 000

This workshop was organised jointly by GenØk, University of Dar es Salaam and TWN, about new biosafety questions associated with the adoption of GM plants into climate change adapted agriculture.

There were 33 participants (31 from ODA countries). Scientists, academics, researchers, regulators, non-governmental organisations, farmer groups' representatives and policy makers from East, South and Central Africa, attended the conference.

Assessment: The project achieved its targets. The workshop was successful in bringing together scientists and NGOs from the SSA region, stimulating and enriching the debate on GMO options in agriculture within the context of climate change. The limited participation of regulators (4/33) at the workshop does, however, reduce the impact of the event – given that the context of a weak legislative and policy framework for GMOs in SSA was highlighted by organisers as an important stimulus for the workshop.

Project 6 - Web-based master module in biosafety

Budget: NOK 892 540

7 web-based master modules in biosafety at the University of Tromsø were developed. The target groups were policy- and decision-makers, particularly from ODA-countries, both at administrative and political level, as well as other key stakeholders.

The course was only offered once, in 2009, and only 12 out of 20 places were filled (due to insufficient time caused by late approval of the course by the University). All the students passed. The course gave 10 out of 120 credits required for a full Master's degree.

The course has not been given again due to insufficient funding. The plan was to continue running the course at the University of Tromsø (UiT), but there was not a budget for this, and the University would have charged NOK 250,000 just to administer the applications to the course.⁴

There are plans to update and use the modules through collaboration with Moldova if funding is secured.

⁴ Interview with Anne I. Myhr, 19 October 2015.

Assessment: The project did not achieve its targets. Could have been a valuable resource as on-line courses can be a cost-effective way of reaching beneficiaries worldwide. However, as it stands it does not seem like a good use of resources, as it has only been given once. Seems like poor planning to go ahead with this without prior assessments of full costs.

Project 7 - MSc studies in biosafety at UIT

Budget: NOK 70 000

GenØk worked with University of Tromsø to develop a full M.Sc. study in Biosafety. Work started with the concept, but it is at stand-still, due to failure to raise the necessary funds. This project was linked to the web-based Master modules in project 6 (see above).

Assessment: The project did not achieve its targets. The M.Sc. study on Biosafety was never taught in full.

Project 8 - Side event at COP / MOP 4

Budget: NOK 80 000

Two side events were used by GenØk to present the biosafety capacity building activities financed by NORAD. This included course activities, the biosafety book, the Forecast Service, the master course and the planned biosafety conference.

Assessment. The project achieved its targets. Given that the Meeting of the Parties to the Cartagena Protocol is the most important opportunity to expose the international scientific community to new biosafety activities, this was a well-timed activity. It may have contributed to the record-high application for the 2010 Tromsø course.

Project 9 - Biosafety Forecast Service / Biosafety Assessment Tool (BAT)

Budget: NOK 3 886 500

The BAT, is an online tool that assists regulatory authorities in processing risk assessments. It works as a database that identifies the latest relevant research and studies on any organism that is a subject of a risk assessment. Many respondents cited this as a very useful innovation and much more useable than the Biosafety Clearing House, which is the database maintained under the CBD.

The BAT was developed in collaboration with partners in New Zealand. It has not been updated since 2010 due to lack of funding. GenØk state in interview that it would require one half-position to continuously update the tool, and more to also answer requests for assistance.

The collaboration with New Zealand was reportedly not without problems. There have since been talks of transferring the tool to GenØk in Tromsø, but this has drawn out and it would now apparently take too much resources to update the software to make this feasible.

The tool appears to have been a useful initial investment, but due to the failure to keep it updated it no longer serves a useful purpose.

Assessment: The project did not achieve its targets. Seems a very valuable tool and a cost-effective way of reaching a large target audience. Like in other cases, however, budgets did not allow for costs after the initial development. Good and innovative thinking and actions, combined with poor planning and budgeting.

Project 10 - The Gateways Institutes Initiative to support countries to fulfil obligations under the Cartagena protocol

Budget: NOK 16 000 000

Partner countries were Zambia, China and Brazil. For all the partner countries, there were meetings and dialogue with local Ministries, governmental research institutions and the local Norwegian Embassy.

In **Zambia** support was given to the National Institute of Scientific and Industrial Research (NISIR). The support predated the programme and went towards building a laboratory at NISIR and supporting research and capacity building. The programme did not go well due to implementation problems at NISIR, and the support has been ended. One co-authored research report was generated and one is still in development.

A laboratory had been built by the Norwegian veterinary institute, financed by Norad, before the start of the GenØk partnership. GenØk supported NISIR to equip the laboratory and acquire competence on methods for detection of transgenes in GM plants. This capacity has not been maintained, however, and at the time of the review the laboratory had only one qualified researcher and did not appear to be fully functional.

Through the FK Norway programme, four exchange student from Zambia did research in Norway, and one in China. Four GenØk researchers did their exchange in Zambia.

In **China** support went towards establishing the Gene Ecology Institute of Northeast Asia. The Nanjing Institute of Environmental Sciences and the State Environmental Protection Administration (NIES) were the partnering institutions on the Chinese side.

GenØk participated in a 2011 annual conference in China. A joint research application was submitted, but not funded. Several Chinese researchers, regulators and academics have attended the Tromsø courses.

Through the FK Norway programme, three exchange student from China did research in Norway, and one in Zambia. Three GenØk researchers did their exchange in Zambia.

The partnership never really took off, and differences in culture has been cited as a cause. The final report states that "the project has had little impact on biosafety in China."

In **Brazil**, joint research projects with the Federal University of Santa Catarina, Florianopolis were started in 2009 (so later than the other two Gateways partners). The partnership has included the FK exchange programme as well as workshops between staff from both institutions. The partners aimed at establishing a formal regional Gateways institute in 2013.

It has led to a strong research programme with a large number of publications. The partner is now called a "hub" for biodiversity, biosafety and gene ecology competence building. The research collaboration has continued after the end of the programme.

Through the FK Norway programme, in the period up to 2012, one GenØk researcher did an exchange in Brazil.

Assessment. The project partially achieved its targets. The Zambia partnership was not successful. Although the programme did deliver some important outputs in the course of the programme, GenØk was not prepared for the challenges that comes with working with an official institution in the Zambian context. They assumed a higher degree of competency and management capacity. The China partnership was also problematic. The Brazil partnership, on the other hand has turned out to be a success. Many of the activities initiated by the project have been sustained.

To summarise, of the 10 projects in the first phase programme, 6 reached their targets. These were the courses and conferences supported through projects 1-5 and 8. One project was partially successful, this was the gateways programme in project 10, were the partnerships with China and Zambia did not work out, while the one with Brazil was a big success. Projects 6,7 and 9 were not successful, these were the more systematic capacity building courses with the masters courses and the Biosafety Assessment Tool (BAT). While they were all based on good and innovative ideas, and seem to have been well designed, the failure to consider the full cost of operationalising them led to the projects being abandoned.

Phase 2 – 2013 -2014

Project 1 - Regional courses

Budget: NOK 2 700 000

Three regional courses were delivered during the two years of the programme.

In 2013, a regional course in biosafety was delivered in **Brazil**. The course was jointly organised by University of Santa Catarina, TWN and GenØk. The course had 47 participants from 14 countries in the region. This was the second regional course organised by the University of Santa Catarina, and they needed less support with the logistics this time.

The course had a direct impact regionally, with Peru imposing a 10 year moratorium on GMOs while building a better national framework. A Mexican NGO gained scientific insight that enabled it to strengthen its case in court in a protest against the introduction of a GMO crop in the country, and Uruguay followed up with requesting a national workshop to strengthen national capacities (see below).

In 2014, a regional course of biosafety was delivered in **Moldova**. The course was jointly organised by the Moldovan National Biosafety Office, TWN and GenØk. The course had 45 participants from the region and from Africa. The course produced recommendations for a revision of the CBD Risk Assessment methodology. The partnership with Moldova came about as a result of the initiative of the Biosafety Focal Point of Moldova, who had been in contact with GenØk since the second Tromsø course in 2004.

A second regional course on biosafety in 2014 was held in **Uruguay**. This course was unique in that it came about as a result of a direct request from the Uruguayan authorities. They wanted the course to strengthen their capacities on biosafety, and the major part of the cost of the course was covered by the Uruguayan government. Two Ministers in the Uruguayan government participated in the opening of the course.

The course was jointly organised by the Uruguayan government and GenØk. It had 40 participants from Uruguay.

Assessment. The project achieved its targets. The regional courses had a direct impact on the international framework (Moldova) and on national frameworks in Latin America (Brazil). It is significant that two of these courses came about as the result of demand from key stakeholders who had already attended GenØk courses, and who recognised GenØk as an authority and partner in the area of biosafety (Moldova and Uruguay).

Project 2 – Institutional research collaboration – "hubs"

Budget: NOK 7 400 000

GenØk collaborated to set up regional biosafety research hubs at North-West University in South Africa and Federal University of Santa Catarina in Brazil. In addition, it also supported "Hub Asia" through TWN.

The research hubs were established around well-functioning research institutes with the purpose of building the quality and quantity of biosafety research capacity and related publications, increasing capacity and involvement in regulatory assessments, developing regional networks, facilitating national and international recognition.

The results registered under each of the hubs include the following:

- **NWU** has increased the number of students from a maximum of four bio-safety students per year prior to 2013 to 10 in 2013 and 15 in 2014. 9 publications were produced in the 2013 – 2014 period. The University has also created new local networks within the country with the University of Cape Town, Fort Hare University, Agricultural Research Council as well as internationally, as reflected below. NWU has secured funds from the National Research Council and has partnerships with Swiss, Austrian and Norwegian research institutes for additional funding applications. One of these projects has been funded by the South African research system. Furthermore, NWU's new status as a major centre for biosafety research is evident from the regular requests from industry, they are now receiving, to carry out funded biosafety research.
- **Santa Catarina** has produced six scientific publications. The university has established a biosafety research group (ECOLGEN) which has had its first funding application granted.

The Hub Asia component with **TWN**, had more of a policy orientation. TWN prepared five discussion papers that contributed to the discussions of the convention's Ad Hoc Technical Expert Group (AHTEG) on socio-economic considerations and had a substantial impact on the negotiations that followed, both at the AHTEG meeting and at COP-MOP 7. In addition, several meetings were organised and attended in the region that supported regional networking and increased biosafety capacity in the Asian region. This component also included a research collaboration with Bogor Agricultural University in Indonesia. This only got started in the last year of the programme, however, and there are no documented outputs of this.

Assessment: The project achieved its targets. The collaboration related to the Hubs have had an observable impact in establishing well-functioning biosafety research programmes that have demonstrated a capacity to continue work without financial support from GenØk. The Hubs have opened the way for both South-South and South-North co-operative initiatives. They have increased the profile of biosafety scientists and researchers significantly to a national and international level.

Project 3 – Risk Assessment Support Services

Budget: NOK 2 000 000

This project funds two 50% positions at GenØk to provide free-of-charge advisory services on demand from ODA countries. In the first year, 15 inquiries were answered. According to the annual report for 2013 the target was 30 to 40 requests per year. In 2014, GenØk only received 6 requests

for assistance. The 2014 reports notes that "it is difficult to identify the unexpected decrease in interest."⁵

The type of assistance this project sought to provide is an extension of what was first provided in the BAT of the first phase programme. According to GenØk, an attempt was made to transfer the BAT from New Zealand to Tromsø, and to build on the platform and work already done. However, IT experts consulted advised that after more than two-years of non-use it would take considerable resources to update the software. A decision was consequently made to abandon the BAT.

The project was also expanded to include the development of a web-based resource on the GenØk website, and funding for a side-event and poster at the COP/MOP 7 and contributions to other conferences. In addition, the project part-financed two GenØk reports (GenØk 2015a and 2015b).

Assessment: The project partially achieved its targets. The project provided answers to 21 enquiries over two years, which is well below the target of at least 30 a year. The demand was significantly lower the second year. The project seems to have expanded to cover a wider spectre of activities, although this is not explained in the project reports. One wonders if the budget could have been used more effectively if linked with the abandoned BAT.

Two of the three projects in the second phase were successful in reaching their objectives. These were the regional courses in project 1 and the research hubs of project 2. The third project, the Risk Assessment Support Services, was less in demand than hoped for. This was similar in scope to the stranded BAT from the first phase, but due to technical problems, a decision was made not to build on the BAT.

4.2 How has the Programme delivered in relation to its goals?

The overall goal of the programmes and the stated purposes of the two phases are as shown in the table below:

Overall objectives: Safe use of modern biotechnologies according to the goal to ensure a sustainable management of biological diversity and natural resources.	
Phase 1 (2008 – 2012) Purposes	Phase 2 (2013 – 2014) Purposes
<ol style="list-style-type: none"> 4. Strengthen the cooperating countries capacity to take into consideration sustainable environmental management 5. Strengthen the cooperating countries capacity to collect information and assess possible health effect of genetically modified organisms (GMOs) 6. Strengthen the cooperating countries capacity to implement international agreements 7. Strengthen the cooperation within environmental issues and build capacity through research and education 8. Strengthen the South-South cooperation 	<ol style="list-style-type: none"> 1. Contribute with necessary scientific and social scientific risk-related knowledge and institutional capacity. This will support governments and authorities and enable them to build up their own system of regulation and management. 2. Strengthen ODA-countries' ability to perform risk assessments and safety evaluations. 3. Contribute to the development of strong academic research and teaching environments within an institution that can act as a hub for other institutions within the country or region.

⁵ GenØk. 2014. Progress report. GLO-3450 QZA 12/0706. Biosafety Capacity Building Annual Report and Accounts, 27.05.2015, page 39.

As can be seen, there is a certain degree of overlap between the purposes (f.ex. 1, 2 and 3 in phase 1) and, for the aim of this review, it does not make much sense to look separately at the two phases of the programme. Especially since much of what was achieved in the second phase builds on the preparatory work in the first phase.

Therefore the review team has decided to assess the achievement at the outcome and impact level under the following three headings.

- A. *Cooperating countries' capacity to implement international agreements*
- B. *ODA countries' capacity to perform risk assessments and safety evaluations*
- C. *Capacity to do biosafety research and teaching and to support further research and knowledge sharing through collaborative networks*

This captures all of what is contained in the purposes of the programme, and allows a thematic assessment that avoids unnecessary duplication. Each of them is considered in turn below.

A. Cooperating countries' capacity to implement international agreements

This covers the cooperating countries' capacity to put in place the requisite legal and institutional frameworks at the national level participate and to participate in international negotiations. The programme has had a significant impact in this area. More than 500 key stakeholders were trained in the period under review. Since the beginning of the Tromsø courses in 2003, 892 participants from 115 countries have been trained by GenØk in biosafety.

35 participants of GenØk courses, all from ODA countries, are presently national focal points or are sitting in international committees under the Cartagena protocol (see appendix 5 for full list). This has had a significant impact on the contribution of ODA countries in the international processes. According to the Head of the Biosafety Division of the CBD Secretariat, GenØk has been "a very important component feeding services to all developing countries under the Cartagena protocol."⁶

Several respondents stressed how important GenØk had been in giving ODA countries the confidence and the knowledge actively to take part in the international process. The GenØk courses and workshops were also instrumental in creating and sustaining networks.

The GenØk partner TWN has been particularly instrumental in facilitating discussions and making the links between capacity building at global and regional levels to national policy/law formulation, as well as building a pool of knowledge and expertise in different countries.

B. ODA countries' capacity to perform risk assessments and safety evaluations

The GenØk programme has played an important role in increasing knowledge on biosafety in ODA-countries. The training of a large number of representatives of regulatory officials in ODA countries has naturally put them in a better position to perform risk assessments and safety evaluations. The training and support provided to researchers and members of civil society has further helped to foster informed and critical national debates. As can be seen in the Brazilian case, GMO can be an intensely political issue, which means that it is important also to reach stakeholders who do not hold official regulatory roles.

Thus, GenØk support has both helped build the capacity to perform risk assessments, and enabled concerned citizens to demand that risk assessments be performed in a responsible way. The following are examples of where GenØk trained and / or supported stakeholders have contributed to regulatory action in ODA countries:

⁶ Interview with Charles Gbedemah, 26.11.2015.

- In South Africa, NWU researchers contributed to the change in government strategy to use the single-gene (Bt) trait in the Water Efficient Maize for Africa (WEMA), as this would be much more conducive to development of resistant pests than a crop with two Bt genes. There are similar discussions being had in Tanzania and Ethiopia.
- The Uruguayan government took the initiative to and financed the 2014 regional workshop in Uruguay. This led, among other things, to the establishment of a formal mechanism for regular consultations between the Uruguayan foreign affairs ministry and civil society on matters relating to biosafety.

One of the ways in which GenØk sought to strengthen ODA countries' capacities to perform risk assessments was through making current information easily available and providing real-time technical support. This part of the programme has not been as successful. The online Biosafety Assessment Tool was developed but has not been kept up to date, and the project in the last phase of the programme that aimed to provide technical support has been in much less demand than anticipated. At the moment, this appears to be a lost opportunity for GenØk, and there could be a good case to be made for attempting to revive the BAT, as several respondents argued that there is a need for it. The Biosafety Clearing House, which is the database maintained under the CBD, is reported not to be nearly as user-friendly as the BAT.

c. Capacity to do biosafety research and teaching and to support further research and knowledge sharing through collaborative networks

GenØk has supported the development of research capacities, first through Gateways Institutes project of the first programme, and then the research hub project of the second programme. GenØk has been successful in establishing support agreements with well-functioning academic institutions that are motivated to enter into collaborative research efforts.

The cooperation with NIES in China did not take off, reportedly due to culture differences and difficulties associated with communication, information sharing and sharing of test material. In Zambia, the cooperation was hampered by poor leadership and management from NISIR's side. In both cases the cooperation agreements were ended before the end of the first phase programme.

The cooperation with NWU in South Africa, and Santa Catarina in Brazil, on the other hand, was very successful. Both institutions referred to GenØk's support as a "game changer." Both institutions have established regional research networks and have demonstrated ability to raise funding for research which will enable them to continue doing research on biosafety, also after the end of GenØk support. Particularly NWU has had success in securing funding for further research while Santa Catarina is in a slightly more difficult position, partly due to comprehensive budget cuts in Brazil in all areas of public life.

GenØk has had success with integrate its support to NWU and Santa Catarina with its FK researcher exchange programme. The exchange programmes have helped strengthen the links between the research institutions (including GenØk) and has provided very useful experience for the participating researchers.

Overall objective: Safe use of modern biotechnologies according to the goal to ensure a sustainable management of biological diversity and natural resources.

It is difficult to make an assessment of the goal achievement at the level of overall objective, particularly seeing that there are no defined targets. It is still clear that GenØk has made a significant contribution to the safe use of modern biotechnologies. GenØk's holistic approach and wide reach puts the institution in a unique position in the global field of biosafety.



The courses sponsored through the programmes have reached key stakeholders in different positions. It is likely that GenØk's contribution will have a lasting effect on the ODA countries ability to conduct risk assessments and ensure safe use of modern biotechnology. This has also enabled ODA countries to implement international agreements.

The one criticism that has at times been voiced against GenØk, is that the institution has appeared to be very firmly on the anti-GMO side of the political discussion. GenØk has sought to invite representatives of the GMO industry to many of its events. Some respondents still suggested that many had viewed GenØk as being anti-GMO.

This may have shifted somewhat in later years, and it is certain that some of the GenØk partners, such as NWU, are now seen as having a more balanced role. This can, for example, be seen in how industry is now paying NWU to perform some of its tests. In Brazil, GenØk was credited with contributing to a balancing of the discourse, as explained by Professor Rubens Nodari at the Federal University of Santa Catarina: *"in the beginning the GMO discussion was very polarized. After GenØk support we were able to discuss on a scientific basis. We got more respect from the industry representatives because we had scientific data"*.

This can be seen to be a result of GenØk's holistic approach, combining science with socio-economics and working with all groups of stakeholders. GenØk has made a significant contribution by capacitating a wider range of stakeholders to engage in the biosafety agenda.

4.3 To what extent could the observed results have been achieved without the Programme?

If GenØk had not played the role that it has played, would some other actor have stepped in to play a similar role? Most likely not. As stated previously, GenØk is seen to be a unique type of institution, as it combines science with socio-economics and engages with a wide range of stakeholders. GenØk is also one of the few institutions with such a degree of scientific competency and capacity which is not financed by the GMO industry. As one of GenØk's senior researchers claimed: "GenØk is the only independent institution that looks holistically at biosafety."⁷

4.4 Are there any un-intended consequences of the Programme?

As with all programmes, there were un-intended consequences and results, both negative and positive. At first Santa Catarina University were surprised by the hostile reactions to their research from the national regulatory council and from industry.

Other surprises were of a much more positive nature. In Francophone Africa, two GenØk course attendees from Benin organised a series of five biosafety courses between 2007 and 2012, modelled on the GenØk courses. This has resulted in a Francophone Africa network of 90 actors from 13 countries in the region, who are engaging in the GMO discourse, and also promoting ecological agriculture as an alternative. These workshops have been funded by TWN and other funders, and while they have used material from the GenØk workshops, no technical assistance has been requested or required to deliver the workshops.

Other surprises are the central role now played by Moldova as their GenØk trained CBD focal point has spearheaded regional cooperation and hosted a GenØk regional workshop. The invitation from Uruguay to hold a workshop, funded by the Government, was an unplanned surprise that has furthered regional cooperation in Latin America.

⁷ Interview with Odd Gunnar Wikmark, 29.10.2015.

4.5 Has the delivery been cost-effective, or are there other ways that the results could have been achieved in a more cost-effective manner?

It is beyond the scope of this review to make a detailed review of the cost effectiveness of each of the projects. Instead, some observations will be provided on key points.

At the overall level, the total delivery of the programme appears to be good value at a total cost of about 60 million NOK. There are certainly many development programmes with considerably bigger budgets that have not left the type of global footprint that GenØk has.

The review has two key observations on how cost-effectiveness could have been further improved, and both relate to the need for longer term planning and for paying more attention to costs, plus a critical note on the costs for the Tromsø and specialist courses.

First, the less successful projects in the programme, namely the Master studies modules and the BAT and technical advisory services, point to the need for more thorough and longer term planning that takes into full account the cost of realising the benefits of the intervention. Nearly a million NOK was spent on developing and delivering the Master course to 12 people, and almost 6 million NOK spent on first developing the BAT and then providing answers to a mere 21 technical queries. Both of these initiatives could have had a far broader reach had the full costs of the initiatives been budgeted for from the start. And if a decision had been made not to allocate the needed funds, then these may have been better used elsewhere.

Second, more thought could have gone to raising alternative sources of funds and cost-sharing at a much earlier moment. For the Tromsø courses, for example, it may have been possible to encourage more of the participants to secure alternative sources of funding for their travel and subsistence.

The cost of the Tromsø courses warrants special mention. The three regular and two specialist courses, took up a large chunk of the budget at 21.5 million kroner. The basis for the costing of each course at 4.5 m NOK is provided in the project document for the first phase, where the costs of the 2007 course is used as a guide.⁸ Close to half the cost is for GenØk personnel, at 2.2m NOK. What may be surprising is that the larger share of this is for administration, including vetting of applications, travel arrangements and visa processing for applicants, among other items. A total of just over 1200 hours was spent for this in 2007, at a rate of 850 NOK. It may be seen as surprising that Norad agreed to pay consultancy rates (at the same level as course lecturers) for the administrative personnel to take care of the travel arrangements of participants.

5 How sustainable is the Programme?

5.1 To what extent and how are the interventions consistent with the partners' needs and priorities?

As the programme matured, its interventions became more consistent with the partners needs and priorities. In the case of two of the earliest partners, NIES in China and NISIR in Zambia, is it not clear to what extent the interventions were consistent with the partners' needs and priorities. GMO was undoubtedly high on the political agenda in Zambia, after the President made a very high profile refusal of GMO-maize as US-food aid during the famine in 2002. This refusal was followed up with a request by Zambian authorities for capacity building on GMO detection methods and establishment of

⁸ "Revised application. Biosafety Capacity Building Programme Related to Genetic Engineering and Genetically Modified Organism 2008 – 2012," genøk, addressed to Norad, 8 April 2008, page 6.

detection facilities. The Norwegian Veterinary Institute with funding from Norad initiated building of such a facility, later on GenØk was asked to continue building competence and finalizing the establishment of such a facility. On the evidence gathered by the review team (e.g. long delays in procurement, non-response to concerns expressed by visiting researchers), however, it appears that NISIR did not prioritise an effective implementation of the programme.

The fact that the partners welcomed support may have been too easily taken as a sign that they prioritised the stated objectives of the partnerships. Weak alignment of priorities from the beginning may be part of the explanation for the failure of the partnerships to produce the hoped for results.

In the case of the other two research partners, Santa Catarina in Brazil and NWU in South Africa, the alignment of priorities was much better. Both institutions prioritised the programme and have subsequently managed significantly to strengthen their capacities in the area of biosafety research, including their capacity to secure further funding, thus ensuring sustainability.

In the case of NWU it is interesting to note that the ownership of the programme was in many ways developed as the programme progressed. The budgetary frame, and the overall frame of activities was set by GenØk. But then NWU adapted it to fit their needs and made it work for them. As they stated: "Yes, funding set the agenda, but it was facilitative and aligned with local needs rather than being dictatorial".⁹ This came about through pro-active leadership from NWU's side, which contrasts with the reactive and sometimes absent leadership of NISIR.

5.2 How well are the interventions supported by local / national institutions and integrated with local / national conditions?

By and large, the interventions have helped to generate the support required from national institutions. This is seen in South Africa, where NWU is now closely integrated in a biosafety community of sorts, with the regulatory authority, other academic institutions and industry.

Likewise, in Brazil, what started out as a fairly antagonistic relationship between Santa Carolina and the national regulatory authority and industry, has become more mutually supportive. Dr. Sarah Agapito-Tenzen, who is both an alumni and lecturer of a series of Tromsø courses, is now the Brazilian delegate to the COP/MOP and a permanent expert delegate for the Ministry of Agrarian Developments in online discussions of the protocol.

In the cases of Moldova and Uruguay, it is the initiative from national institutions that brought them in as partners in the GenØk programme.

In the cases of Zambia and China, however, national institutions turned out not to be very supportive of the Programme. Although Norwegian support, outside the GenØk programme, was instrumental in drafting and enacting the National Biosafety act, there is little sign that the GenØk supported initiatives have benefitted from this, and the use and mainstreaming of the NISIR Lab infrastructure remains as an isolated structure.

⁹ Interview with Prof. Johnnie van den Berg, Potchefstroom, South Africa, 11.11.2015.

5.3 What is the quality of management and organisation in the partner institutions and has the Programme contributed to its strengthening?

As is clear from the previous sections, the quality of management in NISIR in Zambia was not good. There was an absence of local ownership and leadership of the programme. The process of procurement alone could lead to delays of over half a year, or till the activity was dropped. The Programme has not sought to strengthen the quality of management and organisation in the partner institutions. Despite problems being apparent in the management of NISIR since the start of the cooperation, no action was taken to address the problems (also see below, under section 6.1).

The NISIR laboratory lacks chemicals needed for use of much of the expensive equipment that is in place. Also, we observed that the laboratory is dusty and that the improvement asked for in Bror Jonsson's review from 2010, has not been effectively implemented (Jonsson 2010). Due to the sensitivity of much of the equipment to dust, it is not likely to remain operational for much longer unless changes are made.

The well managed programmes in South Africa, Brazil and Malaysia (through the TWN partnership) were most likely the result of already well managed organisations.

The one area where GenØk did provide management support, was in the organisation of courses and conferences. Partners in Brazil and Moldova stated that the GenØk partnership had provided them with valuable experience in arranging courses, and it is likely that also other partners have had this benefit.

One area in which both GenØk and the partners seem to have weak capacity is in planning and results based management. The reporting under the Programme is weak, with an absence of clear targets and an articulated goal hierarchy. The first phase programme lacked a result framework altogether. The second phase programme had a very basic results based framework for each of the projects, but lacked measurable baselines, milestones and targets. There was no overall goal hierarchy showing how the different projects fit together.

It also was apparent that forward planning and budgeting was weak, and that there was no attempt at systematic monitoring and learning as part of the programme management. NWU told the review team that they had missed a more forward looking planning exercise, which could have enabled a more deliberate method of ensuring sustainability.

5.4 What is the lasting impact of the interventions in partner organisations / country systems after the end of Norad support, and do they have the financial capacity to maintain the benefits from the interventions?

As mentioned earlier, both NWU and Santa Catarina referred to the GenØk support for their research programmes as "game-changers". They have both achieved a critical mass of research capacity, and are now in a good position to secure financial support for continued research.

The cumulative effect of the Tromsø and regional courses have also been to generate and support regional networks, where we can already see ripple effects from the hubs. The initiative from the Uruguayan government to convene a regional conference to strengthen their own national system and facilitate regional collaboration is perhaps the best example of this. The role played by Moldova and the Moldovan focal point is another example of how the initial support by GenØk has spurred demand for more action on biosafety. There is little doubt that the GenØk programme has given ODA country regulators confidence to contribute more actively internationally, at COP-MOPs and other arenas, and that this is likely to be a lasting effect.

NISIR in Zambia has not demonstrated any capacity to support their activities after the end of the Norad support. The lab facility is not currently used for GM Detection and risk assessment. The laboratory was not initiated into the CBD national biodiversity framework which makes it difficult to engage strategic partners to help with resource mobilization.

6 How well has the Programme managed risks?

6.1 In terms of risk management

Risk management under the programme has been poor or absent. The first phase of the programme did not have a risk analysis. Although GenØk points out that they were aware of no formal requirement for a risk analysis at the time, it would generally be considered good management practice to have some form of risk analysis for a complex programme with a budget of close to 50 million NOK. The project document for the second phase did include a risk matrix, but this was not monitored or used during implementation.

At a more operational level, there has also been no form of risk assessment integrated in the process of selecting partners. It is advisable to assess the prospective partners' capacity for project management, including practices of financial management. And if there is found to be a risk associated with this partner, as an assessment would almost certainly have found in the case of NISIR, then some extra safeguards would need to be integrated in the project plans, with regular follow ups and controls in the initial phases, till there was sufficient confidence in the system.

In the case of NISIR, GenØk started implementation without a detailed contract in place (there was only a MoU), and without any corrective action when problems arose, such as serious delays in procurement and implementation. As told by one of the officers from GenØk, "we understood pretty fast that this was not working, but our strategy was just to continue supporting." This was echoed by one of the GenØk people on the ground who was told to just "hang in there", despite an inability to get anything meaningful accomplished. GenØk, in their own assessment of the Zambian experience, did admit that they were quite "naïve" about how difficult it would be when then went into the Zambian partnership.¹⁰

6.2 In terms of anti-corruption

GenØk has an auditor that goes through all project accounts every year. GenØk has also an anti-corruption policy that is a part of GenØks ethical guidelines. The anti-corruption policy is however not mentioned in the MoU with NISIR.

The review team did come across some evidence of corruption during the field visit in Lusaka. Following up on the implementation problems, and in particular the reasons for procurement often taken as long as six months, it was revealed to the team that the Procurement Officer responsible for the GenØk project had been suspended for alleged corruption. Some time after the suspension the Procurement Officer was reinstated (apparently because his wife was sick and he needed a job), after which he was again in charge of the procurement for the project. Apparently it was common knowledge that corruption was the reason for his suspension. When asked about this, GenØk confirmed that they were aware that the Procurement Officer had been suspended, but that NISIR had explained that it was due to him not having performed well. This shows quite clearly that there was no process in place where GenØk people on the ground were encouraged to report suspicions of corruption. Although corruption posed very limited direct risk to the GenØk project, as almost all

¹⁰ Interview with Anne I. Myhr, 19.10.2015.

funds were managed directly from GenØk, the corruption was indicative of a lax management culture at NISIR, which several GenØk staff pointed out contributed to the long delays and eventual closure of the NISIR cooperation.

6.3 Has the Programme led to a strengthening of risk management in partner institutions?

The Programme has not sought to strengthen risk management for any of its partners, nor has it been an objective of the programme.

7 How well have cross-cutting issues been handled?

7.1 Gender mainstreaming

The Programme has consistently sought to achieve a good gender balance among course participants, lecturers and researchers. GenØk has consistently provided data disaggregated gender for these outputs. The percentage of women participating on courses has varied from approximately 30% up to 58%, between 2008 and 2012. Moreover, between 23 and 58% of the lecturers on regional courses from 2006 to 2012 were women (GenØk, Annual Report, 2014).

At NWU, the team was informed that the ratio of women students at 40%, was the highest in the department.¹¹

Other than ensuring a gender balance among course participants, lecturers and researchers, there was no particular focus on gender in the research or in the international negotiations.

7.2 Environment

The overall objective of the programme is to safeguard the environment, so this is a cross-cutting issue that is well covered.

There was, however, one environmental hazard observed by the team. The NISIR laboratory did not have an incinerator for responsible condemnation of material from the lab. This means that there was a risk of contamination when GMO material and other organisms were disposed of. One of the GenØk officers who had worked there for a longer stretch of time, had repeatedly tried to have an incinerator built, but without any success.

8 Discussion and conclusion

GenØk's Biosafety Capacity Building Programme has had a significant impact in the area of global biosafety, and as such must be considered a success. It has provided more than 500 participants, many of whom hold key national and international positions today, with an understanding of the scientific, socio-economic and legal basis for GMOs and their responsible use. All respondents are unanimous that GenØk has played a unique role in the implementation of the Cartagena protocol, with its winning combination of a holistic approach and institutional independence.

¹¹ Interview with Prof. Johnnie van den Berg, 11.11.2015, Potchefstroom, South Africa.

According to the review team's assessment, all the courses and workshops offered through the programme were successful. The work to develop Master modules for Biosafety and an online Biosafety Assessment Tool, on the other hand, have not produced any lasting results. Although the Master modules were used by one small cohort, and the BAT was operational for some years, none of them are used any longer. In both cases this is related to a failure to plan and budget beyond the immediate term.

The Gateways Institutes Initiative was partially successful, with the Zambian and Chinese partnerships coming to a halt, while the Brazilian partnership achieved its goals. The Brazilian partnership was developed further in the "hub" initiative of the second phase, where it also was joined by the successful South African partnership. GenØk has succeeded in developing strong research partnership with these two universities, and there are already ripple effects observed where these Universities are linking with other actors and research institutions in the region.

The team considers the sustainability of the observed results to be good. The investment in human resources has played a significant part in enabling ODA countries to implement international agreements as confirmed by the CBD Secretariat. The support to ODA countries' capacity to conduct their own risk assessments has started a process that is likely to continue, and which will be helped by the networks that GenØk has fostered. Partners' research capacity have also reached a critical mass, and are likely to prove self-sustaining.

The main weaknesses of the Programme arguably stem from weak planning and budgeting and poor routines of results based management. The Programme has not had solid result frameworks, and reporting has not been according to predefined goals. The Programmes were essentially clusters of projects, and although there were clear links between most of them, they were not organised in a goal hierarchy which indicated how the projects fit together. The weak systems and practices of results based management is the one area where it became clear that the expertise of GenØk is within research, biosafety risk assessment and international negotiations, and not development assistance.

The failure to follow good routines for planning can impact negatively on sustainability and cost-effectiveness, as can be seen from the cases of the Master course and the BAT. But the team also observed that in the better functioning programmes, such as the cooperation with NWU, there was not a practice of common planning and budgeting. NWU missed an opportunity to plan and budget for the longer term, in particular to expand the regional reach. The lack of a planning culture is reflected in the descriptive statement of one of the senior GenØk team who said about the Programme that "the road has been made as we walked it."

The review team recommends that GenØk takes the end of the Biosafety Capacity Building Programme as an opportunity to pause and reflect on what has been achieved, and if there is still a wish to continue working on supporting ODAs under the Cartagena protocol, to discuss and plan how to move ahead. GenØk might find it useful to develop a long-term strategy and establish some principles and practices for systematic planning, reporting and learning.

The review team also has one final note to Norad. GenØk has found reporting to Norad difficult, particularly seeing that they have had five or more people to report to in the course of the programme, under two different departments. GenØk has missed what they feel to be clear instructions on what are the reporting requirement. Difficulties in reporting come in no small degree from having weak results frameworks to start with, and Norad is encouraged to continue its ongoing work of requiring clear results frameworks from partners and assisting them to develop them.

Appendix 1 Terms of Reference

Terms of Reference regarding

End Review of support to GenØk related to the Agreements

GLO-08/089 “Biosafety Capacity Building Programme related to Genetic Engineering and genetically Modified Organisms” and Establishment of Biosafety Research Collaboration under the Gateways Institutes Network between NIESE/SEPA of China; NISIR of ZAMBIA and GenØk of Norway” for the period 2008-2012

**an
d**

QZA-12/0706 “GenØk’s Capacity Building Programme 2013-2014, Research and Capacity Building to support the objectives of the Cartagena Protocol on Biosafety” for the period 2013-2014.

1. Background

The Cartagena Protocol (CP) on Biosafety to the Convention on Biological Diversity entered into force 11th September 2003. The Protocol seeks to protect biological diversity from any risks posed by living modified organisms resulting from modern biotechnology. As of today

169 countries have ratified the protocol. The majority of these are developing countries.

A major issue in connection with the Cartagena Protocol is appropriate capacity building and technology transfer that enables developing countries to fulfil their obligations under the Protocol. This is a challenge that requires cooperation at national, regional and international levels, including a high standard of teaching, training and methodology transfer from countries with institutions experienced in handling safety in relation to modern biotechnology. At the moment, many developing countries are developing and/or implementing their national biosafety policy, regulations and management systems. This enables the countries to build up a system of regulations and management to a certain degree; however, the necessary scientific and social-scientific risk-related knowledge and institutional capacity to support governments and authorities is still lacking.



In order to ensure safe handling of genetically modified organism (GMOs) and their products, and to avoid unintentional environmental and health problems, broad understanding of genetic engineering (GE) biosafety issues is a necessity. Developing countries are most vulnerable to the socio-economic and ecological impacts of genetic engineering and its products. As the main centres of genetic diversity and crop origin, developing countries face the biggest ecological risks with the introduction of genetically engineered crops, seeds and other products of genetic engineering.

Against this background, GenØk found it appropriate to design a GE/GMO Biosafety Capacity Building Program, based on a holistic approach to genetic engineering and GMO's, in accordance with GenØk's approach to research in the field of gene ecology. The Ministry of Foreign Affairs made the implementation of the program possible with an initial grant in 2003. Norad has supported the programme since 2004.

In addition to this, during the period 2009-2011, the Gateways Institute Program (GIP) collaboration between GenØk and the National Institute for Scientific and Industrial Research (NISIR) of Zambia and the Nanjing Institute of Environmental Sciences (NIES) of China started as a part of the capacity building activities. This collaboration encountered biosafety research activities and support that took place at the three institutes laboratories.

The Norwegian Ministry of Foreign Affairs decided in 2012 that the support to GenØk should be gradually phased out. Based on this decision, Norad entered into a final support period of two years, 2013-2014, where the primary focus should be to strengthen the partner institutions in the south in order to ensure better sustainability of the programmes and previous investments.

During the last support period the Arctic University of Norway (UiT), Third World Network (TWN)/Malaysia, Federal University of Santa Catarina/Brasil and North West University/South Africa, have been the closest partners to GenØk.

The target group for the programme has been high level policy makers, regulators, scientists and researchers, NGOs and civil society and students at Masters and PhD levels.

This review will focus on the last two support agreements in the period between 2008 and 2014.

I. The Agreement GLO-08/507 “Biosafety Capacity Building Programme related to Genetic Engineering and genetically Modified Organisms” and Establishment of Biosafety Research Collaboration under the Gateways Institutes Network between NIESE/SEPA of China; NISIR of ZAMBIA and GenØk of Norway” for the period 2008-2012, was signed on 28.05.08.

The programme encompasses the following components:

1. Core capacity-building course: Holistic Foundations for Assessment and Regulation of Genetic Engineering and Genetically Modified Organisms.
2. Biosafety Forecast Service/Biosafety Assessment Tool
3. Specialist capacity building course and scientific conference
4. Web-based Master module in biosafety
5. Regional courses in biosafety (a bridged yet regionally contextualized version of the annual course)
6. Contribute to the development of Master of Science studies in biosafety at UiT (University of Tromsø)
7. International scientific conference in biosafety research
8. Side event at COP/MOP-4 2008
9. Research cooperation under the Gateways Network

The goal: to contribute to a sustainable management of biological diversity and natural resources.

The purpose:

- Strengthen the cooperating countries capacity to take into consideration sustainable environmental management
- Strengthen the cooperation countries capacity to collect information and assess possible health effect of GMOs
- Strengthen the cooperation countries capacity to implement international agreements
- Strengthen the cooperation within environmental issues and build capacity through research and education.

This programme has not presented a complete result framework or a risk analysis, which was not required at the time of signing the Agreement. However, a summary of outputs that represented the target results on output level for the programme is listed in the Agreed Programme Summary.

The grant from Norad for the period 2008-2012 was NOK

48.892.000. This Agreement was closed in September 2013.

II. The Agreement QZA-12/0706 “GenØk’s Capacity Building Programme 2013-2014, Research and Capacity Building to support the objectives of the Cartagena Protocol on Biosafety” for the period 2013-2014, was signed on 04.04.13.

The programme encompasses the following three components:



1. Regional courses in biosafety
2. Risk assessment support/advisory activities
3. Regional Biosafety Hubs in South America (Brazil), South Africa (South Africa) and Third World Networks and Hub in Asia.

The goal: Safe use of modern biotechnologies according to the goal to ensure a sustainable management of biological diversity and natural resources.

The purpose:

- Contribute with necessary scientific and social-scientific risk-related knowledge and institutional capacity. This will support governments and authorities and enable them to build up their own system of regulations and management
- Strengthen ODA –countries’ abilities to perform risk assessment and safety Evaluations
- Contribute to the development of strong academic research and teaching environments within an institution that can act as a hub for other institutions within the country or region.

This programme has included a result framework with targets for each component on outputs, outcome and impact level, including indicators and means of verification. Baselines are not included. A risk analysis is presented, including definition of risks, actions to reduce risks/mitigation and risk level.

The grant from Norad for the period 2013-2014 is NOK 12.

100.000. The final reporting for this Agreement is due 1st July 2015.

2. Purpose, context and intended use of the review

The main purpose of this review is to provide information to Norad and GenØk about the results of GenØk’s capacity building programmes supported by Norad with focus on outcome and impact-level and whether sustainability of the Programme has been ensured.

The report with recommendations will be valuable for GenØk and their partners in their decision of continuation of the collaboration.

3. Scope of work

The review shall assess whether and to what extent the goals and objectives of the Programs have been reached. The review shall present an analytic and descriptive account of the development of the implementation of all components, with a special focus on capacity building and sustainability.

The following issues shall be addressed:

- An assessment of outcomes and impact (to the extent possible) of all components, i.e. the changes and effects positive or negative, planned and unforeseen, of the Programme seen in relation to target groups and others who are affected.

Possible questions to be raised:

- How has the intervention affected the different groups of stakeholders, intended or unintended?
- To what extent and how has the interventions contributed to capacity development and strengthening of institutions and local/national authorities in the area of biosafety?
- Would the identified changes have taken place without the interventions?
- Could the results have been better if the programme had been organized differently i.e. more focussed on target groups and countries?

- An assessment of the effectiveness and efficiency of the Programme, i.e. the extent to which the purpose has been achieved and the extent to which the cost of the intervention can be justified by its results.

Possible questions to be raised:

- To what extent is the identified development the result of the intervention rather than external factors?
 - To what extent do the development changes accord with the planned results?
 - Are there any other ways that the interventions could have been implemented without reducing the quality or quantity of the results?
- An assessment of the sustainability of the Programme, i.e. an assessment of the extent to which the positive effects of the Programme will still continue after the Norad assistance has been concluded.

Possible questions to be raised:

- To what extent and how are the interventions consistent with partner's needs and priorities?
 - To what extent and how are the interventions supported by local/national institutions and integrated with local/national conditions?
 - To what extent are partner institutions characterized by good governance, including effective management and organisation?
 - To what extent do partners have the financial capacity to maintain the benefits from the interventions when Norad support has been withdrawn?
- An assessment of risk management within the Programme, including anti-corruption measures; special problems encountered and how they were solved. This should include a look at how institutional and political commitments and context have influenced implementation and quality of implementation. Did i.e. competence building at partner institutions contribute to strengthened capacity at a local and/or national level in the area of biosafety?
 - Cross-cutting issues of gender mainstreaming and environment shall be included in the assignment

Possible questions to be raised:

- Has the programme implementation had measures for gender balance? Is gender balance among key actors (course participants, lecturers, organizers, students) acceptable?
- Has the programme led to any gender-specific outcomes or impact?
- Have key environmental issues been addressed, and are there significant and/or irreversible environmental impacts of the project?

Identification of any “success stories” and lessons learned would be of added value. The consultants may add other aspects if found useful or necessary.

4. Implementation of the review

Team composition

The review team shall consist of up to three members. One person shall be nominated as the team leader and shall be responsible for the division of tasks, where this is not already described in the Terms of Reference (ToR). The team leader shall also be the person primarily responsible for the report. At least one of the team members shall be able to read and understand Norwegian language.

In addition to a team leader, one or two regional consultants shall be recruited to mainly participate in the fieldwork visits taking place in South Africa and Zambia, as well as participate in dialogue with partners in Brazil and Malaysia, preferably via Skype and other electronic communication, and to provide inputs to the report.

If possible, both genders shall be represented in the

team. Implementation of the review

The analytical and practical framework for the review, where this is not clearly specified in the ToR, shall be developed jointly by the team, and an inception report shall be presented to Norad within two weeks following the signing of the contract. This shall suggest a methodology for optimal use of time and resources, which shall include interviews with participants, beneficiaries and institutions from both agreement periods. This can be done face to face, through telephone, e-mail or Skype.

The review shall involve review of key documents, interviews with key personnel, course participants, programme beneficiaries and field visits.

The consultant/s will have access to project documents including agreements, annual plans and budgets and progress reports as well as midterm-review and final report for the agreement GLO-08/507 etc., as found appropriate and necessary. A list of some of these documents is attached to the present ToR. Both Norad and GenØk will assist in providing the consultant/s with necessary documentation and be available for interviews.

The field visits shall include a visit to GenØk in Tromsø and to partner institutions in Zambia and South Africa, including a visit to their laboratories. Contact with the partner institutions in Brazil and Malaysia shall as far as possible be conducted via Skype and other electronic communication. Dialogue with exchange personnel from partner institutions spending time at GenØk during the period of the review shall be included.

The review shall tentatively take place between October 2015 and January 2016, and the final report shall be submitted within 31 January 2016.

Tentative timetable:



Tasks:	Team leader:	Regional consultants:	Period:
Preparation, reading documents, making arrangements and plans, inception report, e-mail correspondence etc.	8 days	4 days x 2	October 2015
Field work including travel, visit to institutions, Skype meetings and interviews	Norway: 2 days including travel. South Africa and Zambia: 6 days including travel. Brazil: 2 days, no travel. Malaysia: 2 days, no travel.	South Africa and Zambia: 6 days including travel. Brazil: 3 days, no travel. Malaysia: 3 days, no travel.	November 2015 - December
Report writing, follow-up meetings, draft report and final report	10 days	5days x 2.	December 2015 – January 2016

The number of days per task is only estimated and not

fixed. Budget:

Norad will cover all expenses for the consultancy separately from the agreements with GenØk.

The consultancy contract shall cover all costs of the review including consultancy fees, travel expenses, administrative costs, insurance and social fees and benefits.

The budget for the complete assignment is max NOK 600.000 exc.VAT.

5. Reporting

A draft report shall be presented no more than three weeks after returning from the field. The draft report shall be sent electronically to both Norad and GenØk as well as international partners involved in the review. Comments are to be sent by Norad and GenØk within three weeks after receipt of the draft report. A final report, both electronically and in hard copy, shall be sent to Norad and GenØk within the following next two weeks.

The final report shall be of maximum 25 pages and shall be presented in English language. It shall include an executive summary, a section of the objectives and the applied methods of the Review, a description of the major findings and lessons learned, conclusions and recommendations. Appendixes and Annexes shall come in addition to the 25 pages report.

List of relevant documents (provided to awarded suppliers as found appropriate and necessary):

- Project Document for Agreement of 28.05.08
- Appropriation Document for Agreement of 28.05.08
- Agreement of 28.05.08
- Mid-term Review of Agreement of 28.05.08 (28.08.10)
- Final Report for Agreement of 28.05.08
- Assessment by Norad of Final Report for Agreement of 28.05.08
- Project Document for Agreement of 04.04.13
- Appropriation Document for Agreement of 04.04.13
- Agreement of 04.04.13
- Annual Narrative and Financial Reports for the period 2008-2014
- Course evaluation reports

Appendix 2 Amended Review questions

1. How effective and efficient has the Programme been?
 - a. What are the results of the programme?
 - b. How has the Programme delivered in relation to its goals?
 - c. To what extent could the observed results have been achieved without the Programme (what is the counter-factual)?
 - d. Are there any unintended consequences?
 - e. Has the delivery been cost-effective, or are there other ways that the results could have been achieved in a more cost-effective manner?
2. How sustainable is the Programme?
 - a. To what extent and how are the interventions consistent with the partners' needs and priorities?
 - b. How well are the interventions supported by local / national institutions and integrated with local / national conditions?
 - c. What is the quality of management and organisation in the partner institutions and has the Programme contributed to its strengthening?
 - d. What is the lasting impact of the interventions in partner organisations / country systems after the end of Norad support, and do they have the financial capacity to maintain the benefits from the interventions?
3. How well has the Programme managed risks?
 - a. In terms of risk management
 - b. In terms of anti-corruption
 - c. Has the Programme led to a strengthening of risk management in partner institutions?
4. How well have cross-cutting issues been handled?
 - a. Gender mainstreaming
 - b. Environment

Appendix 3 Reviewed documentation

- Axelrad, Evan (2010). "GenØk's Capacity Building Portfolio: An Evaluation".
- Federal University of St.Catarina (2015). "Impact Assessment Brief".
- GenØk (2008). "Revised application: Biosafety Capacity Building Program, Related to Genetic Engineering and Genetically Modified Organisms 2008-2012"
- GenØk (2008a). "Progress report GLO-3450 GLO-08/089. 2008".
- GenØk (2009). "Progress report GLO-3450 GLO-08/089. 2009"
- GenØk (2010). "Progress report GLO-3450 GLO-08/089. 2010".
- GenØk (2011). "Progress report v. 2. GLO-3450 GLO-08/089. 2011".
- GenØk (2012). "Progress report GLO-3450 GLO-08/089. 2012".
- GenØk (2012a). "Final report, Biosafety Capacity Building Programme".
- GenØk (2013). "Styrket søknad om støtte til utfasing av GenØks biosikkerhetsprosjekter i perioden 2013-2014", 7. mars 2013.
- GenØk (2013). "Progress report GLO-3450 QZA-12/0706. 2013".
- GenØk (2014). "Progress report Annual report GLO-3450 QZA-12/0706. 2014".
- Jonsson, Bror (2010). "Review of Biosafety Capacity Building Program' of GenØk, Tromsø", report to Norad by Norsk Institutt for Naturforskning (NINA).
- Jonsson, Bror and Kirsti Kalvøy (2004). "Review of 'Holistic Foundation for Assessment and Regulation of Genetic Engineering and Genetically Modified Organisms": an educational course given by GenØk in Tromsø," NINA Minisrrapport 74, report to Norad by Norsk Institutt for Naturforskning (NINA).
- Norad (2008). "GLO-08/089 Bevilgningsdokument GenØk Biosafety Capacity Building Program 2008-2012"
- Norad (2008). "Contract between Norad and GenØk regarding Biosafety Capacity Building Programme".
- Norad (2013). "Assessment of final report".
- Norad (2013). "Appropriation document for agreement".
- Norad (2013). "Contract Agreement".
- TWN (2015). "Further information for the end review of the GenØk programme".
- Utenriksdepartementet (2012). "Prop. 1 S. Proposisjon til Stortinget for budsjettåret 2013".

Appendix 4 Interviews conducted

Name	Connection to the Programme	Date
Diana D. Canova and Carina M. Rover	FK exchange from Brazil	15.10.2015
Anne I. Myhr	CEO GenØk	19.10.2015
Earl Forbes and Hermoine Venter	FK exchange researchers from South Africa	19.10.2015
Katrine Jaklin	Head of Administration at GenØk	19.10.2015
Idun Grønsberg	Scientist GenØk	19.10.2015
Jan Husby	Senior Advisor GenØk	19.10.2015
Inger Ottesen	CFO GenØk	20.10.2015
Thomas Bøhn	Scientist GenØk	20.10.2015
Arinze Okoli	Scientist GenØk	20.10.2015
Frøydis Gillund	Scientist GenØk	20.10.2015
Anne Myhr	CEO GenØk	20.10.2015
Helle Biseth	Norad	28.10.2015
Odd-Gunnar Wikmark	Scientist/Program Coordinator at GenØk	29.10.2015
Lim Li Lin and Lim Li Ching	Third World Network, Malaysia	03.11.2015
Sarah Agapito and Rubens Nodari	University of Santa Catarina, Brazil	04.11.2015
Inger Louise Bones	Office Administrator at Royal Norwegian Emb., Lusaka and former GenØk scientist	09.11.2015
Henry Njapau	Deputy Director NISIR, Lusaka, Zambia	09.11.2015
Francis Tembo	Director NISIR, Lusaka, Zambia	09.11.2015
William Peter Mwila	Finance manager NISIR, Lusaka, Zambia	09.11.2015
Joshua Siame	Accountant NISIR, Lusaka, Zambia	09.11.2015
Felix Mwangala and Bwayala Katati	Former Head Chilanga Center (Lab Lusaka), and present Head Chilanga Center, Lusaka, Zambia	10.11.2015
Doris Musonda	CEO National Biotechnology Authority of Zambia	10.11.2015
Ben Makaye	Senior Technical Officer, Ministry of Higher Education	10.11.2015
Johnnie van den Berg	Professor NWU, Potchefstroom SA	11.11.2015
Carlos Bezuidenhout	Professor NWU, Potchefstroom SA	11.11.2015
Signe Marie Breivik, Kårstein Måseide and Helle Biseth	Norad	24.11.2015
Anne I. Myhr and Katrine Jaklin	CEO and Head Admin., GenØk	26.11.2015
Charles Gbedemah	Head of Biosafety Division, CBD Secretariat, Montreal	26.11.2015

Appendix 5 Genøk alumni holding international and national level positions under CBD

First names	Family names	Nationality	Position	Course(s) attended
Luciana	Ambrozevicius	Brazil	AHTEG synthetic biology	2009 Tromsø
Anita	Anthonymsamy	Malaysia	AHTEG synthetic biology/BCH Focal Point	2010 Tromsø
Jose Leonardo	Bocanegra Silva	Colombia	AHTEG synthetic biology/BCH Focal Point	2013 Brasil
Sorka Jannet	Copa Romero	Bolivia	AHTEG synthetic biology/AHTEG socioeconomic	2010 Tromsø
Maria Andrea	Orjuelo Restrepo	Mexico	AHTEG synthetic biology	2010 Tromsø
Ossama	Abdelkawy	Egypt	AHTEG risk assessment/AHTEG socioeconomic	2011 specialist/2014 Moldova
Angela	Lozan	Moldova	AHTEG risk assessment/AHTEG socioeconomic/BCH Focal Point	2005 Tromsø/2014 Moldova
Abisai	Mafa	Zimbabwe	AHTEG risk assessment	2006 Tromsø
Galina	Mozgova	Hviterusland	AHTEG risk assessment/BCH Focal Point	2014 Moldova
Josphat	Muchiri	Kenya	AHTEG risk assessment	2012 Tromsø
Dubravka	Stepic	Kroatia	Cartagena Focal Point/BCH Focal Point	2011 specialist
Mike	Ipanga Mwaku	Congo	Cartagena Focal Point	2006 Tromsø
Belete	Geda Torbi	Ethiopia	Cartagena Focal Point	2009 specialist
Sophio	Devdariani	Georgia	Cartagena Focal Point/BCH Focal Point	2014 Moldova
Daniel	Lewis	Grenada	Cartagena Focal Point	2007 Tromsø
Behzad	Ghareyazie	Iran	Cartagena Focal Point	2004 Tromsø
Johansen	Voker	Liberia	Cartagena Focal Point/AHTEG socioeconomic/BCH Focal Point	2004 Tromsø/2014 Moldova
Paulino	Munisse	Mozambique	Cartagena Focal Point/BCH Focal Point	2004 Tromsø
Rufus	Ebegba	Nigeria	Cartagena Focal Point	2006 Tromsø
Lilia	Eladii	Moldova	Cartagena Focal Point	2014 Moldova
Yousef	Al-Hafedh	Saudi Arabia	Cartagena Focal Point/BCH Focal Point	2004 Tromsø
Bongani	Mkhabindze	Swaziland	Cartagena Focal Point/BCH Focal Point	2015 South Africa
Belal	Alhayek	Syria	Cartagena Focal Point/BCH Focal Point	2007 Tromsø
Ali	Osman Sari	Tyrkia	Cartagena Focal Point	2014 Moldova
Ejebay	Kokanova	Turkmenistan	Cartagena Focal Point	2005 Tromsø
David	Hafashimana	Uganda	Cartagena Focal Point/BCH Focal Point	2004 Tromsø
Carliz Elena	Diaz Martinez	Venezuela	Cartagena Focal Point/BCH Focal Point	2013 Brasil
Ben David	Durham	South Africa	AHTEG socioeconomic	2010 Tromsø
Letchumanan	Ramatha	Malaysia	AHTEG socioeconomic	2011 specialist/2015 Vietnam
Walter	Pengue	Argentina	AHTEG socioeconomic	2011 specialist
Elisa	Dalgalarrondo	Uruguay	BCH Focal Point	2014 Uruguay
Marcus	Richards	St Vincent	BCH Focal Point	2007 Tromsø
Julieta	Fe Estacio	Philippinene	BCH Focal Point	2004 Tromsø
Viengpasith	Vanisaveth	Lao	BCH Focal Point	2006 Indonesia
Jeremias	Yanes	El Salvador	BCH Focal Point	2010 Brasil/2012 Tromsø



Contact us

Geir Sundet

Senior manager

T +47 406 30 078

E geir.sundet@kpmg.no

kpmg.no

© 2015 KPMG AS, a Norwegian limited liability company and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative, a Swiss entity. All rights reserved.

The KPMG name and logo are registered trademarks or trademarks of KPMG International