



Guidelines and Rules of the Max Planck Society

on a Responsible Approach to Freedom of Research and Research Risks



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- * The following “Max Planck Society Guidelines and Rules on a Responsible Approach to Freedom of Research and Research Risks” were drawn up by the “Security and Defense Research” Working Group, with the support of the Ethics Council of the Max Planck Society, at the request of the Scientific Council of the Max Planck Society and were unanimously approved by both bodies. The Scientific Council of the Max Planck Society acknowledged the rules with approval at its meeting of February 18, 2010 and decided to recommend approval of the rules to the Senate of the Max Planck Society. This updated version has been approved by the Scientific Council of the Max Planck Society at its meeting of February 23, 2017 as well as by the Senate of the Max Planck Society at its meeting of March 17, 2017 thereby renaming the commission in Section II.D.3 as well as amending the election procedures in Section II.D.3 Abs. 2.

CONTENTS

| | |
|--|----------|
| I. Introduction | 6 |
| A. Freedom of research and the responsibility of scientists | 6 |
| B. Research limitations | 7 |
| II. Rules on a responsible approach to freedom of research and research risks at the Max Planck Society | 9 |
| A. General objective and scope | 9 |
| 1. Objective | 9 |
| 2. Scope | 9 |
| 3. Status of the rules with regard to other regulations | 9 |
| B. Legal research limitations | 9 |
| C. Principles of ethically responsible research | 10 |
| 1. General principle | 10 |
| 2. Risk analysis | 10 |
| 3. Risk minimization | 11 |
| 4. Publications | 11 |
| 5. Foregoing irresponsible research as ultima ratio | 12 |
| 6. Documentation and communication of risks | 13 |
| 7. Training and information | 13 |
| D. Organizational responsibilities | 14 |
| 1. Persons responsible | 14 |
| 2. Compliance with legal provisions | 14 |
| 3. Committee for Ethics in security relevant Research | 15 |
| E. Applicability | 16 |

I. Introduction

A. Freedom of research and the responsibility of scientists

Research plays a fundamental role in ensuring the progress of mankind. It enables the extension of the boundaries of knowledge and enhances the welfare, prosperity and security of mankind and the protection of the environment. The freedom of research, which is enshrined in the Basic Law and may only be restricted to protect other significant constitutionally protected values, is a fundamental requirement in this respect.¹ Successful basic research also requires transparency, the free exchange of information and the publication of research results.

However, as well as successes, there are also risks associated with free and transparent research². Such risks do not necessarily result directly from negligence or deliberate misconduct by scientists.³ There is also the indirect danger that results of specific individual research projects - which are neutral or useful per se - may be misused by third parties for harmful purposes.⁴ This possibility of “dual use” prevents or makes it difficult to make a clear

1 Article 5 Paragraph 3 of the Basic Law

2 These risks were particularly prevalent in Germany during the period of National Socialism. The Max Planck Society and its employees are aware of the previous research carried out by the Kaiser Wilhelm Society for National Socialist injustices. The history of the Kaiser Wilhelm Society therefore represents a legacy for the Max Planck Society, ensuring it takes account of the potential misuse of research results in good time, and counters this as effectively as possible. Also see the declaration of the Max Planck Society and its former President, *Hubert Markl*, in: *Max-Planck-Gesellschaft (Hrsg), Biowissenschaften und Menschenversuche an Kaiser-Wilhelm-Instituten – Die Verbindung nach Auschwitz*, Symposium in Berlin, 2001.

3 Titles such as “researcher” and “scientist” are to be understood as job titles which include both sexes in this text.

4 In the field of defense and weapons technology, materials research and nanotechnology could be used for the development of offensive weapons; research into robots for peaceful purposes may enable the construction of military robots; the development of bullet-proof materials for armor plating and protective vests also provide improved protection for aggressors; the peaceful use of nuclear power can also enhance the development of weapons of mass destruction. Research results on pathogenic microorganisms and toxins can also be used for new biological weapons and for terrorist attacks. Research into molecular plant genetics can be misused for biological attacks on seeds, and stem cell research misused to create hybrids. In IT, research to combat computer viruses can be used to spread as well as prevent them. The issue of dual use of research results also applies in the human sciences: psychological, medical and neurobiological research can be used to optimize aggressive methods of interrogation and torture. Criminological and sociological research may infringe upon the privacy and data protection rights of probands. Legal opinions may favor infringement upon human rights or the sovereignty of states in complex overlapping areas. Risks of misuse therefore exist in most areas of research.

differentiation in many fields today between “good” and “bad” research, civil and military research, defensive and offensive research, and research for “peacekeeping” and “terrorist” purposes. The dual use issue must also be taken into account in the knowledge-driven field of basic research, the results of which are often unforeseeable, and therefore not good or bad per se.

In this highly complex relationship between benefits and risks, the Max Planck Society undertakes to carry out research to foster the welfare of mankind and the protection of the environment. Scientists must therefore prevent or minimize direct or indirect harm to man and the environment as far as possible. In addition to the feasibility of the research, they should therefore also take its consequences and controllability into account where possible. Research at the Max Planck Society is therefore subject to ethical as well as legal limitations.

B. Research limitations

Research limitations are, in the first instance, determined by *legal provisions*. These may restrict the freedom of research to protect significant constitutionally protected values, provided this is proportionate. The relevant provisions have different objectives and approaches. They may prohibit research objectives (e.g. the development of nuclear and biological weapons), regulate methods (e.g. certain experiments on humans) or ban the export of knowledge, services and products to certain countries (e.g. within the framework of German foreign trade law or the EU regulation on the control of exports of dual-use items and technology). These regulations must be strictly adhered to at the Max Planck Society. Infringements of them can result in significant sanctions, lengthy procedures and damage to the reputation of scientists, their institutes and the Max Planck Society.

However, national law is not always capable of comprehensively and effectively governing the risks and opportunities for misuse of research. In particular, the potential misuse of specific individual research cannot be prevented by adopting a generally distrustful approach to research per se and making it subject to comprehensive government regulation. Even highly detailed legal regulations would not sufficiently take account of the differentiated and rapidly changing global issues of area-specific risks and, moreover, would conflict with the freedom of research enshrined in the constitution. However, individual scientists must not simply satisfy themselves with adhering to the legal regulations, but must take account of further ethical principles. They should apply their knowledge, experience and capabilities to recognize and assess the relevant risks of harm to humans and the environment. In critical cases, they should make personal decisions on the limitations of their work, for which they are themselves responsible within the scope of their freedom of research. In individual cases, this may

result in projects not being carried out at all or only being carried out in a modified form, even if they are not legally prohibited.

The following rules - approved by the Scientific Council and the Senate of the Max Planck Society - support persons working at the Max Planck Society in the implementation of these principles. They do not constitute enforceable national law. They aim to prevent misuse of research and to avoid risks through self-regulation by setting out ethical guidelines and, at the same time, establish a procedure to enable scientists to better resolve ethical uncertainties and prevent accusations of unethical conduct. The rules, which apply to the entire Max Planck Society, are not exhaustive and are supplemented by additional subject-specific self-regulatory measures.⁵ The Max Planck Society welcomes the involvement of its institutes and employees in the development of additional subject and profession-specific regulations outside of the Max Planck Society on the basis of these guidelines and rules to enable risks to be discussed transparently and avoided. Together with the following rules, these specific codes foster the Max Planck Society's commitment to excellent basic research for the benefit of mankind and the environment.

5 See, for example, for the field of *research on humans*: Declaration of the World Medical Association of Helsinki/Tokyo (1964/75) with various subsequent revisions. For the field of *bio-security*: German Research Foundation – Code of Conduct: work with highly pathogenic microorganisms and toxins, 2008; National Science Advisory Board for Bio Security, Proposed Framework for the Oversight of Dual Use Life Sciences Research: Strategy for Minimizing the Potential Misuse of Research Information, 2007, Strategic Plan for Outreach and Education On Dual Use Research Issues, 2008; Royal Netherlands Academy of Arts and Sciences, A Code of Conduct for Bio Security, Report by the Bio Security Working Group, Amsterdam August 2007.

II. Rules on a responsible approach to freedom of research and research risks at the Max Planck Society

A. General objective and scope

1. Objective

These rules aim to prevent misuse of research and avoid risks through self-regulation based on ethical principles. They also establish a procedure to enable researchers to better resolve ethical uncertainties and prevent accusations of unethical conduct.

2. Scope

The rules apply to everyone working at the Max Planck Society's institutions, or with their resources at other locations. They should also be observed by Max Planck Society researchers in their scientific activities outside of the society, e.g. within the scope of consultation or joint responsibility for companies or journals. The status of the various researchers (in particular, Scientific Members, senior research scientists, external Scientific Members, academic staff, doctoral students and guest scientists) and non-scientific employees is to be taken into account in their application to persons working at the Max Planck Society. The status of these persons may have an influence on their freedom of research and any right of authority the Max Planck Society may exercise over them.

3. Status of the rules with regard to other regulations

These rules apply in addition to the "Rules of Good Scientific Practice" of the Max Planck Society. As general provisions for all areas of research, they may be supplemented by specific self-regulatory measures, which have or will be drawn up by other institutions for specific areas of research. Provided these specific codes conform to the general principles set out here, and do not infringe upon the freedom of research enshrined in the Basic Law, they may supplement and more precisely define these rules. Legal provisions take precedence over these rules and other self-regulatory measures.

B. Legal research limitations

German law applies to Max Planck Society researchers working in Germany. The locally applicable law applies, in principle, for Max Planck Society institutes and partner institutes abroad. Researchers working abroad may also

be subject to their national law. International law must also be observed.⁶ Legal provisions apply provided they do not infringe upon law which takes precedence or is higher ranking (in particular, international human rights).

Scientists are individually responsible for adhering to the applicable legal provisions. They must confirm the provisions applicable to them and their area of research, and ensure they are adhered to within the scope of their responsibilities. They are not generally exonerated by ignorance of the applicable law.

The Administrative Headquarters of the Max Planck Society supports the institutes in adhering to the legal provisions (see D.2 below). It thus performs its statutory supervisory duty, providing a means of intervention in the event of infringements against the law within the Max Planck Society.

C. Principles of ethically responsible research

1. General principle

The Max Planck Society undertakes to carry out research which extends the boundaries of knowledge and enhances the welfare of mankind and the protection of the environment. Scientists must therefore prevent or minimize direct or indirect harm to humans and the environment as far as possible.

Researchers must not satisfy themselves with adhering to legal regulations when making applicable decisions, but must also take account of ethical principles. They must essentially be aware of the danger of misuse of research. In critical cases, they must make a personal decision on the area of responsibility in their research.

In cases of research susceptible to risk of misuse, a responsible approach to research involves the following measures in particular - recognizing and minimizing research risks, a meticulous approach to publications, the documentation of risks, and information and training measures. However, these measures should not unduly hinder research and are subject to feasibility and proportionality.

2. Risk analysis

Awareness of the potential risks is a prerequisite for responsible research. Raising awareness of the relevant dangers is therefore a key requirement in the avoidance, or at least control, of research risks in both basic research and applied research. As far as possible, researchers should therefore take account of the consequences and opportunities for application and misuse of their work and its controllability. Research projects that are potentially

⁶ e.g. protection of human rights, international humanitarian law, the prohibition of torture and use of force, biodiversity convention.

susceptible to risk should therefore be preceded by an evaluation of the associated risks to human dignity, human life and human welfare, the environment and any other significant values protected under the constitution.

The identification of research risks does not only concern risks relating to individual conduct. Researchers should also take account of the consequences of research susceptible to risk of misuse, which they carry out for neutral or useful purposes, but the results of which may be applied for harmful purposes or misused by third parties. Risk analysis and the evaluation of consequences require an open-minded and responsible approach. It may be necessary for researchers to find out about the context of the research project, the nature of a customer or cooperation partner or about their customers.

3. Risk minimization

Researchers and all other persons involved should minimize, as far as possible, the risks associated with the implementation or use of their work to human dignity, life, welfare, freedom and property, and to the protection of the environment. These measures on risk minimization should be assessed and carried out both before and during an ongoing research project.

This may result in the implementation of security measures (e.g. to counter the release or theft of dangerous substances from laboratories) or the enhancement of the confidentiality of research results through physical, organizational and personal protective measures and more rigorous IT security. Such security measures and access restrictions do not conflict with the requirement for transparency as research results are not required to be made accessible to everyone at all times (also see C.4).

Employees and cooperation partners working on research susceptible to misuse must be selected meticulously based on their reliability and sense of responsibility. If government authorities meet security evaluation requirements, cooperation on the risks of proliferation of security-relevant research results may be appropriate.

Risk minimization measures may also consist of only carrying out specific research for or with certain cooperation partners. Even though international cooperation is a fundamental element of successful research, a restriction of international cooperation or avoidance of partners or staff from certain states may be recommendable in individual cases from a risk minimization perspective. National and international provisions and lists on export restrictions may constitute a basis for identifying states where a misuse of certain research results is a danger.

4. Publications

The possible consequences of publication of results in high-risk research areas should be evaluated responsibly and at an early stage, i.e. before the

start of the project. This applies, in particular, where easily implementable research results could produce specific dangers or significant damages without additional knowledge or costly implementation or application processes.

In such cases, security interests conflict with the principles applied at the Max Planck Society on transparency, the free exchange of information and, in particular, the publication of research results.⁷ Their exchange and publication are key factors in scientific progress. In many risk areas, the publication of results also enables the development of protective measures (e.g. vaccines in healthcare or anti-virus programs in IT). In contrast, suppression of research results may prevent effective protection against their misuse by totalitarian regimes, terrorist groups, organized criminal groups or individual criminals.

The requirements for transparency and communication do not prevent scientists from minimizing specific risks of their research by modifying communication and publication procedures. They may delay the publication of the results of their work, rather than publishing immediately. In the case of research results with a high degree of potential for misuse, parts of the results which are particularly susceptible to misuse may be excluded from the publication in special cases.

In certain cases, researchers may only share specific results of their work with certain persons. Complete avoidance of communication and publication of research results may be considered as ultima ratio. This is only justified in extraordinary individual cases, and possibly for a certain period. Research which from the outset is subject to comprehensive confidentiality for an unforeseeable period of time is incongruous with the self-conception of the Max Planck Society.

The aforementioned principles also apply when employees of the Max Planck Society publish journals or books. Employees in such positions working in relevant risk areas should ensure that the publication of research results and the policy of the publishing houses and other institutions they are working with conform to the principles set out here.

5. Foregoing irresponsible research as ultima ratio

The main aim of the risk analysis is responsible implementation and communication of the research. However, responsible decision-making by researchers may, in individual cases, result as ultima ratio in specific research projects, where risk potential is disproportionate or cannot be restricted, not being carried out, even if this is not prohibited by law.

In the case of work which could have harmful as well as beneficial effects, in particular in the field of dual use research, it is difficult to determine and

⁷ See Max Planck Society, Rules of Good Scientific Practice, 2009, Section 1c.

apply criteria for possible limitations. The necessary ethical evaluation of the remaining risks after the definition of possible protective measures may be assisted by considering the question of whether, on balance, the potential damages outweigh the potential benefits of the research.

The extent of possible damages and the risk of damage occurrence should be taken into account when examining this question. In cases where there is threat of dangers, the following factors should be taken into account: the extent of possible damages, the probability of damage risk, whether the research results could be used directly for harmful purposes, or whether complex implementation processes are required, and whether the use of the results could be controlled. Other decisive factors may be who the cooperation partners, customers, users and parties funding the research are. The point of departure should be that if certain research projects at risk of misuse are being carried out by other parties without corresponding security standards or for harmful purposes, research aiming to counter such dangers or minimize resulting damages may be acceptable.

6. Documentation and communication of risks

If research results in risks for human dignity, life and welfare, the environment and other significant values protected under the constitution, these risks, their weighing up against possible benefits, the measures taken to minimize them beforehand and, in the event of changes, also during the work should be documented.

In the case of such risks, scientists should inform the Committee for Ethics in security relevant Research or the Vice President responsible about the documentation before the research begins.

Relevant risks and measures to minimize them should be indicated in research applications to the Max Planck Society and other funding institutions. The measures foreseen should be set out. The Scientific Advisory Board of the institute should also be informed about particular risks and measures to minimize them as soon as possible, and should take a position on them in its report.

7. Training and information

At institute level, and, above all, in the training of junior scientists at the Max Planck Society, the principles of a responsible approach to research risks should be communicated and an example should be set. The subject-specific rules on risk minimization in the respective field of research should also be covered. Where researchers from the Max Planck Society lecture at universities or other institutions, they should also contribute to raising awareness about these issues.

D. Organizational responsibilities

1. Persons responsible

The evaluation of whether research complies with legal provisions, self-regulatory measures and ethical principles is, in the first instance, the responsibility of the scientists responsible for the project. Ultimately, the scientists' superiors bear responsibility, in particular within the scope of the legal requirement for duty of supervision.

The scientists involved should primarily inform the scientists responsible, but if necessary in specific cases also the head of the research department, the Managing Director of the institute concerned, and, in extraordinary cases, the management of the Max Planck Society, of infringements of the law, which have occurred or are set to occur and of ethical reservations without this disadvantaging them.

The principles set out here also apply when scientists from the Max Planck Society act as referees in the evaluation of projects of other researchers. Employees in such positions should ensure that research applications set out and minimize possible risks in risk areas.

Scientific Members, employees and doctoral students of the Max Planck Society can consult the Compliance Unit and the Legal Affairs Department of Administrative Headquarters on matters concerning the *legal* limitations of research and the Committee for Ethics in security relevant Research of the Max Planck Society on matters concerning *ethical* limitations. Employees can also consult the ombudsperson elected at institute level with regard to issues of research risks and research ethics.

2. Compliance with legal provisions

At Administrative Headquarters, in addition to the Legal Affairs Department, a special Compliance Unit is responsible for supporting the President and the institutes with regard to compliance with legal provisions on research limitations.

This unit advises the President and the institutes, makes the applicable regulations available and trains persons working at the institutes in applicable measures. It may obtain information from the institutes to the extent necessary. The Compliance Unit reports directly to the President and the Vice President concerned.

Persons working at the Max Planck Society may contact the Compliance Unit at any time if, in their opinion, legal provisions to prevent the misuse of research are not being complied with at the Max Planck Society. The regulations on the protection of "whistleblowers"⁸ apply accordingly.

8 See Max Planck Society, Rules of Good Scientific Practice, 2009, Section 9.

If research infringes upon *legally binding provisions*, the President or the institute director responsible undertakes the legal and other measures necessary.

3. Committee for Ethics in security relevant Research

A Committee for Ethics in security relevant Research (KEF [German acronym]) is to be established to provide advice on issues resulting from the implementation of these rules. This provides support for researchers at the Max Planck Society on issues of research ethics, mediates in differences of opinion between researchers on relevant matters and issues recommendations on the implementation of research projects.

The Committee for Ethics in security relevant Research consists of three permanent Members of the Max Planck Society (Permanent Commission), who belong to different sections and are elected, together with their deputies, by the Scientific Council at the proposal of their section. The three members elect the chairperson of the Permanent Commission. Their term of office is three years. If individual members or their deputies are not replaced by new members or their deputies by means of new elections at the end of their period of office, such period of office of members or their deputies will continue until new elections are held.

In the individual procedures on the evaluation of research projects, the chairperson of the section concerned is also part of the Committee for Ethics in security relevant Research. In addition, the members of the Permanent Commission and the chairperson of the section responsible can elect up to two other Members, who are eligible to vote and have particular expertise in the scientific field concerned or other fields relevant to decision-making, to the Committee responsible for a specific procedure. The Committee should have an interdisciplinary composition in terms of Members from the sciences and human sciences. It may designate a rapporteur for the individual processes.

The Committee for Ethics in security relevant Research may be requested to examine whether a planned or current project complies with these rules by any researcher involved in or responsible for a project. In the event of uncertainty about whether research complies with these ethical rules, it may also be called upon by the President and, provided a justified interest exists, by any Scientific Member, employee or doctoral student of the Max Planck Society as well as external cooperation partners. The aforementioned regulations on the protection of whistleblowers apply to persons providing information (Section. 9, Max Planck Society Rules of Good Scientific Practice).

All researchers responsible are to be informed immediately about uncertainties concerning the compliance of their research with these rules, and are to be heard by the Committee for Ethics in security relevant Research.

They have the right to submit a written or oral position statement at any time, and to consult the relevant documents as far as possible. They are to be informed about the Committee's main procedural steps and may participate in hearings and inquiries. They are to be informed immediately of the Committee for Ethics in security relevant Research's conclusive recommendation and the grounds on which it is based through the sending of the Committee's written position statement.

The Committee for Ethics in security relevant Research may call upon experts (not eligible to vote) for consultation. It may request information for clarification of the facts from the institute director or employees and question relevant holders of information in person or in writing. It may also request a position statement from the chairperson of the Scientific Advisory Board of the institute concerned.

A recommendation of the Committee for Ethics in security relevant Research on the compliance or non-compliance of research with these rules requires the approval of a majority of its members. In the event of a tie, the chairperson has the casting vote in all votes. The same applies when the Committee for Ethics in security relevant Research is issuing recommendations on the method of implementation of a research project or its non-implementation based on these rules. The Committee for Ethics in security relevant Research can take the aforementioned decisions based on a proposal by the rapporteur by the written procedure (also by e-mail) provided those concerned had the opportunity to make a position statement prior to the rapporteur's proposal.

The Committee for Ethics in security relevant Research regularly reports to the Scientific Council on its work.

The Committee for Ethics in security relevant Research may, within the framework of these provisions and with the approval of the Scientific Council and the Senate, draw up its own rules of procedure for examining the approach to research risks. Provided no extraordinary regulations apply to the Committee for Ethics in security relevant Research, the provisions on formal investigation of the rules of procedure in the event of suspicion of scientific malpractice apply in procedures concerning legal research limitations.

E. Applicability

These rules will enter into force one month after their approval by the Senate.

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