National Council for Scientific Research

Charter of ethics and guiding principles of scientific research in Lebanon

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This document was prepared by the Lebanese National Council for Scientific Research (CNRS) in collaboration with the scientific and academic institutions involved in research in Lebanon. These Institutions committed themselves to adopt this Charter, to use it as a guide for development of detailed policies aiming to protect the transparency and the credibility of scholars and researchers, and to promote scientific research and creativity for social development.

The text of this Charter is based on and inspired by several references and declarations adopted by research centers and academic institutions with international reputation. A special effort was made by the authors to adjust its content to the prevalent academic and research conditions in Lebanon.

CNRS conducted this project with a partial support received from UNESCO (Partnership program 2014/2015) through the "UNESCO National Committee" and with consultation with the "National Advisory Committee on Ethics in Biology and Health". Several experts from the Lebanese University, the American University of Beirut, the Saint Joseph University, the Lebanese American University, the Lebanese International University, the Holy Spirit University of Kaslik, the Balamand University, the Islamic University in Lebanon, Notre Dame University-Louaize and the Institute for Scientific Research in Agriculture, have contributed to discussions of the present document in public sessions.

The document in Arabic language is to be considered as the exclusive reference in all queries about the content of this Charter.

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PREAMBLE

Scientific research, in experimental and theoretical fields, is becoming a principal lever for the economic development in modern countries, with the prime objectives of increasing human knowledge and finding solutions to socio-economic challenges to improve conditions of life for future generations.

However, the negative outcomes of scientific discovery and its negative social and environmental impacts have become, in some cases, equivalent to or greater than its beneficial (positive) aspects. In addition, the race for discoveries and the applications of advanced technology can constitute in several instances a potential threat to general health, the environment and natural resources. Social awareness and concerns about these potential harms are expressed, unfortunately, at a time when a real social and economic crisis is developing due to incidences of misconduct and lack of compliance with the principles of ethics by researchers, institutions and investors.

Scientific research is currently practiced in several research centers and academic institutions in Lebanon. A growing number of workers (academicians, researchers, students, technicians and trainees…) are attracted to various fields of research, and despite limited resources, their scientific productivity is acknowledged at regional and international levels.

In light of these developments and in line with international principles and legislations governing the process of research and discovery, it behooves the Lebanese institutions to adopt a national "Charter" setting the guidelines to be followed by researchers to avoid all aspects of irresponsible practice in scientific research. Reputable and prestigious international research and academic institutions have already established rules and regulations governing the good practice in research and adopted transparent principles to control its development and predict any potential harm related to the projected results. These ethical principles and regulations are becoming an integral part of the research process starting with ideas or hypotheses and up to execution and implementation of the expected results.

The aim of this "Charter" is to define the basic principles of ethics and regulations that should be adopted and strictly followed by researchers and institutions for a responsible conduct of research in the different disciplines of science.

This document provides a general framework and a set of guidelines to researchers and institutions involved in research to guarantee their respect of the principles of scientific integrity and their adoption of the basic principles of scientific method and professional research conduct. It requires that all institutions elaborate and adopt detailed policies that govern and regulate all issues related to scientific research performed on their premises and in all disciplines of knowledge. It requires also a continuous exchange of information about the progress of efforts to develop national potential in science and in the integrity and distinction of research practice in Lebanon.

ARTICLE 1. RESPONSIBLE CONDUCT OF SCIENTIFIC RESEARCH

Responsible conduct of research relies upon four sets of basic principles of ethics and general regulations and traditions defined in several international declarations.

1.1. Respect of national rules and regulations

1.1.1. The researcher should commit him/herself to know and implement the governmental and institutional laws and policies governing research activities and stay updated on their development or amendments, especially those governing and regulating various aspects of the activity in the field of scientific research.

1.1.2. Research projects should comply with policies and protocols defined by international declarations for research performed on humans, animals, plants or when research can affect the environment (*Helsinki declarations on medical research, Rio de Jeneiro declaration on research on environment and Dublin declaration for water resources).*

1.1.3. The researcher should take all appropriate measures for protection against any potential negative outcome of his/her research. She/he should abstain from participating in projects that constitute potential harm to humanity, the environment and biodiversity and/or targets modern media and communication. She/he should also abide the principles and standards defined by national and international institutions and agencies.

1.1.4. The researcher commits to preserving the national identity of the cultural and material heritage and to protect them against any partial or total destruction. He/she will also devote efforts to preserve and improve natural resources and in particular those related to social and national security.

1.2. Adhesion to ethical principles and regulations

1.2.1. Researcher should preserve his/her scientific credibility through the execution of his/her research with full respect of established standards of competency, objectivity, liberal thinking, self-criticism, integrity, honesty and self-discipline.

1.2.2. Researcher should report and discuss the results of his/her research with transparency (strengths and weaknesses) and provide accurate description of the methods used and the results obtained.

1.2.3. Researcher should avoid all aspects of plagiarism and misuse of the results of others and recognize openly the achievements of other researchers in his/her field.

1.2.4. He/she should not over evaluate results.

1.2.5. Researcher should avoid subjective evaluation and intrusion in the privacy of the studied individuals or groups.

1.2.6. When evaluating proposals of others, researcher should observe precision and objectivity and respect the opinions and ideas of colleagues and other contributors to research.

1.2.7. The researcher should conduct his/her activities, according to the highest standards and objectivity, without being influenced by any expected material or moral reward.

1.2.8. He/she should show care and concern in the use of needed materiel for his research and avoid abuse and unjustified of resources.

1.3. Adhesion to international principles and declarations

1.3.1. Respect and strict adherence to the "International Declaration of Human Rights" are required from researcher and especially when it is related to discrimination based on ethnicity, race, religious, gender or age or on any other factor not related to competence and scientific integrity of workers in a scientific program.

1.3.2. In all forms of publications, researchers should disclose clearly all institutions and agencies that provided financial or logistic support for the execution of the project and to honor the protocol and conditions of collaboration.

1.3.3. Researcher should abstain from using the results of his/her research to promote or support any kind of political, racial or religious affiliation. He/she should not be influenced by factors related to his opinion, subjective feelings or personal interest.

1.4. Principles of impartiality, objectivity and professional confidentiality.

1.4.1. Researcher should comply with the principle of neutrality and impartiality, in the presentation of the results of his/her research or in the assessment of the results of others.

1.4.2. Principal investigator in charge of directing a team of assistants and students should be highly qualified to ensure the following:

- Provide clear instructions and directives for the execution of the project,
- Adopt equity and fairness in the distribution of roles and functions within the team based on the qualifications and skills of each member,
- Check carefully the conditions of security and protection of his/her staff.
- Abstain from exerting any form of harassment; intellectual or moral pressure on members of his/her team
- Recognize explicitly the role of each contributor to the research

1.4.3. During the process of peer evaluation, he/she should declare, in all transparency, any possible conflict of interest. He/she should also unravel any positive or negative relationship between him/her and the research group or individuals under evaluation, which might influence his/her opinion and lead to bias in his/her evaluation. In this case he/she should promptly withdraw from the process and declare the reason for that.

1.4.4. Researcher refereeing a work or a study, should keep secret all information and results under review. He/she should also abstain from using the presented data in his/her own work, until the publication of the refereed work. Any breach of the principles of confidentiality can be considered as unethical behavior and will expose the referee to legal pursuit.

1.4.5. In the case of providing expert opinion or consultancy for fee, the researcher should disclose the nature of the relationship to his/her employer, and comply with the rules governing the type of offered services and their fees.

The following three boxes contain further explanation/information related to ethical principles governing scientific research performed on humans or in the fields of humanities and social science. Emphasis is placed on these fields due to their specific requirement for scientific integrity and the importance of their implications on human health and social wellbeing.

Box 1. Ethics principles in medicine and human genetics research.

Research targeting directly human subjects, constitutes a priority and a major topic of the present "charter". It constitutes, also, a pole of attraction of the efforts of researchers in different fields of science, including life and other basic sciences (chemistry, physics, statistics and mathematics, etc…), engineering and the diverse applications of modern technology (drugs, medications and other related products, foods and nutrients, medical instruments, etc…). The fact, however, that most of the research in these fields does not target directly the human subject, does not obviate the practical observation that the end results and the primary and secondary effects of this research are becoming a major factor in the maintenance of balance and stability in the field of public health and persistence of life.

In addition to international declarations setting the general guidelines for scientific research in this field, each institution should elaborate detailed policies, defining ethical and legal conditions governing medical and scientific research. Each research project should be submitted to the institutional ethical committee in charge of issuing authorization for research on human subjects or material, for prior approval before research initiation on the premises and by the personnel working in the institution.

Research in the field of medicine can take one of two major orientations: research investigating the cellular and molecular basis of health and diseases, or clinical investigations of the different modes of treatments (chemical, physical, surgical…) of a disease. These investigations can target directly the human body or any extracted component (such as fluids, biopsies, cells and tissues, reproductive cells, stem cells and any genetic material…) that are isolated or sampled for immediate use for treatment purposes and /or research or for storage and later use in research or any other purpose.

In view of its critical and important medical and social implications, research on human genetic material, stem cells and other tissues, extracted from identified or undetermined sources, should be subject to careful legal and ethical scrutiny before the attribution of approval regardless of knowledge or ignorance of their origin. (Lebanese law #574, dated 13/02/2004 regarding patient rights and # 625, dated 20/11/2004, regarding investigation on human genetic material). Extreme measures to minimize risk exposure and maximize benefits should be taken when research is to be performed on human subjects.

Regardless of the studies' aims and objectives, researcher should pay respect to human dignity and consider good health and wellbeing of human subject of research as prime objective of the study and beyond any expected material benefit or reward. Human freedom and confidentiality and protection of private life conditions and independence of participants should be strictly respected. Special precautions and care should be taken when studies are performed on vulnerable groups (children, people with mental disability, prisoners, handicapped persons…).

No coerced, compulsory or involuntary participation of subjects in research projects is allowed. Participants are clearly informed about that their participation in the research is voluntary and that they have the right to withdraw at any stage during the execution of the study. All precaution measures should be taken to protect against any potential harm to participants. For this purpose, potential participants receive prior information, and in simplified and clear way and language, about the context /explanation of the research, aim, nature, methods and procedures of the study, expected benefits and risks to the participant, alternative treatments, extent to which confidentiality of records will be maintained, compensation or medical treatment if injury occurs in addition to unrevealing the identity of the potential sponsor. A detailed informative document defined as "Informed Consent", that includes the above mentioned information, is made available along with a declared informed

consent form to be signed by each participant and physician responsible for the research study. The research team in charge is clearly identified and made available (reachable or on call) throughout the period of execution and after completion of the study.

Box 2. Research ethics in human sciences.

This involves studies in the fields of social sciences, human sciences, education, history, psychology and other research on topics related to human behavior. Such studies entail the use of varying combinations of quantitative and qualitative methods or of one of them.

The hosting institutions and/or the funding agencies of this research should exert careful assessment of the content, methodologies, objectives and potential benefits and risks of the studies. The researchers are requested to comply with the principles of ethics in this field of research, such as:

- *Prior approval of the protocol and procedures by the Institutional Review Board.*
- *Prior approval by the individuals and groups concerned with research involved in the study*
- *Strict observation of the requirements of confidentiality and the respect of the traditions and special values*
- *Observation of principles of ethics and wisdom in the publication of the results and conclusions of these studies. Careful assessment of results and conclusions and approval, by the institutional ethical committee or Institutional Review Board, constitute a mandatory requirement before publication.*

Box 3. Research ethics in special fields of human studies.

This consists of studies involving one or several social, religious or ethnic groups. In view of the fact that each of these groups may have its own culture and particular beliefs and values, it becomes difficult to subject such groups to same criteria used for the study of other social groups and to the same objective criteria and methods of experimental research. Such studies will entail, therefore, additional responsibilities to institutions and researchers undertaking the work on the special and general features characterizing these groups without reaching conclusions bringing harm to it or challenging their special values. Researchers are expected to observe extreme wisdom and vigilance in the analysis and reporting on the particularities of these groups.

ARTICLE 2. BREACHES OF THE CODE OF ETHICS AND MISCONDUCT IN RESEARCH

Incorrect practices in research constitute major (serious) harm to the credibility of researchers and their institutions, which casts doubt on the value of social investment in scientific research.

The following are examples of misconduct in research:

- Fabrication of records and results to be published as authentic facts.
- Falsification and distortion of research protocols and manipulation of results and over evaluating some other results.
- Plagiarism, which consists of stealing ideas, results and sentences of others without acknowledging their contribution.
- Delivering wrong reporting about potential benefit and conflict of interest.
- Breach of principles and rules administering intellectual property and rights of authorship in scientific publication.

- Unintentional errors due to negligence and loose sense of responsibility are not considered misconduct in research and might not require immediate remedial measures. However, repetition of such errors, may lead to improper execution of research and lack of trust in its outcome.
- Inappropriate rectification of errors such as tolerating or hiding an irresponsible behavior or misconduct and ultimately penalizing the person who reported the error.

ARTICLE 3. PROPER EXECUTION OF RESEARCH AND PRINCIPLES OF COLLABORATION

3.1. Modern trends in research and development are in favor of supporting collaborative research involving research teams with complimentary specialties. This trend is adopted, also, by national and international agencies supporting multidisciplinary programs in research.

3.2. The researcher shall preserve his/her freedom of thinking and expression and the decision of carrying independent research. Thus, it is up to researcher, when performing an individual research project, to decide on the selection of his research topic, the working hypothesis and the adequate methods for performing his work. Research options should be based on a well-balanced estimate of the expected positive outcome and the potential risks or negative impact on the workers in the projects and the environment and clarify the research limits and conclusions.

3.3. In choosing the optimal methods for the execution of his/her project, researcher should provide a detailed record of the experimental protocol and procedures used and make it available for any potential check or control. His conclusions should be based on a critical and objective analysis of the achieved results of the study.

3.4. Enrollment in a collaborative research project should be based on the principle of voluntary contribution. A clear agreement defining the roles, rights, authorship and intellectual property should be set before starting the project between the contributors. Clear information should be given to each contributor about his right to withdraw at any step of the execution of the project. Contributors should be, also, informed about the expected results from each set of experiments and about the adopted policy on intellectual property, publication, supervision of thesis work and the identity of funding agency(ies). The funding agency and the hosting institution (s) have the right, however, to assess the terms of partnership, the contributors and their ability to execute the study and the available resources before giving the permission to start the joint project

3.5. Individual and groups working in private or public research institutions in Lebanon are banned from engaging in joint projects with agencies or groups belonging to countries boycotted by the Lebanese law. He/she complies in this regard with instructions of the Lebanese concerned authorities.

ARTICLE 4. HANDLING AND PUBLISHING RESEARCH RESULTS

4.1. Clear record of the results of each project should be kept (in the form of soft or hard copy or in both forms) in a safe and proper way that warrants its accuracy and integrity in a way providing the possibility of revision or replication, when needed. For this purpose each laboratory should have a daily book-record for each researcher working on a specific project. This daily record, that cannot be tempered or falsified, provides the possibility of monitoring the progression of work till the final steps and can serve as basic reference in case of conflict between partners or for verification of results in case

of a complaint or a doubt about the reported results. Each researcher should keep this record available in the hosting institution (including raw data as soft or hard copies or both), for a minimum period of five years after the completion of a project and publication of the results. All results and data of the research are the property of the host institution of the project. Special authorization to access and use of stored data can be attributed to the principal investigator, according to the regulations adopted by the institution.

4.2. Publication of research results is a top priority for the researcher and for several reasons, including the assurance of intellectual property and the confirmation of his/her contribution to the advancement of knowledge in his/her field of specialty. It is highly recommended to comply with the following directive:

- Same original results should not be published in more than one refereed journal.
- Researcher should abstain from artificial splitting of the same results to be published in more than one article.
- Publication of original results can be delayed when there is a possibility of use for patent or other scientific, industrial or strategic implications.

4.3. Researcher should have deep knowledge of contributions (articles and other documents) related to his/her field of study. She/he should, therefore, cite relevant references used in developing any new project. She/he should, also, provide clear and detailed description of the methods and techniques used in the project and discuss objectively the results avoiding any bias or distortion of facts in support of a preconceived hypothesis or a desired result. Use of previously published material or data should, when needed, follow the general rules of seeking prior authorization given by authors and publishers.

4.4. Researcher should be careful when making announcements about "completed work" or "in preparation" before reaching the final stage of completion of each of these citations; furthermore, s/he should avoid any unjustified claim of a work "under press" before submitting this work and receiving clear and final decision of acceptance.

Box 4: Bibliometry of scientific articles and journal ranking.

Researcher is free to choose between the different available media (printed periodicals or open electronic journals, etc...) for publication of the results of his study. It is highly recommended, however, to use refereed periodicals with established reputation in the field of work. It is important to note here that some bibliometric criteria used for journal ranking (such as "impact factor" and "citation index") should not be considered enough and cannot be used as absolute criteria in the process of evaluation of researchers or academic promotion, without including other numerical and descriptive indicators of professionalism and scholarship.

4.5. When giving a public intervention or contribution to a scientific meeting, researcher should make distinction between personal opinions and effective results obtained by his research group or his institution.

ARTICLE 5. AUTHORSHIP AND INTELLECTUAL PROPERTY

5.1. Listing as author in a scientific article, should be based on clear proof of significant contribution to the planning, execution, analysis and interpretation of results and writing

the manuscript. These conditions make the person eligible to explain, present and defend the scientific work or at least a major part of it.

5.2. Listing the name of a person among authors should be based on his/her prior acceptance and this constitutes an implicit approval of published results and enough proof for benefiting from the outcome of this research, despite the relative importance of his/her contribution to the work.

5.3. Nomination of principal investigator and definition of the relative roles of all contributors in a project should be based on a prior agreement and a clear mechanism approved by the hosting institution. The nomination of the principal investigator and the definition of roles and relative contributions can serve as basic reference to avoid any conflict during execution of the project and publication of results and also its use for academic promotion or potential application.

5.4. Unjustified addition of a name to the list of authors of a person, whatever his/her position or the reason, should not be accepted by the principal investigator or tolerated by the hosting institution. Contributions of individuals who do not fulfil the conditions required for authorship (see 5.1), but who provided significant support to the project (technical assistance, generous gift of material or financial support, ideas for discussion of results or editorial changes in the manuscript, etc.), will be recognized (citing their names and type of assistance) under "acknowledgement" at the end of each scientific article. This applies also to institutions and funding agencies that provide financial and logistic assistance.

ARTICLE 6. EXPLOITATION OF RESEARCH OUTPUTS AND OWNERSHIP

6.1. Investments in research results and their applications, in the field of development and exchange of human knowledge and creativity, are the ultimate targets of researchers and institutions supporting scientific research. For this purpose, serious efforts should be oriented toward finding the optimal regulations governing the principles of partnership and mutual interests between researchers, academic institutions, research centers, funding and development agencies investing in the industrial and agricultural applications of research outcome and its transformation to new methods and products. Universities and research centers have a major responsibility in providing logistic and legal resources and support, aiming to secure mutual interests and the ownership rights of researchers.

6.2. All workers in a research project, including students, should commit to honor the principle of discretion and secrecy of information exchanged or produced within the project. A written agreement on confidentiality of research in a given project may be prepared, for this purpose, and any form of disclosure of the project's results (article, oral or written communication…) should obtain prior approval from the principal researcher.

6.3. Results of a research project and ownership of intellectual property and potential return of its commercial applications, are to be considered as common property of all members based on their relative individual contribution defined by the signed initial agreement. Individual members of the working team have the right for public acknowledgment of their contribution.

6.4. Each contributor is entitled to preserve his/her ownership rights, acquired before or outside, the signed agreement for a specific collaborative research project. Partners in a research project, have to comply, however, with the approved national and international general principles and regulations defining the intellectual property and the rights of the concerned individuals and institutions.

6.5. An agreement should be adopted on the relative share of each partner in the fees of the procedures for registering a patent and the protection of investment on the applications of the discovery. Moreover, the text of patent should contain clear citation of the names of all partners (individual or moral) who have the exclusive right to invest this patent. In case of absence of a prior agreement on partnership in the project, however, the ownership of the discovery is to be distributed to all the members of the team, based on their relative contribution to the research.

6.6. Protection of technical skills of the type of "know how type" or "how to do type", that are not patentable but of an important value for conduction of research, should rely on the confidentiality and the non-disclosure agreement between the members of the research team. For this purpose, information and details on technical and "executional" skills are to be preserved in a special record that can be exclusively used by the members who contributed to the realization of these skills. Copies of this record are conditioned by prior authorization from the director of the laboratory or research unit, or the principal investigator.

ARTICLE 7. RESPONSIBILITIES OF INSTITUTIONS

7.1. Academic and research institutions are required to develop their own detailed policies on the basic principles and regulations of research activities in the various fields of science, humanities and sociology. Achieving this important duty will have positive impact on the credibility and recognition of their degrees as well as on the acquisition of accreditation according to international standards adopted in higher education and scientific research.

7.2. Institutional policies should be based on the general guidelines stated in the present charter and on instructions and decisions made by national and international organizations in charge for supervising of research work and promoting ethics and integrity in Science. In line with this aim, institutions have to ensure an adequate environment to encourage and promote perseverance, honest competition, spirit of collaboration, mutual respect and free exchange and communication between researchers. Based on the conviction that commitment to and implementation of the general guidelines of this charter are a joined responsibility of researchers and their hosting institutions, each academic and research unit is invited to undertake the following steps:

7.2.1. Formation of ethical committees (depending on the diverse specialties in science and research) responsible for the strict implementation of the above-mentioned principles and directives and for delivering specific clearance for the execution of each research project. This committee will be in charge of organizing special training sessions addressed to senior researchers and members to increase the awareness on the various topics of research ethics. Each special ethical committee should include a minimum of one member selected by the professional organization related to the field of study

(syndicate, professional order, scientific organization…) and preferably one who is not on the list of employees of this institution.

7.2.2. Listing in the teaching curriculum a special course on ethics in science and research in the different fields of science and human knowledge, to be considered part of the requirements of a graduate degree in each field of specialty.

7.2.3. Setting a clear policy on research misconduct including plagiarism and conflict of interest. A pillar of this policy would be to encourage all workers in research to report on any case raising doubt about misconduct in research, and to provide full protective measures of the reporter, and on the other hand, to take drastic measures against reporters of wrong information.

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Main References

- Scientific Research Integrity Principles. MENA (Middle East and North Africa) Group - Global Research Council, Saudi Arabia, 2012
- Charte européenne du chercheur, Respect propriété conjointe entre labo en collaboration www.europa.eu.int/eracareers/europeancharter
- Promouvoir une recherche Intègre et responsable, Comité d'éthique du CNRS - 2014 www.cnrs.fr/cometss
- Code d'éthique de la recherche scientifique en Belgique, Politique Scientifique Fédérale https://www.ulg.ac.be/upload/docs/application/pdf/2010-11/ethcode_fr.pdf
- On Being a Scientist: A Guide to Responsible Conduct in Research. The National Academies Press, Washington D.C. 2009, http://courses.washington.edu/bethics/Homepage/
- Déclaration de Singapour sur l'intégrité en recherche. 2011 http://www.singaporestatement.org/-2011
- San Francisco Declaration on Research Assessment (DORA), 2013 http://www.ascb.org/dora-old/files/SFDeclarationFINAL.pdf
- Montreal Statement on Research Integrity in Cross-Boundary Research Collaborations, 2013. http://www.icsu.org/icsuasia/newscentre/news/MontrealStatementonResearchIntegrityJune21_2013.pdf
- Ethical Guidelines for International Comparative Social Science Research in the framework of MOST. http://www.unesco.org/most/ethical.htm
- Australian Code for the Responsible Conduct of Research. Australian Government 2007 https://www.nhmrc.gov.au/_files_nhmrc/file/research/Research%20Integrity/r39_australian_code_responsible_conduct_research_150811.pdf
- Déclaration d'Helsinki de L'Association Médicale Mondiale Principes éthiques applicables à la recherche médicale impliquant des êtres humains. 2013 http://www.wma.net/fr/30publications/10policies/b3/index.html
- Comités d'éthique de la recherche. Notions de base pour le renforcement des capacités, OMS 2009. www.who.int/ethics/publications/en//
- Charte nationale de déontologie des métiers de la recherche, 2015 http://www.cnrs.fr/comets/IMG/pdf/charte_nationale_deontologie_signée_janvier2015.pdf
- L'intégrité dans la recherche scientifique, Académies suisses des sciences, 2008. www.academies-suisses.ch info@akademien-schweiz.ch
- Loi libanaise N° 574. Droits des malades et le consentement éclairé. JO, n° 9, 13/2/2004