

**INTERNATIONAL SCIENTIFIC
COOPERATION
CHALLENGES AND PREDICAMENTS**

OPTIONS FOR RISK ASSESSMENT

Royal Netherlands Academy of Arts and Sciences
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Preface

The academic endeavour has been a global activity for centuries, with researchers collaborating internationally in order to broaden and deepen their knowledge and scope. I am convinced that science and the liberal arts can offer solutions to social issues, that they can help exploit opportunities and that society in general can benefit from sharing knowledge. I also believe that knowledge and democracy belong together.

Sometimes, however, it is prudent to set limits to international scientific cooperation. There are two reasons for this.

Firstly, history shows that science can be misused, scientific integrity can be violated, and researchers can be compromised. It is better to prevent this than to criticise and regret what has gone wrong. We are better off assessing risks on time and acting accordingly.

Secondly, it is crucial for researchers to be able to work and cooperate freely and independently, without ulterior political or commercial motives. If that is not possible, we should probably conclude that it is better not to join forces.

This booklet about the challenges and predicaments of international scientific cooperation deals with the responsibility that researchers and administrators must assume to make potential conflicts clear in advance. It offers them an analytical framework to assess the risks involved.

The world we live in is not ideal. We need to remain vigilant. Let us maximise the desirable effects of international cooperation and minimise the adverse ones. We must stay alert to safeguard the independence of researchers both in the Netherlands and abroad and be on our guard against the unwanted side effects or ulterior motives of scientific collaboration.

Hans Clevers

President of the Royal Netherlands Academy of Arts and Sciences

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1. Prologue

Introduction

The topic of this document, challenges and predicaments of international scientific cooperation, is a sensitive one. Whereas such cooperation has far more obvious advantages than potential disadvantages, too much emphasis on the drawbacks may obscure our view of the advantages. It is, nevertheless, a topic that merits greater attention. For although there is little likelihood that international scientific cooperation will have adverse effects, the potential consequences – if negative – may significantly reduce scientific quality or societal security.

This booklet therefore considers this topic with prudence. Its aim is to encourage individuals and organisations to seriously reflect on their responsibilities and to help them arrive at informed opinions and decisions.

Scientists and scholars must be able to work in freedom so that science retains its critical and analytical value. These days, numerous publications are available on the significance of scientific responsibility, integrity, independence and objectivity as well as responsible research conduct. Policy measures to safeguard and promote these aspects and to encourage the academic community to observe them – both in education and in research – now meet with an ever-stronger and broader consensus.

Having said that, repressive institutional or national regimes may still place restrictions on scientific freedom, violate human rights, or fail to observe international agreements on academic freedom. Again, one must be careful with generalisations of this kind. Specific situations vary greatly, and it can do more harm than good to explicitly and openly identify certain organisations or countries that repress academic independence. A regime may be in transition, for example, and whether it is in fact repressive depends on the perspective of the observer as well as on the time of observation. We must therefore remain cautious in framing the issue.

We have nevertheless produced an analytical framework that may help to map the risk level and to provide reference points for risk assessment. We illustrate this with cases from the recent past. However, there is no one-size-fits-all risk assessment

procedure. Each case requires a custom-made approach. If this booklet helps with this, it will have achieved its objective. The text was drawn up by the Academy’s Standing Committee for the Freedom of Scientific Pursuit and reviewed independently (see Appendix).

Advantages of international scientific cooperation

A number of worldwide developments foster international scientific cooperation, in particular globalisation and the rise of scientific networks that cross borders. It ranges from the digital exchange of data, information and knowledge to the joint establishment of laboratories and research infrastructures. The number one reason for international scientific cooperation is an intrinsic one: to increase the quality of science. This goes for scientific research as well as for academic instruction. But extrinsic aspects of international scientific collaboration are just as important. Global issues, challenges and opportunities in science, society and the economy demand it. The complexity of many of these conditions calls for a multidisciplinary international scientific approach.

In other words, international scientific cooperation does not only improve the quality of research itself but also the quality of its utilisation and effects. It is important, it is needed, and, fortunately, it is increasing. Figure 1 shows increasing collaboration rates in terms of co-authorship of scientific papers in all disciplines in Elsevier’s Scopus Database.

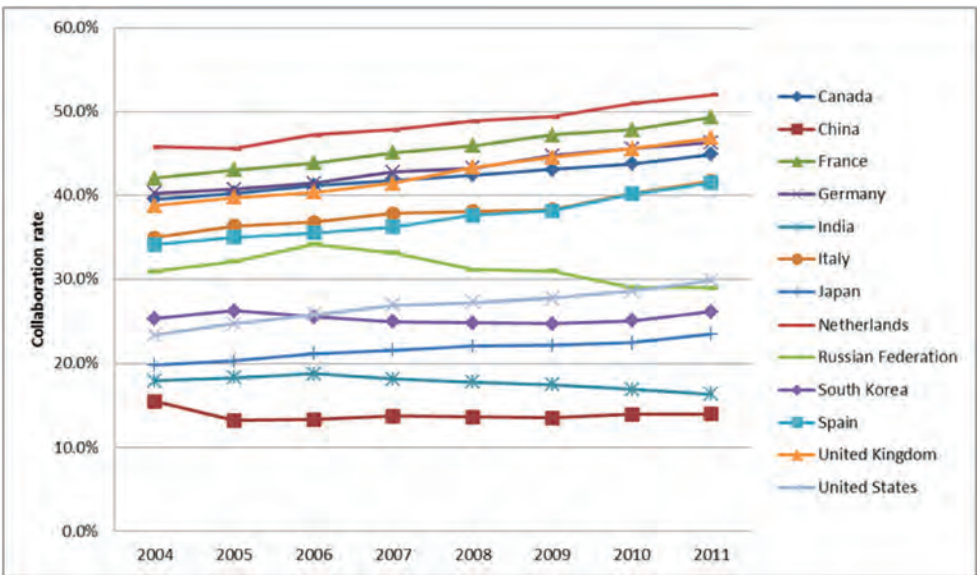


Figure 1. Research collaboration rate (% joint publications) in selected countries from 2004 to 2011

In the period 2004-2011 eleven out of thirteen countries listed showed increasing collaboration rates (two or more authors were based in different countries). Papers with the first author working at an institution in the Netherlands had the highest collaboration rates. Against this background, the Academy feels that it is in a position to take the initiative in addressing the subject of challenges and predicaments of international cooperation. It does so with the above reservations, while at the same time inspired by positive experiences in terms of both scientific quality and societal benefits. Two experiences in transitional justice illustrate this (see Box 1).

Box 1. Two experiences in transitional justice

Shortly after the Mao regime, the Royal Netherlands Academy of Arts and Sciences started scientific cooperation in the area of international justice with the Chinese Academy of Social Sciences. In the beginning, human rights could not be discussed. However, after initially addressing international economic and financial law, the topic of human rights was no longer taboo, and the Dutch were able to pay attention to fundamental principles of humanity, including equality and freedom. This in turn led to explicit Chinese requests to focus on selected rule of law and human rights issues in training courses for Chinese diplomats.

The academies of Indonesia and the Netherlands set up a collaborative project ('Penataran') for education and research in international justice, aimed at academic instructors of various Indonesian universities. It was made absolutely clear, however, that the issue of human rights could not be part of the project. Courses were therefore given on such topics as 'the new international economic order' and 'equal and fair international economic relations'. Yet the participants in these courses often appeared to be very interested in the theme of human rights. This led to many useful discussions, most of which took place outside the official programme of the courses.

Disadvantages of international scientific cooperation

The disadvantages of international scientific cooperation are related to two main risks: impairment of scientific quality and misuse of scientific knowledge. Preventing these hazards as much as possible is the objective of this booklet.

With increasing international cooperation, the likelihood of scientific cooperation with repressive or dubious regimes may also increase. Since only a small number of Dutch universities have adopted a policy for dealing with researchers from countries or institutions with repressive regimes, there may be insufficient awareness of the risks involved. These include:

- facilitating state, corporate and scientific espionage, not only for economic reasons but also for military purposes (researchers are not always aware of the dangers of

espionage and do not always realise how valuable their research is for foreign industries and intelligence services);

- legitimising conditions that are not acceptable, such as implicitly endorsing a repressive regime;
- being susceptible to blackmail and thus running the risk of being compromised or forced to reveal confidential or secret information;
- indirectly cooperating with countries that are subject to an embargo;
- acting as a cover for people who keep fellow citizens under surveillance on behalf of their native country.

One notorious example is the training and research supervision of the nuclear scientist Abdul Qadeer Khan in the Netherlands in the late 1970s. Khan used information that he gained through espionage in the Netherlands to help construct a nuclear weapon in Pakistan and North Korea.

Box 2 provides another, less obvious example.

Box 2. Exchange students with ulterior motives. Or not?

‘As a research director, I was consulted by a colleague concerning two visiting PhD students from a country with a repressive regime. One was from a rather unknown research institute, the other from a large, top-level engineering school. Both students submitted a research proposal and were part of an exchange programme. The first student was trying to model “systems dynamics and negative emotions”. The project aimed to present a model of how “social emotions” emerge and spread. This student was particularly interested in “social emotional stability” and “prediction methods in crises”. However, when the student arrived, it turned out that “social emotions” and “negative emotions” were euphemisms for social and political protests and that his basic research interest was in how to better predict the rise of social movements, political rallies and demonstrations. The other student was interested in social media, which, according to his research proposal, “can be particularly useful in analysing emergency events”. This student’s research focused on “monitoring the formation and development of social networks during specific emergency events”. In his case, it turned out that he was interested in particular in how the social media could be monitored for an early detection of the emergence of social and political criticism of regimes. It soon became clear to my colleague that these students had little interest in embedding their research in a context of democratic values such as privacy, the rule of law, and transparency. Also, there were doubts as to how genuine their scientific agenda was. They did not present any papers and essentially left with the same proposal, this time presented as their final report. During their stay it also became clear that the students were in close touch with representatives of

their embassy. My colleague therefore decided not to invest in supervising these students and to be very reluctant in hosting PhD students from this specific country in the future.'

Anonymous

Complex situations

When there are risks attached to international scientific cooperation, the situation is often complex. In such cases, one cannot expect or demand that the individual researcher alone bears responsibility for assessing the situation and make well-founded decisions. Responsibility lies just as much with the organisation where he or she works and/or with the national government. Administrators must develop and formulate clear rules and guidelines and take relevant decisions. The Dutch Iran Sanctions Regulations, issued in 2007, provide a good example of the difficulties that may arise and the complexities involved (Box 3).

Box 3: Iran Sanctions Regulations

In 2006, the UN Security Council adopted Resolution 1737, which prohibited UN Member States from lending Iran any form of assistance with nuclear weapons development, including the provision of useful information (i.e. a knowledge embargo). This UN resolution was endorsed by the Council of the European Union in a 'common position' (2007/140/CFSP, Article 695). In October 2007, the Dutch government issued an administrative order with a view to implementing the resolution: the Iran Sanctions Regulations.

Shortly afterwards, an Iranian student enrolled at the University of Twente. The university was unable to refuse the student on legal grounds, but with the UN Resolution in mind, it passed on the matter to the government, pointing out that the university would need a legal basis for refusing the student's admission. In June 2008, the Ministers of Foreign Affairs and of Education, Culture and Science produced a more specific means of implementing the UN Resolution. In consultation with the universities – and despite their protests – a number of locations were designated as prohibited areas for people (students, researchers) with an Iranian passport. These locations included the nuclear research reactor in Delft, the nuclear energy reactor at Borssele, and several programmes, for example certain Master's degree courses in physics and chemistry. In 2010 – after protests from the Royal Netherlands Academy of Arts and Sciences, the International Council for Science (ICSU), the International Human Rights Network (IHRN) and other organisations – the Sanctions Regulations were somewhat relaxed.

The Sanctions Regulations had both supporters and opponents. Many security experts and policymakers considered them necessary in order to implement the UN Resolution and to ensure that Iran would not acquire any nuclear

proliferation-sensitive information. Opponents considered them discriminatory and ineffective; the critics came mainly from scientific circles and from the Iranian community.

After a number of court cases, the Dutch Supreme Court ruled in favour of the opponents (December 2012) and declared the Sanctions Regulations to be non-binding. In many cases, the Iranians who were affected by the regulations had come to the Netherlands as political refugees. It was deemed both unjust and ineffective to frustrate those individuals in particular. In the Supreme Court's view, the Dutch government had not done everything possible to prevent discrimination against people of Iranian origin. In May 2013, the Minister of Education, Culture and Science introduced a new set of regulations stipulating that a number of specified research programmes and laboratories – for example in the field of nuclear physics – would basically only be accessible to people who had passed a security check. This removed any focus on specific groups or countries.

The case of the Iran Sanction Regulations illustrates the sensitive nature and complexity of such dilemmas. In fact, they tend to require weighing non-scientific and often conflicting arguments for and against cooperation. In this case, the legislature imposed regulations that required the university to refuse the admission of students. The university then questioned whether the measure was in fact lawful. Also, who bears responsibility in such a case? According to the university it concerned a political issue in which the government should take the lead. Moreover, it is impossible for a university to guarantee that nuclear proliferation-sensitive information will not be misused.

Human rights organisations put forward ethical arguments against the measure that had been imposed: many of the Iranians who were affected had, in fact, come to the Netherlands as political refugees. They argued that this calls for their protection in the first place. Moreover, researchers have a right to engage in free scientific investigation, as laid down in a number of international declarations (UN, ICSU). It may be important for researchers under threat to work at a research institute in another country and to have access to scientific information that is not available in their community. Scientific cooperation can also teach us more about the repressive country and may allow us to communicate with it. Moreover, precisely such critical students and researchers deserve support in their pursuit of freedom and democracy.

The political argument was that the Dutch government had to take a position vis-à-vis the regime in Iran and comply, by means of the Sanction Regulations, with the UN Resolution. There was also a scientific argument: the Netherlands needs outstanding foreign students for high-quality research. The university argued that it would be difficult to attract such students if certain (national) categories of students are refused. Quite apart from all the arguments that were put forward, it is extremely difficult to determine the likelihood that a student or researcher from a particular country will misuse knowledge that he or she has acquired here.

All in all, this case is illustrative of the cumbersome process of having to weigh the pros and cons in every single instance. The academic community clearly needs helpful suggestions for risk assessment.

2. Analytical framework

The prologue ends by underlining the complexity of cases and argues that each case requires careful consideration – however cumbersome this may be. This section puts forward a systematic approach to framing the cases in order to reduce part of the complexity. For this, three separate dimensions are identified:

1. the *scope* of scientific cooperation
2. the nature of the *regime* of the collaborating partner
3. the *impact* of undesired effects.

These three dimensions are each briefly described below.

DIMENSION 1: SCOPE

Scientific cooperation can take place at three levels:

1. Individual

At this level, cooperation takes place between individual scientists and scholars. It also includes exchanges of individual students. It can take place in the Netherlands, in the country where the cooperation partner is located, in yet another country, or remotely via electronic networks.

2. Institutional

At the institutional level, cooperation takes place between organisations. Arrangements concerning student or researcher exchanges are set out in contracts or agreements. Scientific institutions, such as universities and research institutes, can participate in research projects in their own country or abroad.

3. National

At the national level, public authorities or national organisations such as the Royal Netherlands Academy of Arts and Sciences, the Netherlands Organisation for Scientific Research (NWO) and the Netherlands Organisation for Applied Scientific Research (TNO) enter into bilateral or multilateral cooperation agreements that allow for large-scale institutional and individual cooperation. National parties can also participate in international research projects, including joint laboratories. Another type of cooperation at the national level involves scientific cooperation as part of development aid.

DIMENSION 2: REGIME

The term 'regime' refers to 'administration' in the general sense. It therefore covers not only national administrations but also administrators at local level and administrators of scientific organisations. This booklet focuses on three levels of repressive or dubious regimes:

1. Restriction of scientific freedom

This concerns regimes that restrict the freedom of scientific practice or that do not comply with the requirements of scientific integrity, independence and objectivity. Motives are often political and sometimes commercial. In some cases, such curtailment affects the personal safety of researchers and those close to them.

2. Violation of human rights

This concerns regimes that violate human rights. The issue is whether an individual, organisation or country legitimises such violations through cooperation.

3. Military threat and political conflict

This concerns hostile regimes or regimes that represent a political or military threat. Such regimes aim to acquire knowledge and materials through scientific espionage for hostile or evil purposes. They frequently have military and strategic objectives, making them a threat to national and international security.

These three types of repressive regimes may overlap to a certain extent. Those engaged in political conflict may also be guilty of curtailing scientific freedom or violating human rights. However, the distinctions among them remain relevant for analytical purposes.

DIMENSION 3: IMPACT

'Impact' is defined here as the potential harmful effects of misuse of scientific knowledge and discoveries. Three levels of impact are distinguished:

1. Low

The content of the relevant scientific research is largely neutral, harmless, and non-political. In such cases, there is little harm in cooperating with scientists from countries with repressive regimes. We do need to be careful, however, that research is not used as a cover for subversive activities. At this level misuse may even be unintentional.

2. Moderate

Some research topics may be of a sensitive nature, for example research on violations of human rights or on political conflicts. The research may also be interesting for certain parties, for example foreign intelligence services or businesses.

3. High

One special category is research that poses a serious threat to national and/or international security when it falls into the wrong hands. Here we speak of 'dual use research of concern'. Such knowledge can be used for both good and bad ends – for example for military purposes – and is crucial. The most serious impact concerns

research that can be used to construct weapons, in particular weapons of mass destruction.

Risk

The combination of the three dimensions Scope, Regime and Impact and their three levels is indicative of the risk involved. The diagram in Figure 2 provides an illustration of this, leading to, in theory, $3 \times 3 \times 3 = 27$ risk 'cubelets'. In reality, risk of course is anything but a simple matter of identifying a cubelet. In every situation, the overall assessment is subjective and qualitative. Only as an illustration it may help to combine dimensions and levels in the diagram to a cubelet. For example: the cubelet in the lower left hand corner is the least risky: there is cooperation at individual level, there is some restriction of scientific freedom but there is only a low level of potential impact. By contrast, the cubelet in the upper right hand corner in theory carries the most risk: cooperation is at the national level, there is military threat and political conflict, and there is a high level of potential impact. Vigilance is always required, but it is likely to be most necessary in this case. In theory other cubelets can be scaled accordingly, case by case.

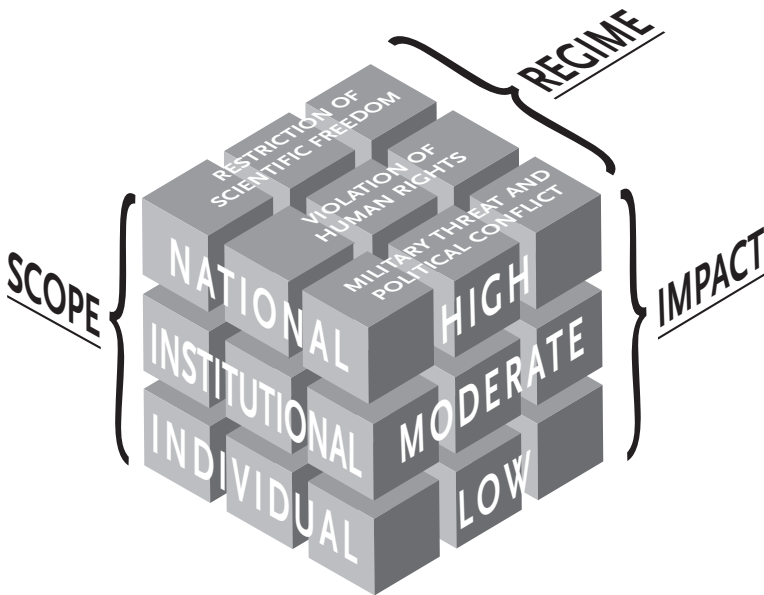


Figure 2. Diagram of Scope, Regime and Impact and their three levels

Some of the aspects that may play a role in this analytical framework are discussed briefly below.

Scope

INDIVIDUAL

Cooperation at this level frequently involves admitting foreign students, PhD candidates and postdocs. It may be difficult to determine who they are, their academic background and preparation, and what connections they may have with their regime. In many cases it is almost impossible to get to know them in advance. Missing or unreliable information (since it can be manipulated) will further render the assessment defective. Caution is advised with respect to students from suspect countries who finance themselves. Cases are known in which such people kept other students from the same country under surveillance. Extra checking will also be required if the individual concerned has an unusual academic record. It is therefore advisable not just to assess the individual's scientific merits, but to build the relationship gradually until there is a sufficient basis for trust. In addition, organisations must ensure that rules and guidelines for external cooperation are in place.

INSTITUTIONAL

At this level, it is necessary to determine who is responsible for cooperation with researchers from or in countries with repressive regimes. Wageningen University and Research Centre (WUR) has addressed this in an additional guideline to the Netherlands Code of Conduct for Scientific Practice:

“Individual practitioners of science and other employees and parts of Wageningen UR who want to become involved with organizations in a country where there is a suspected or verified violation of human rights must always report this choice to the ‘next higher’ organizational level. Individual practitioners of science have an obligation to report to their superiors, students to their supervisors, etc. Every employee of Wageningen UR has the option of refusing to participate in a project in that country or to enter into contact with individuals in that country. This decision must not have any consequences for his or her career at Wageningen UR. By the same token, Wageningen UR can prohibit its employees from entering into contact with such countries or from following up on such contact made previously”.

This guideline is effective because it identifies both levels of responsibility and leaves individual researchers free to make their own decisions. The cooperation partner's trustworthiness and his or her possible links to a dubious regime therefore need to be assessed at both individual and institutional levels. A Dutch university will need to decide to what extent cooperation is in the interest of science, or in the interest of the regime concerned.

NATIONAL

Aside from promoting research, scientific cooperation at the national level may also be intended to foster diplomatic and political relations. A decision *against* cooperation may therefore also be politically and legally motivated, as in the case of the Iran Sanctions Regulations. A decision made at an international or national level to impose a knowledge embargo or something similar has a greater impact than if an institution or individual adopts a position vis-à-vis the cooperation partner's regime. Development aid organisations are sometimes permitted to cooperate with the scientific community in a country that has hitherto been boycotted, as a 'reward' for its steps towards democratisation. That country then gains easier access to international knowledge and expertise.

Democratisation is often mentioned in the same breath as the promotion of education. In addition, many people are convinced that democratisation can be promoted by supporting and developing free, independent, and objective scientific practice. Scientists and scientific organisations – in particular at the national level – can stimulate progress in this regard.

Another crucial factor at the national level is national and international security. Various examples show that when security is at stake, people quickly look to the government to take action or impose measures. In some cases – for example a knowledge embargo – the national government is required to implement binding resolutions adopted by the UN Security Council.

Sometimes, the public may put pressure on governments to impose sanctions, with the national authorities eventually conceding by adopting a set of relevant national regulations. For example, groups of citizens may initiate a boycott that ultimately gains support across the nation. The consequences, then, will be felt at the institutional and individual levels. Three lessons can be learned from this:

1. In the case of an overall boycott announced by the Security Council (as in the case of Iraq and Yugoslavia in the 1990s) or a specific embargo (for example the knowledge embargo on Iran), the national government (and also the European Union) should uphold the boycott or embargo by issuing sanctions and/or regulations that apply to all. This leaves no room for individual assessments.
2. In the case of recommendations or calls for a boycott from the UN General Assembly, for example, or from civil society organisations, it is up to the national government to adopt a position on the matter, preferably in consultation with the knowledge institutions affected.
3. If the government does not do so, then the universities themselves must determine their own position, whether jointly or separately, based on their normative values and political position.

It is therefore important to determine who is responsible for a decision to cooperate. Governments sometimes need to decide between engaging in international cooperation and guaranteeing national and/or international security. In certain cases, scientific progress may be subordinate to security.

Regime

RESTRICTION OF SCIENTIFIC FREEDOM

Scientific freedom is a prerequisite for responsible scientific conduct, which, in turn, is needed for researchers to be able to trust one another and for society to have confidence in science. Greater vigilance is necessary when dealing with countries or institutions that do not apply proper codes of conduct in this area. One simple and effective solution may be to require cooperation partners to endorse (sign) a relevant code. Researchers must be genuinely free to carry out objective, independent research and to publish unwelcome results.

VIOLATION OF HUMAN RIGHTS

There are many cases of individual researchers whose work or even lives have been threatened by regimes that interfere in their research. The International Humans Rights Network (IHRN) is a good example of a number of organisations that assist scholars at risk and arrange places for them at universities in countries that offer far greater scientific freedom. Another example is the cooperation with the Scholars at Risk Network (SAR) represented by the Foundation for Refugee Students (UAF) in the Netherlands. By assisting researchers at risk, fellow researchers can show their solidarity. Some see such assistance as a moral duty.

But there are still other reasons for cooperating with researchers, research organisations, government bodies and universities in countries with regimes that restrict scientific freedom. Scientific cooperation can in fact help the research community in such countries to position itself independently.

One familiar argument against cooperating with representatives of countries with repressive regimes is that it legitimises the regime to some extent. However, many people counter this argument by asking what would happen if researchers in such a country became isolated rather than in touch with the rest of the world. They conclude that isolation is not an option. Moreover, universities are often breeding grounds for opposition, not only to restrictions on scientific freedom but also to the violation of human rights and military abuse of research results.

MILITARY THREAT AND POLITICAL CONFLICT

If the cooperation involves researchers from a country whose regime poses a political or military issue, the main emphasis is put on national and/or international security. If knowledge that can be used for military purposes or to manufacture weapons of mass destruction falls into the wrong hands, it poses an immediate danger. Regimes of this kind will deploy any method or means to bolster their military position. Researchers need to recognise this and should be aware of the political context. They also need to take into account any position adopted by the UN or the EU, as in the case of the Iran

Sanctions Regulations. National or supranational measures, such as a knowledge embargo, can severely limit the extent to which individual scientists or universities can pursue their own objectives. This is illustrated by a case concerning research on the H5N1 influenza virus (Box 4).

Box 4: Publication regarding the mutated H5N1 influenza virus

Recently, the question arose whether research should be published on a mutant version of the H5N1 influenza virus ('bird flu') which is capable of airborne transmission from human to human. The argument against publication was that it would make it relatively easy for terrorists and other persons of ill intent to manufacture this mutant virus for use as a biological weapon. The argument in favour of publication was that the research would contribute to a better understanding of the virus and of how to deal with potential infection, thus reducing the risks associated with an H5N1 outbreak.

The US National Science Advisory Board for Biosecurity (NSABB) originally prevented publication of the results of the research in full. It later withdrew the ban on publication. At the same time, the Dutch government withdrew its original prohibition on the export of information about the virus, so that publication could take place after all. The NSABB now requires that when research involves biosecurity aspects, consent for publication must be requested *in advance*. Other international organisations such as the World Health Organization (WHO) and countries such as the Netherlands are still considering policy measures for future conflicts regarding 'dual use research' in the life sciences.

The conflict between ensuring security and the scientific pursuit of open communication and discussion is not easy to resolve. Each particular case calls for an assessment of whether the benefits of publication outweigh the risks. If the balance dips in favour of the latter, there will be unavoidable restrictions of scientific freedom. At the request of the State Secretary for Education, Culture and Science, the Royal Netherlands Academy of Arts and Sciences published recommendations for dealing with the issue of 'dual use research' in the life sciences in 2014.

www.knaw.nl/en/news/publications/improving-biosecurity

COOPERATION *in* A COUNTRY WITH A REPRESSIVE REGIME

There are various arguments for and against scientific cooperation *in* a country or organisation with a repressive regime.

One argument in favour of such cooperation is that the context of restricted scientific freedom or political conflicts may provide an interesting environment for researchers. It gives them the opportunity to understand the nature of a conflict, repression or corruption.

The counterargument is that such a context may in itself be a constraining factor. A regime may consider certain topics to be so sensitive that it deliberately makes research unfeasible. It may be impossible to get access to important sources or to publish through channels other than the official ones. The undesirable consequence may be censorship or self-censorship.

There is also the question of personal safety. Individual researchers who carry out research in countries with repressive regimes are themselves usually relatively safe. That does not apply, however, to everybody involved in such a study, in particular critical local researchers or respondents. Their involvement in the research may put them at risk. It is important to recognise these dangers at an early stage and take them into account when considering whether or not to cooperate. Espionage is not limited to intelligence officers seeking and acquiring information. There is also a realistic risk that collaborative researchers will be kept under surveillance. What appear to be ‘accidental’ meetings should therefore be treated with suspicion. Depending on the precise nature of the regime and the field in which they work, researchers should bear in mind that computer files are not secure, particularly if they are not properly protected, locked or stored. Cybercrime is a serious threat if digitally stored information is not kept secure. Customs checks may be a cover for copying data. Cybercrime can of course also occur in a researcher’s own country.

COOPERATION IN ONE’S OWN COUNTRY WITH RESEARCHERS FROM COUNTRIES WITH A REPRESSIVE REGIME

There are fewer risks and more benefits involved in receiving students and guest researchers than in visiting dubious countries oneself. Many people believe that by welcoming students and guest researchers, they can provide these visitors with an opportunity to acquaint themselves with a more open system. The cooperation partner is able not only to observe a different approach to science but also to work in a less hierarchical and more democratic academic environment. This has the potential to increase the number of people that understand the value of free, independent and objective scientific practice. Often, however, they may not be able to actually conduct independent scientific research without difficulty.

COOPERATION WITH RESEARCHERS FROM COUNTRIES THAT DO *NOT* HAVE A REPRESSIVE REGIME

International scientific cooperation may also involve risks even if there is no question of a repressive regime. One example might be that a student uses his or her visa as a cover for subversive activities, or that the subject of the research has a high potential impact (For reasons of clarity, this ‘non-repressive regime’ level has not been included in the analytical framework presented here).

Impact

LOW

Undesired consequences that may apply regardless of the particular research topic are blackmailing or other forms of compromising individual researchers and the use of science as a cover for subversive activities. These risks are more relevant when individual researchers are susceptible to blackmail, for example because they engage in amorous relationships, gambling, or drug use. Subversive activities can vary from misusing a student visa to enter a country for purposes other than studying to pretending to have a scientific degree in order to practise a profession illegally.

MODERATE

Research collaboration can have a moderate impact if the research topic concerns a sensitive issue for the research partner's regime, or if it is studied because of its economic value.

Research topics that may be sensitive include:

- research on human rights violations
- research on ethnic background or race
- research on political attitudes or preferences
- research on violent conflicts
- research on racism and discrimination
- research on elections/electoral fraud
- in a more general sense: research in the field of political philosophy, including research on principles and practices of justice.

Certain fields of research are closely monitored by foreign intelligence services because of their economic value. This includes such fields as information and communication technology (ICT), life sciences, materials, chemicals, water and energy.

HIGH

'Dual use research of concern' may be used for military or terrorist purposes, in particular the development of weapons of mass destruction. Examples of high-impact research fields are:

- Optics and optomechanics
- High-tech systems – mechatronics¹ and robotics
- Radar technology
- Aeronautics and space technology
- New materials

1 Mechanical plus electronic technology

- Biotechnology
- Nanotechnology
- Nuclear energy, nuclear weapons, and means of delivery

3. Illustrative cases

A number of recent cases are described below, followed by a brief analysis based on the analytical framework.

Box 5: Wageningen University and Research Centre (WUR) and the animal feed industry

In 2009, the WUR was approached by the Dutch animal feed industry. The idea was to start a plantation in Mozambique to produce animal feed following the example of countries such as China. The industry needed technical expertise that could be provided by the WUR. The chairman of the university's board asked researchers to contribute, but they had strong reservations. They were afraid that peasant farmers in Mozambique would lose their farmland and their independence, and believed that it would only have a marginal impact on the country's agricultural economy.

The researchers then asked an independent expert to give his opinion on the matter. He agreed with them, referring to the university's supplement to the *Netherlands Code of Conduct for Scientific Practice*, which states that researchers are free to refuse to participate in scientific cooperation for their own reasons. The plan was therefore withdrawn. The strength of the university lies precisely in the motivation and intellectual contribution of individual researchers, also – and perhaps especially – when it comes to contentious issues at the interface between science and economic policy.

This case shows the significance and the power and impact of Wageningen University and Research Centre's supplement to the *Netherlands Code of Conduct for Scientific Practice*. Supported by the code, researchers expressed their reservations and underlying arguments. They were aware that peasant farmers could be victimised by the proposed plantation and did not want to contribute to its development. It is not easy to categorise this case within the analytical framework for 'scope-regime-impact'. As the proposed cooperation would be between the university and a company it can be

classified as institutional cooperation. There is, however, no question of international cooperation because, strictly speaking, it would be a partnership between a Dutch company and a Dutch university. Nor is a dubious regime involved, unless one would put up an argument regarding the industrial partner, expressing concerns about the animal feed industry's lack of concern for the Mozambique farmers. The international aspect involves the application of plantation-technical expertise in Mozambique. The researchers ultimately arrived at a decision regarding the risks involved. They considered it likely that peasant farmers would be disadvantaged – a loss of independence – and felt this to be so serious that the risk was considered unacceptable, even though no security issues or sensitive research were involved.

Box 6: Academic boycott of South Africa

From the late 1950s, at the request of the African National Congress (ANC), the international academic community boycotted South African universities in order to put pressure on the country's apartheid regime. In 1965, five hundred British academics published a declaration stating, among other things, that they would not accept a position at any South African university that supported the regime. There was a great deal of discussion at the time about the ethics and effectiveness of the boycotts. In 1980, the United Nations took matters a step further by calling for all ties with South African universities to be severed. Bishop Desmond Tutu supported the academic boycott, but he qualified his support by saying that it should apply specifically to institutions that themselves pursued an apartheid policy; he therefore proposed a selective boycott. Opponents of a selective boycott pointed out that it was extremely difficult to distinguish among institutions in this respect and that 'benign' institutions could also be affected, which would be counterproductive. Also, a boycott would isolate the universities – an unappealing consequence for parties on both sides of the argument.

After the demise of the apartheid regime in 1990, a survey was conducted on the effects of the boycott. According to many respondents, the effects had been, at most, symbolic. Most of the South African academics who were affected felt that the academic boycott was unlawful and discriminatory. Research by the ANC showed, according to its own estimate, that the boycott had played an important role in bringing down the apartheid regime.

The polarisation between supporters and opponents of academic boycotts is striking. Whether such boycotts are effective or in fact achieve precisely the opposite of what is intended is a matter of opinion, and not of fact. This is apt to lead to sharp contradistinctions, which are not a productive basis for reasonable argumentation. It may be better for science to stay out of the conflict altogether: *inter arma silent musae*. But neutrality isolates science, and this is harmful for science as well. One constructive solution in the case of international scientific cooperation – whether attending a conference or

engaging in joint research – is to sign a declaration, clearly stating that the activity concerned is separate from the political situation and therefore does not represent a particular political stance. In terms of the analytical framework for ‘scope-regime-impact’, we are here dealing with the national level, with regimes that violate human rights, and with a low level of impact.

Box 7: Questionable recruitment policy at Saudi universities

King Abdulaziz University (KAU) and King Saud University (KSU) are rising rapidly in the Academic Ranking of World Universities (ARWU). The two universities have risen in this ranking because they offer consultancy contracts to foreign researchers with a high citation score. As a result, they become associated with the university concerned and ‘contribute’ to the university’s output. The financial compensation provided may consist of a credit card, for example. The researchers do not always need to actually be present at the university as long as they report their affiliation in their publications.

Four top Dutch researchers have accepted invitations from these Saudi universities. They see little harm in helping the Saudis reap the benefits of their research and prepare for the post-oil era. Their affiliation also gives the researchers access to indirect funding from the Saudi government, to modern equipment at the universities, and sometimes to interesting topics of research.

Another reason to accept the Saudis’ invitations is that other countries, such as South Korea and Singapore, engage in the same practices. One of the researchers denies that the universities offer these contracts to raise their position in the ARWU – this particular scholar considers rankings to be pointless anyway. Another researcher now has emeritus status. Besides his Saudi affiliation, he also has an appointment at a university in South Korea (which in fact requires him to be present).

In general, these four researchers consider this practice to be normal and acceptable. Universities all over the world, including Europe and the Netherlands, are eager to appoint highly cited researchers, some of whom accept an appointment and some do not. The consensus appears to be that if the appointment contributes to a university’s capacity building, it is an acceptable practice. KAU also approached the president of the Royal Netherlands Academy of Arts and Sciences. He wrote a critical and humorous column in *de Volkskrant*, a prominent Dutch national newspaper, about his fact-finding mission to the university and his decision not to accept the offer.

The controversy regarding universities’ recruitment policies is clearly not as black-and-white as the controversy with respect to academic boycotts. Basically, the issue is addressed in the media but the journalists concerned refrain from expressing opinions or judgements, except for the odd insinuation. Academics clearly make their own decisions

in such cases, many of them deciding not to accept an offer of this kind. Apparently, they do see a certain risk, presumably the risk of boosting the reputation of an institution by virtual means and thus indirectly endangering real reputations – their own, that of other institutions, and of science as such in general. If the university that ‘actually’ employs the researcher has a code of conduct stating that cooperation must be reported, then the university’s management can interfere and attempt to reduce the risk involved. In terms of the analytical framework for ‘scope-regime-impact’, we are here dealing with the institutional level, non-repressive regimes, and a low level of impact.

Box 8: Misuse of student visas

People who are not eligible for a regular visa sometimes attempt to enter the Netherlands on a student visa. Misuse of student visas became an issue at the European University for Professional Education (EUPE), a private institution in The Hague with an exclusively foreign student body. It was closed down by the Ministry of Education, Culture and Science in 2011 because it was not, in fact, a genuine university of applied sciences but a gateway to the Netherlands, in particular for students from India. They took up jobs instead of studying and had to use much of their earnings to pay the ‘tuition fee’. Whether this was known to the students in advance is unclear.

Another recent example involved Chinese students who were hired as workers in Chinese massage parlours in the Amsterdam-Rotterdam area. The parlours were raided as part of an investigation into Chinese criminal organisations in the Netherlands. Half the massage parlours concerned turned out to be illegal brothels. It is not clear whether the girls who had come to the country on a student visa had been forced into prostitution. Between 2005 and 2010, 14,000 student visas were issued to people from China; 148 female ‘students’ ended up in the ‘beauty’ industry.

Misuse of student visas is increasing with the advance of globalisation. At some universities in the Netherlands, more than half the students are from abroad. Research carried out by the Netherlands Education Inspection Authority in 2008 showed that foreign students at eight universities of applied sciences had simply disappeared. They were no longer enrolled at their institution, even though their residence permit stated that they were still studying there.

In recent years various steps have been taken to combat improper use of student visas. One example is the introduction in 2006 of the Dutch code of conduct for higher education. The code sets out the requirements with which students and institutions must comply. An additional means of combating abuse is the certificate for Chinese students issued by the Netherlands Organisation for International Co-operation in Higher Education (Nuffic), which confirms the authenticity of Chinese degrees and diplomas and of a successfully completed English-language test. A Dutch educational institution can only

request a visa for a Chinese student if the Nuffic certificate has been issued. Another measure is the requirement that international students must earn at least half their credits each academic year. If they do not do so, the Immigration and Naturalisation Service (IND) can withdraw their residence permit. Educational institutions are required to report the progress of non-EU students to the IND. This is a somewhat sensitive matter for the institutions because it is at odds with the students' privacy.

This case shows what can go wrong if someone requests a student visa for improper reasons. Illegal or subversive activities under the cover of studying are particularly serious. Yet such situations often involve suspicions but no hard evidence. This case also demonstrates that much can be done to prevent or minimise the likelihood of visa abuse. Organisations should withstand the temptation to generate income through student administration and student counsellors should be alert to any unusual academic record, such as frequent absence or inadequate performance. In terms of the analytical framework for 'scope-regime-impact', we are here dealing with the individual level, any type of regime and a low level of impact.

Box 9: Restricting the spread of HPAIV

The Netherlands and Indonesia are collaborating on an important research programme: the Scientific Programme Indonesia–Netherlands (SPIN). SPIN is based on Memorandums of Understanding signed by the relevant ministers of the two countries and is coordinated by the Royal Netherlands Academy of Arts and Sciences. At any given time since 2002, some six hundred Indonesian and Dutch researchers have been involved in the programme. SPIN runs until 2017 and consists of nine Joint Research Projects (JRPs), selected within three basic areas:

- Food, Non-Food and Water Research
- Social and Economic Development
- Infectious Diseases and Health

One of the JRPs in the third area focuses on the spread of the 'bird flu' virus (Highly Pathogenic Avian Influenza virus, or HPAIV).

HPAIV is common in Indonesian poultry and can be fatal to humans. The virus is difficult to combat by vaccination, and destroying poultry populations is not an option in Indonesia. The study therefore focuses on the detailed mapping of logistic chains and the molecular modes of transmission. This information is modelled mathematically. The study also investigates the stimuli within the poultry contact chain that enforce contacts between the various components of that chain. Based on that information, the researchers will generate a value chain that will be used to estimate the economic effects of improvement measures on the poultry sector in Indonesia. The aim is to investigate what modes of organisation within the Indonesian poultry chain and what forms of government intervention would be most efficient in reducing the chance of infection with HPAIV.

After the Dutch State Secretary for Education, Culture and Science requested the Academy's advice on dealing with 'dual use research' in the life sciences (see Box 4), the Indonesian government started a similar advisory procedure in the light of this JRP. The two advisory teams are collaborating closely.

The aim of the research in the case described here is to limit infection with HPAIV. Does the risk of knowledge being misused to deliberately spread the virus also play a role here? For one thing, we are not dealing with laboratory research on the virus itself but on virus distribution models. The information is therefore not as sensitive as in the case described in Box 4, where the issue was whether publishing the research results would enable malicious parties to deliberately generate a mutation of the influenza virus in order to develop a biological weapon. Nevertheless, we are still dealing with a high-risk research subject here. The research described in Box 4 led stakeholders to think twice about safely publishing the results of 'dual use' research in the life sciences. Extra vigilance is necessary here to prevent the research having undesirable effects. In terms of the analytical framework, we arrive at the national level and a high level of impact.

4. Epilogue

Arguments in favour of or against international scientific cooperation will always, in part, be subjective and contingent on the specific circumstances. Yet the analytical framework presented in this booklet may provide some assistance to governments, institutions and researchers in objectifying and weighing the advantages and disadvantages of such cooperation in the concrete situations they are confronted with. The cases in this booklet illustrate that identifying three distinctive levels in three separate dimensions (scope, regime and impact) may bring some clarity and order to the complex challenge of assessing the risks of international scientific collaboration.

We need sufficient information to make informed decisions, but often it is not readily available. Where this is the case, the analytical framework presented in this booklet may help to identify what kind of information should be sought. When in doubt about the trustworthiness of a cooperation partner, for example, it is better to get to know that partner gradually so that information can be acquired and trust can be built up. Another way of getting acquainted with the prospective foreign partner is to consult the national network of foreign scholars and students, or to ask other researchers about their experiences with organisations, authorities and universities from that particular country. Trustworthiness and integrity can also be promoted by requesting the prospective partner to confirm in writing that they will comply with a code of conduct on responsible science. Examples are the Netherlands Code of Conduct for Scientific Practice, the European Code of Conduct for Research Integrity and the Singapore and Montreal Statements issued at the respective World Conferences on Research Integrity. This will make clear in advance what their commitment is to responsible research conduct and proper scientific practice. Partners in scientific collaboration are advised to adopt a Code of Conduct for Scientific Practice so that institutional and individual responsibilities regarding the assessment of the risks of international scientific cooperation are made explicit.

Appendix

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