



STRATEGY

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INSTITUTE FOR MEDICAL RESEARCH
AND OCCUPATIONAL HEALTH

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Foreword

The Institute was officially founded in 1947 under the name Institute for Industrial Hygiene and changed its name to today's version – Institute for Medical Research and Occupational Health (IMROH) – in 1959. Today, the Institute is the second largest public research institute in the Republic of Croatia with facilities at Ksaverska cesta 2, Zagreb.

During its longstanding scientific, professional, and clinical work, the Institute has in principle succeeded in adhering to the public health doctrine set by its initiator Prof Dr Andrija Štampar, the president of the Yugoslav Academy of Sciences and Arts and the Chairman of the First General Assembly of the World Health Organisation in Geneva. Over the years, the Institute continuously expanded the fields of its fundamental and applied research, and in some segments, pioneered leaps into new research horizons.

In order for the Institute to develop further, a detailed analysis of current trends and the design of new and unambiguous guidelines for research and professional work should be conducted, having in mind the ever growing competitiveness in the domestic and international scientific community imposed by technological progression and the omnipresent process of

globalisation. Strengthening the position of the Institute on a regional and international level cannot be done without simultaneously focusing on investments into the permanent advancement of all formative segments, work processes, human resources, and infrastructure. Systematic efforts into achieving recognisability in scientific and professional circles and the wider community imply a clear vision of the Institute's development without disregarding the tradition in upholding the Institute's mission. It was along these lines that we approached writing this document, whose primary goal is to clearly define the strategic directions of development for the Institute in the upcoming 14 years, while its purpose is to recognise and harness the strengths and opportunities of the current socioeconomic surroundings and purposefully guide the Institute, with the presumption of future investments, through reinforcing its significance and name as the leading research and professional institution in its fields of study.

1. Introduction

The Institute for Medical Research and Occupational Health is a markedly multidisciplinary research institution that studies the mechanisms of action of various harmful chemical and physical agents, as well as how human activity affects human and environmental health.

The Institute spearheads Croatian research in the fields of general, genetic, and molecular toxicology and allergotoxicology, protection from chemical weapons and radiation, environmental radioactive contamination, air quality, analysis of drugs of abuse, distribution of metals, and specific inorganic and organic pollutions in the environment and the exposure of humans to these types of pollution. Various aspects of psychological effects on health are also studied. In performing its research and professional work, the Institute recognizes the significance of ensuring the highest standards of quality. Investments into the staff's excellence, maintaining and upgrading equipment and facilities, and participating in international methodology intercomparisons are made regularly and continuously.

The staff structure of the Institute currently comprises 154 employees, of whom 52% are dedicated to research, 9% to professional activities, and 39% to the Institute's shared services.

The research performed at the Institute in the domestic context takes place within projects funded by the Croatian Science foundation and other subjects. At the international level, the Institute functions within the framework of projects granted by the European Commission, US National Institutes of Health, World Health Organisation, International Atomic Energy Agency, and a large number of bilateral projects with institutions from other countries. The Institute also funds its own research projects.

Within its professional scope, the Institute agrees contracts and does business with over 70 companies and state, regional, and local bodies.

The Institute's scientists take part in higher education through participating in undergraduate, graduate, and postgraduate courses within the study programmes of the Universities of Zagreb, Rijeka, Osijek, Zadar, Mostar and the University North. The Institute also implements part of the specialisation programme for doctors specialising in occupational and sports medicine and clinical pharmacology.

The Institute regularly helps the organisation of domestic and foreign scientific and professional congresses, workshops, and courses. It is also the publisher of the scientific journal *Archives of Industrial Hygiene and Toxicology*.

2. Legal framework

The Institute for Medical Research and Occupational Health functions in accordance with the Institutions Act, the Science and Higher Education Act, and the Quality Assurance in Science and Higher Education Act of the Republic of Croatia, as well as multiple international conventions and EU legislation.

The financial and general operation of the Institute is subject to the provisions of the State Budget Act, Execution of the State Budget of the Republic of Croatia for the Upcoming Fiscal Year Act, General Tax Act, Fiscal Responsibility Act, Income Tax Act, Value Added Tax Act, Wage Basis in Public Service Act, Public Service Wages Act, Accounting Act, Civil Obligations Act, System of Internal Control in the Public Sector Act, and the Labour Act of the Republic of Croatia.

The Institute adheres to the provisions of the Public Procurement Act, Gender Equality Act, Personal Data Protection Act, Right to Access Information Act, and the Archives Act of the Republic of Croatia.

2. Legal framework

The professional segment of the Institute's functioning is mainly implemented pursuant to the provisions of the Health Protection Act, Protection at the Workplace Act, Non-ionising Radiation Protection Act, Radiological and Nuclear Safety Act, Waters Act, Waste Act, Nature Protection Act, Environmental Protection Act, Animal Protection Act, Hunting Act, Plant Health Act, Chemicals Act, Plant Protection Agents Act, Biocidal Mixtures Act, Air Protection Act, and the Drugs of Abuse Prevention Act of the Republic of Croatia.

3. Mission

To shape the Institute into an excellence-driven modern high quality research institution that shifts the boundaries of discovery in the field of anthropogenic effects on health and the environment, and sets the standard for academic professionalism and quality.

Through the application and development of innovative multidisciplinary research, serve the advancement of human health and environmental protection in the Republic of Croatia by:

- Insisting on high standards of scientific excellence
- Creating new value in research
- Ensuring the transfer of acquired knowledge to society
- Creating added value to the economy through research and development
- Educating future leaders in basic and applied research
- Nurturing an environment that promotes diversity, social inclusion, critical thinking, and creativity.

We plan to bring our vision to reality by:

- Conducting research that strives to describe mechanisms of interaction between environmental factors and biological systems; from the molecule to entire organisms
- Performing professional work from our domains of monitoring and categorising the occupational and living environment, which implies establishing and keeping track of environmental and food burden from chemical, physical, and biological agents
- Estimating environmental risks to health based on results of research
- Conducting work from our traditional domain of occupational health

4. Vision

- Participating in education at all levels
- Supporting Croatian state bodies in drafting and implementing regulations from the fields of environmental, health, and occupational protection, as well as protection from radiation, and their continued harmonisation with the demands of sustainable development and circular economies
- Cooperating with the economy through applied research and creating new value
- Contributing to knowledge in the field of monitoring the environment on a global level
- Continuously caring and investing into the development of the Institute's human resources
- Promoting the publishing of the scientific journal *Archives of Industrial Hygiene and Toxicology*, the official journal of the Croatian Society of Toxicology, Croatian Radiation Protection Association, Slovenian Society of Toxicology, Croatian Air Pollution Protection Association, and the Croatian Society of Occupational Health.

Pursuit of our vision will ensure that the Institute unequivocally defines itself as a crucial research, professional, and educational institution of core interest to the wellbeing of the Republic of Croatia.



6. Strategic aims

1. *Construction and improvement of the Institute's infrastructure*
2. *Maintain the Institute's existing accredited methods and procedures and gradually introduce new ones*
3. *Increase international cooperation and recognisability*
4. *Increase the number of jobs for young researchers*
5. *Deeper participation in education, especially at postgraduate level*
6. *Increase the number of R&D projects performed in collaboration with companies and aimed at creating new value*
7. *Inclusion into societal challenges and national priorities*
8. *Visibility*
9. *New possibilities – new challenges*

Strategic Aim 1

Construction and improvement of the Institute's infrastructure

The Institute's current infrastructure and spatial limitations have become a considerable obstacle to its development and progress, particularly when it comes to implementing R&D projects and efficiently transferring knowledge to the private and educational sector. Therefore, we designed a project to reconstruct and expand the Institute and obtained all of the necessary documentation to build and initiate the *Centre for Environmental Health and Radiation Protection* and reconstruct and refurbish the

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majority of our current buildings, as well as introduce new research equipment to our research units. The basis of this aim is to ensure the required funds to bring this project to completion and thus construct adequate capacities and technical infrastructure that will enable the Institute to accomplish the full potential of its excellence.

Strategic Aim 2

Maintain the Institute's existing accredited methods and procedures and gradually introduce new ones

Accreditation pursuant to the demands of the international standard HRN EN ISO/IEC 17025 has long become an internationally and generally accepted method of quality control and represents the affirmation of an independent third party that analytical and calibration laboratories possess the necessary technical competencies, knowledge, and skills. Ensuring the quality of analysis is the most important factor of trust in the aptitude of laboratories and the quality of their results, as well as their scientific excellence.

The Institute already went through one accreditation period and was successfully reaccredited. In accordance with our quality policies, the accredited units regularly participate in interlaboratory comparisons and pass them with excellent scores.

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The Institute's management will continue to perform thorough *Management Evaluations* that, in the context of our accredited system of managing quality, devote particular attention to fulfilling the Institute's general and specific aims, ensuring necessary means, educating the Institute's staff, implementing strict internal independent evaluations, applying preventive measures and constant improvements, taking into consideration evaluations made by external bodies, performing activities with regard to quality assurance and interlaboratory comparisons, acquiring information about user satisfaction, responding to possible complaints, and many other relevant factors that affect the quality of functioning of the Institute and its organisational compartments.

The Institute insists on agreeing well-defined contracts with clients requiring analyses, i.e. research, which enables us to also use the obtained data for original or professional publications and gain added value.

We plan to systematically invest effort in staying up to date with relevant legislation and recognise opportunities to expand our accredited and certified work segments, which includes increasing the number of methods and/or accreditation/certification schemes as well as achieving new accreditation according to the demands of Good Laboratory Practices and certifying a system for environmental management.

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Strategic Aim 3

Increase international cooperation and recognisability

Positioning the Institute as an international referent and educational centre for which all of the necessary prerequisites, particularly in the context of the Strategy of the Joint Research Centre of the European Commission and the EU Strategy for the Danube Region, have been met, would directly and indirectly benefit the Republic of Croatia both politically and economically. The exchange of visiting researchers and postgraduate students should be brought to the fore to the greatest possible extent, which would undoubtedly contribute to a greater number of international competitive projects. This can be achieved only by significantly increasing the inclusion of the Institute's researchers into international projects funded by the EC. To sum up, the number of existing projects must increase exponentially.

Strategic Aim 4

Increase the number of jobs for young researchers

The staff structure of the Institute at the beginning of 2017 comprised 154 employees, of which 79 were engaged in research, 13 in professional work, and 62 in the shared services. Among the 79 persons in the research staff, 25 were young researchers attending doctoral status or holding a postdoctoral post.

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Through the realisation of the project to establish the *Centre for Environmental Health and Radiation Protection*, within which we plan to enable research, applicative projects, and initiating *start-up* companies owned by the Institute, we plan to create opportunities and need for new jobs. The number of young researchers should increase by 3 to 5 doctoral students per year, for whom wages will be paid from the State Budget, our own income, and/or international projects.

Strategic Aim 5

Deeper participation in education, especially at postgraduate level

The educational component of the Institute must ensure direct interaction between science and accumulated knowledge and society, with particular stress on the inclusion of our researchers and experts in the system of higher education via as many institutions in the Republic of Croatia as possible. The Institute will, therefore, encourage, support, and stimulate the inclusion of its employees into the functioning of the Croatian educational system, especially when it comes to cooperation with universities on designing and implementing specific postgraduate programmes. This will enable the Institute to fulfil one of its chief aims: to bring benefit to society by educating future leaders in the

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field of basic and applied research and take part in the process of lifelong learning in order to contribute to the creation of an innovation-driven culture and sustainable entrepreneurship in high technology.

Strategic Aim 6

Increase the number of R&D projects performed in collaboration with companies and aimed at creating new value

The realisation of Strategic Aim 1 will enable a significant increase in marketable services, which implies an increase in the budget of the Institute and sustainability for the *Centre for Environmental Health and Radiation Protection*. State-of-the-art facilities, adequate work conditions, and a larger number of young researchers will make the Institute more competitive in acquiring international funds for commercial projects. The Institute already earns a significant portion of its income on the market and the implementation of the aforementioned project will significantly increase this portion, especially by means of contracts and research projects with companies and founding start-up companies.

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Strategic Aim 7

Inclusion into societal challenges and national priorities

The Institute will continuously improve and work to obtain new knowledge based on scientific and professional excellence, which due to the multidisciplinary approach to environmental health, environmental hygiene, regulatory and experimental toxicology, professional diseases, and radiation protection possesses all of the necessary preconditions for basic and applied research from the molecular level to the level of effects on human beings and the environment, e.g. by implementing translation and clinical testing, a permanent societal challenge and national priority. Such an approach will ensure direct support to state and local bodies in drafting new legislation, monitoring the health of the population, permanently monitoring environmental burden by anthropogenic sources, as well as in meeting the requirements of various environmental impact studies and existing and future national and international projects.

Strategic Aim 8

Visibility

A stable and constant increase in the Institute's visibility in the scientific community and wider public both nationally and internationally includes a broad spectre of activities and approaches, not to mention reliance on contemporary

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approaches, not to mention reliance on contemporary communication tools. The Institute must permanently act to increase its visibility and establish itself as a brand in the fields of the Institute's expertise. With regard to scientific recognisability, the Institute will continue to promote its policy of open access to original and professional publications. Another opportunity to increase visibility lies in a stronger presence on social media platforms and other contemporary means of communication.

Through the improvement of quality in the editorial work and content published in *Archives of Industrial Hygiene and Toxicology*, we plan to improve the journal's international recognisability, thereby doing the same for its publisher, the Institute. One of the devices by which we intend to achieve this is the strengthening of the journal's bibliometrics (better coverage, higher impact factor, etc.).

By means of "science diplomacy" methods, each member of the Institute's staff will be able to act as a promotor and a certain kind of "ambassador" of the Institute's capabilities, achievements, scope, and other information pertaining to our long-term strategic aims and policies. Publicity and promotion will also be ensured through institutional openness, e.g. through our traditional Open Days manifestation, lectures, workshops, and seminars for the public, cooperation with the non-governmental sector, in particular professional associations, newsletters, etc.

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Strategic Aim 9

New possibilities – new challenges

In the world of science, publications are increasingly becoming an end in itself and published results cannot be reproduced, which leads one to the conclusion that the assumptions made from such results cannot be deemed trustworthy. Research funded by certain “interest groups” can to an extent lead to public distrust in the results of studies and expert opinions. The Institute will insist on and introduce internal measures and procedures to publicly establish itself as an institution of absolute trust.

The Institute supports and will continue to support young researchers in defining their interests and preparing projects guided by the bottom-up principle in order to fully utilise the potential of its staff’s creativity.

The development of modern technologies and products inevitably leads to questions regarding their impact on human and environmental health.

The Institute and its *Centre for Environmental Health and Radiation Protection* will work to encompass and integrate innovativeness, credibility, responsibility, and openness to cooperation in facing new research challenges.

7. Concluding remarks

In order to secure the implementation of this Strategy, synchronisation and efficient coordination with the organisational compartments of the Institute are central.

The current organisational structure cannot support the implementation of this Strategy because of the fact that certain organisational units simply do not yet exist and those that do exist do not possess a sufficient level of synergy. Furthermore, new horizontal functions should be introduced and the practice by which most of the Institute's organisational resources are spent on "individual" research projects should cease and the resources should be redirected toward new horizontal functions.

Meeting Strategic Aim 1 will enable the introduction of a new organisational structure focused on scientific and professional excellence and efficiency that ensure general benefit to society and added material and non-material value.