

# STRATEGIC DEVELOPMENT AGENDA OF INCD-ECOIND ON PERIOD 2025-2029

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INSTITUTUL NAȚIONAL DE CERCETARE-DEZVOLTARE  
PENTRU ECOLOGIE INDUSTRIALĂ

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**ECOIND**

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EXCELENȚĂ ÎN CERCETARE ȘI SERVICII DE MEDIU

# STRATEGIC DEVELOPMENT AGENDA OF INCD-ECOIND ON PERIOD 2025-2029

This Development Strategy of INCD-ECOIND for the period 2025-2029 is in close correlation with the *National Strategy for Research, Innovation and Smart Specialization 2022-2027* and in line with the fields of smart specialization, with the *National Strategies in the field, with the Strategic Plans, with the HORIZON EUROPE 2021-2027 Programs and Missions*.

## I. MISSION OF INCD-ECOIND

**NRDI-ECOIND's vision is to promote the maintenance of a clean and safe environment through sustainable practices, to support a healthy future.**

## II. STRATEGIC GROWTH VISION OF INCD-ECOIND

**The institute's mission is to research, innovate and develop analytical and protective solutions for current societal challenges in the field of environmental protection, pursuing excellence in research and solid strategic partnerships.**

## III. NRDI-ECOIND VALUES

### 1. Scientific excellence

NRDI-ECOIND is dedicated to conducting high-quality, rigorous research that adheres to the highest standards of scientific integrity. The pursuit of knowledge and innovation is at the core of its mission, driving solutions that address pressing environmental challenges.

### 2. Innovation and sustainability

The institute values creativity and innovation, continually seeking to develop cutting-edge technologies and methodologies that promote environmental sustainability. Through a focus on eco-innovation, INCD-ECOIND aims to lead in areas such as environmental protection, circular economy, green/clean technologies, and climate resilience.

### 3. Collaboration and partnership

Collaboration is a cornerstone of INCD-ECOIND's approach. The institute values partnerships with universities, industry, governmental bodies, and international organizations, recognizing that collective effort is essential for impactful research and meaningful solutions.

### 4. Integrity and transparency

INCD-ECOIND is committed to conducting research with integrity, transparency, and accountability respecting ethical standards in all research activities, including data management, publication, and intellectual property.

### 5. Environmental responsibility

As an institute focused on environmental issues, INCD-ECOIND prioritizes sustainability not only in its research but also in its operations. It leads by example in minimizing its environmental footprint and promoting eco-friendly practices in all activities.

### 6. Talent development

INCD-ECOIND values the growth and development of its staff and is committed to creating a supportive environment through mentorship, trainings, clear career path and opportunities for professional development.

### 7. Societal impact

The institute's work is guided by the belief that research should benefit society. INCD-ECOIND is dedicated to delivering practical solutions to global environmental challenges, improving the quality of life, and supporting sustainable development.

## IV. CORE COMPETENCIES

**NRDI ECOIND operates in the field of environmental protection and industrial ecology**, being a key player in the implementation of advanced solutions for the reduction and prevention of industrial pollution. The research area is the central pillar of its development strategy, being essential for the fulfilment of its long-term strategic objectives and for the consolidation of its position as a national leader in environmental research.

**ECOIND's research directions** reflect both market needs and global challenges in terms of sustainability and environmental protection. With its unique integrated approach to environmental issues, ECOIND focuses its activities on four broad directions:

**1. Integrated Pollution Control:** Developing methods and techniques for monitoring and assessing the quality of the environment (air, water, soil, waste), including the identification and quantification of emerging pollutants. These activities allow the monitoring of pollutant emissions and the modelling of their dispersion, thus contributing to better management of industrial environmental impacts.

**2. Environmental pollution assessment:** interdisciplinary analysis of the impact of anthropogenic activities on the environment using complex chemical, biological and geochemical assessment methods. The Institute conducts studies on bioaccumulation and biodegradation of contaminants, assessing the ecological status of water resources according to the Water Framework Directive and identifying risks associated with hazardous chemicals.

**3. Innovative and sustainable technologies for environmental protection:** ECOIND develops advanced technological solutions for drinking water treatment, municipal and industrial wastewater treatment, waste resource recovery and remediation of contaminated soils. These technologies include advanced oxidation processes, water treatment with microalgae, the use of membranes and natural solutions for decentralized wastewater management.

**4. Environmental consultancy and technical assistance:** ECOIND provides technical support and expertise for the implementation of quality and environmental, occupational health and safety management systems, thus helping industry to comply with national and European environmental standards.

NRDI ECOIND activity is carried out in accordance with the *Quality-Environment Management System*, SR EN ISO 9001:2015 (Certificate Q - 5364/20) and SR EN ISO 14001:2015 (Certificate E-5364/20). The Institute has also implemented the *Occupational Health and Safety Management System*, according to SR ISO 45001:2018 (Certificate O-5364/20) and the *Innovation Management System*, according to SR 13572:2016.

The Analytical Testing Laboratories of the Pollution Control Department, the Waste Analysis Laboratory (Bucharest) and the Environmental Analysis Laboratory of the Timișoara and Râmnicu-Vâlcea Branches are **RENAR accredited, according to SR EN ISO/IEC 17025:2018** (Accreditation Certificate No. LI 941).

The research and innovation activities carried out by ECOIND are essential to support industrial performance and economic competitiveness in compliance with strict environmental protection requirements.

## V. CDI EXPERTISE

The RDI activity is oriented in particular on the following areas, to which the following main research directions correspond:

► ***Developing methods of detection/quantification of pollutants emerging from various environmental matrices***

- *determinations of various pollutants from environmental matrix such as: pharmaceuticals, pesticides, endocrine disruptors from wastewaters and sludge; PFAS and PFOS from aqueous systems and biological tissue; metals from water, soil, sludge, biological tissue; pollutants emerging from water systems by electro-chemical methods;*
- *characterization of solid waste and leachate, assessment of the hazardousness of waste, analysis on various types of waste (solids, liquids) and fuels;*
- *emission and imissions measurements: individual organic compounds (benzene, toluene, xylene, hexane, formaldehyde, methanol, etc.); TSP, particulate matters (PM10, PM2,5), metals; polychlorinated dibenzodioxins (PCDD) and polychlorinated dibenzofurans (PCDF); flue gases (CO, SO<sub>2</sub>, CO<sub>2</sub>, NO<sub>x</sub>, NO<sub>2</sub>, O<sub>2</sub>), and VOCs in the form of total organic carbon, NH<sub>3</sub>, HCl, H<sub>2</sub>S, SO<sub>4</sub><sup>2-</sup>, HF/F, O<sub>3</sub>, HCl; dispersion of air pollutants by mathematical modelling;*
- *evaluation of the level of odor generated by various industrial sectors.*

► ***Environmental impact assessment of contaminants presents in air, water, soil, sludge, waste and biota by conventional methods and biomonitoring methods***

- *environmental impact studies of anthropogenic/industrial activities on environmental components (from an interdisciplinary- geochemical, chemical, biological approach);*
- *identification of microorganisms from different environmental matrices and characterization of their pathogenicity, virulence potential and antibiotic resistance;*
- *in vivo bioaccumulation studies of chemical compounds in biological models;*
- *assessment of the ecological status of water resources in accordance with the Water Framework Directive, including long-term monitoring of freshwater systems (for example, the Danube and the Danube Delta);*
- *assessment of ecotoxicological effects and environmental risks arising from various hazardous chemicals on the aquatic environment according to the requirements of the European REACH Regulation;*
- *assessment of primary and final aerobic biodegradability of chemicals (including detergents, cleaning products, disinfection, wastewater, oils, plastics) using OECD/ISO/EN standard methods and provision of information necessary for the completion of safety data sheets;*
- *assessing the impact of climate change on urban ecosystems;*
- *development of tools for biodiversity analysis through eDNA.*

► ***Green and sustainable technological solutions for wastewater treatment, groundwater and sludge treatment and dedicated solutions for remediation of contaminated soils***

- *alternative, innovative and sustainable technologies for municipal and industrial wastewater treatment, including: microalgae-based processes, activated sludge microalgae systems, advanced oxidation processes, membrane-based processes, natural solutions for decentralized wastewater treatment, landfill leachate treatment*
- *solutions for the treatment of drinking water from groundwater and surface water sources, including tailor-made solutions for the optimization and upgrading of water treatment streams;*
- *combined chemical and biological processes for soil remediation, including: removal of HCH and DDT from historically polluted sites, removal of inorganic and organic micropollutants such as arsenic and disinfection by products (trihalomethanes, haloacetic acids);*

- recovery of valuable material and energy streams from various waste streams, including: development of new adsorbates/catalysts for wastewater treatment of waste streams, development of smart fertilizers from leather industry waste, recovery of ammonia from leachate and sludge, composting of municipal waste, combined ultrasonic and alkaline hydrolysis of biological sludge from WWTPs to improve biogas production; new alternative fuels using municipal waste with energy potential.

## VI. SWOT ANALYSIS OF NRDI-ECOIND

### VI.1. Strengths

- **Modern and up-to-date research infrastructure:** the Institute has a modern research infrastructure in the field of environmental protection, acquired mainly as a result of the implementation of projects financed by European non-reimbursable funds, which allows the Institute to carry out cutting-edge research and remain competitive in environmental sciences).
- **Diversified research portfolio:** the institute's research portfolio covers a wide range of topics aligned with societal challenges and national and international market needs, particularly in the field of industrial ecology, providing environmental research and services with a focus on sustainable development, pollution control and industrial environmental management.
- **Branch network with local presence:** NRDI-ECOIND has two branches located in areas with high demand for environmental research and services, generating local value and reducing operational costs. These branches extend the institute's influence throughout the country.
- **Receptivity to collaboration with industry and international partners:** the Institute has a long history of partnerships with private companies and international institutions, facilitating collaboration and knowledge transfer. It is also part of several industrial clusters (e.g. ECOIND Cluster, MECHATREC), which strengthens its links with the private sector and enhances its responsiveness to market needs.
- **Strengthened reputation and collaborative network:** the Institute has built a strong reputation over the years through stable connections with government authorities, industry partners and academic institutions at national level. This network enhances its ability to secure funding and effectively address environmental challenges.
- **Highly qualified and multidisciplinary research team:** NRDI-ECOIND benefits from highly qualified research staff with multidisciplinary expertise. This scientific capacity allows the institute to apply for complex research projects and to collaborate in various scientific fields both nationally and internationally.
- **Experience in accessing European funding:** the Institute has experience in successfully obtaining and implementing projects funded by European and international programs such as Norway Grants, Sectorial Program, Framework Program 7, Horizon 2020 and Horizon Europe. This expertise supports the Institute's growth and its ability to remain competitive in the market for environmental research and services. s ability to contribute relevant and applicable scientific research to the global community.
- **Continued focus on scientific output and international visibility:** the Institute places a continued emphasis on publishing scientific articles in ISI-ranked impact journals and increasing national and international visibility through events such as the International Symposium on Environment and Industry (SIMI) and the Romanian Journal of Ecology & Environmental Chemistry (RJECC). This demonstrates the Institute's ability to contribute relevant and applicable scientific research to the global community.
- **A good financial and material situation:** NRDI-ECOIND has a solid financial base with sufficient resources to maintain high research standards. The Institute has no debts and maintains financial reserves that support in-house research, thus providing more flexibility and stability in project execution.
- **Clear policy based on incentives for scientific output:** incentives for scientific output lead to an increase in the number of articles published in ISI indexed journals, including high impact factor journals, which attests and develops the capacity of the research team to produce scientific results relevant and

applicable to the international scientific community.

- **Integrated and certified management systems:** NRDI-ECOIND operates within a standardized framework, certified according to SR EN ISO 9001:2015, SR EN ISO 14001:2015 and SR ISO 45001:2018, ensuring high quality, environmentally responsible and safe operations. The Institute also maintains an *Innovation Management System* in accordance with SR 13572:2016, which guarantees the quality of the R&D-innovation activities carried out. In addition, the *Institute's laboratories are accredited according to the SR EN ISO/IEC 17025:2018 standard* ensuring technical reliability and accuracy of results. These certifications demonstrate the institute's commitment to excellence, safety and environmental responsibility.

## VI.2. Weaknesses

- **Reluctance to advance research results to higher levels of technological maturity:** there is a reluctance to advance research and innovation results to higher levels of technological maturity, thus limiting the potential for market application and the real impact of the research results obtained in the institute.

- **Limited research commercialization capacity:** NRDI ECOIND has limited mechanisms to transfer research results into market-ready solutions. This includes limited expertise in intellectual property management, technology transfer and commercialization, reducing the economic and societal impact of the institute's research results.

- **Insufficient harnessing of the potential of senior researchers in the development of project proposals:** Senior researchers are not sufficiently involved in the development of national and international project proposals. This limited involvement has resulted in fewer project proposals submitted, thus reducing the number of projects won.

- **Under-utilized international collaboration:** although there are some international connections, NRDI ECOIND has relatively little participation in international projects of scale and impact. Limited involvement in international consortia such as the EU Horizon Europe program hinders the institute's global visibility, access to larger research networks and funding opportunities.

- **Limited attractiveness of research careers for young graduates:** NRDI ECOIND has difficulties in attracting young graduates to research careers, mainly due to the relatively low level of remuneration compared to other fields and the lack of clear communication about the unique opportunities and benefits of a research career.

- **Reduced mentoring:** A significant proportion of senior researchers fall into the under 45 age category, while there is also a decline in the expertise needed and commitment to effectively mentor young researchers. Consequently, the lack of focus on mentoring affects the professional development of junior staff, diminishing the quality of research and the capacity for long-term innovation.

## VI.3. Opportunities

- **Institutional Capacity Development through the World Bank's Strategic Growth Program:** The World Bank's customized Strategic Growth Program for NRDI ECOIND represents a valuable opportunity to improve the institute's capacity in terms of infrastructure, research capabilities and operational efficiency. This program provides essential expertise to help INCD-ECOIND expand its research portfolio and potential for application to international project calls, transfer research results to the market, and strengthen international collaborations. By capitalizing on this initiative, the institute can accelerate its growth, improve its competitiveness and position itself as a key player on the global environmental research scene.

- **Leveraging the expertise of the International Advisory Board:** The establishment of an International Advisory Board through the World Bank program, made up of globally renowned experts, provides the

Institute with the opportunity to improve its strategic directions and the quality of its research. By capitalizing on the perspectives and expertise of these international specialists, the Institute can align its projects with global trends, improve research methodologies and increase its visibility on the international stage.

- **Define a framework for significantly improving the quantity and quality of future project proposals.** By providing structured support from the World Bank, allocating dedicated time and human resources for project development, aligning proposals with funding requirements, and improving proposal writing processes, the success rate of the institute in securing national and international funding can be increased

- **Access to diverse sources of funding:** with the continued expansion of environmental and sustainability initiatives, NRDI-ECOIND can access a wide range of national and international funding programs such as PNCDI IV, Horizon Europe, POCIDIF and PNRR. This access provides financial support for innovative research initiatives, infrastructure upgrades and investments in cutting-edge technologies and services.

- **Increasing demand for sustainable solutions and green technologies:** the global demand for sustainable solutions and the focus on climate change and circular economy initiatives provide a significant opportunity for NRDI-ECOIND to expand its portfolio of sustainable environmental technologies, pollution control systems and methods and industrial ecology services, positioning itself as a leading research institute in providing solutions aligned with global trends.

- **Partnerships with the private sector and industrial clusters:** By strengthening collaborations with private sector partners and industrial clusters (e.g. ECOIND Cluster, MECHATREC, Magurele Science Park), the institute can better align its research with market requirements. It can also develop the promotion of technology transfer, increasing the relevance of its research and developing practical solutions for different sectors, thus ensuring real impact.

- **Strengthening national and international collaborations:** Expanding partnerships with academic institutions, research centers and governmental bodies in Europe and beyond provides opportunities for NRDI-ECOIND to improve its research capacity, visibility and impact on global environmental issues.

- **Platforms for technology transfer and dissemination of research results:** the Institute's Technology Transfer Center (CTT), together with the dissemination of research results through platforms such as the International Symposium on Environment and Industry (SIMI) and the Romanian Journal of Ecology and Environmental Chemistry (RJEEC), provide a strategic opportunity to reach wider audiences, increase the impact of its research and strengthen its reputation in the scientific and industrial sectors.

- **Expanding environmental regulations and policies:** Increasingly stringent environmental regulations imposed at national and international level create opportunities for NRDI-ECOIND to provide research expertise and services to both industrial operators to align with these regulations and local/central authorities, strengthening its role as a leader in environmental research.

- **Skilled workforce:** NRDI-ECOIND's well-trained and internationally experienced team offers the opportunity to strengthen international partnerships, improve dissemination of research results and attract more funding. The dynamic workforce also enhances the institute's ability to adapt to new scientific and technological demands.

- **Talent attraction and career development:** Through the implementation of the HRS4R Action Plan, including the creation of competitive career development programs supported by mentoring, researcher mobility schemes and attractive remuneration packages, NRDI ECOIND can attract and retain top young researchers, ensuring sustainable growth and innovation capacity.

- **Modern research infrastructure:** NRDI ECOIND's state-of-the-art research infrastructure, designed to meet the requirements of the most ambitious research projects, also provides the basis for expanding technology and know-how transfer activities to the private sector, as well as stimulating public-private partnerships leading to innovation and applied research.

- **Maintaining and extending accreditation standards:** RENAR's accreditation to SR EN ISO/IEC 17025:2018 and other certifications enable the institute to maintain high standards in research and testing

services, attracting continued interest from private sector partners. Maintaining these accreditations and certifications strengthens the Institute's credibility and competitiveness in providing environmental services.

## VI.4. Threats

- **International competition:** Increased competition from international research institutions with stronger collaborative networks, larger funding and state-of-the-art infrastructure may threaten NRDI ECOIND's position as a leader in environmental research and innovation.
- **Competition for funding:** As more and more research institutes and private organizations compete for the same national and European funding sources (e.g. Horizon Europe, PNCDI IV, PNRR), INCD-ECOIND may face increased difficulties in securing the necessary funding for its projects, which could limit the capacity for growth and innovation
- **Changing regulations:** Rapid changes in national and international environmental regulations could exceed the institute's ability to adapt, affecting its relevance or ability to provide timely solutions aligned with new legislation.
- **Lack of predictability of funding sources:** Lack of predictability of national funding sources in the long term and/or reliance on domestic funding sources, such as the "NUCLEU" program, can create financial instability if these sources become less accessible or are reduced due to political or economic changes.
- **Environmental and geopolitical uncertainties:** Global environmental crises, geopolitical tensions or instability could affect international collaborations, disrupt funding flows or redirect research priorities away from INCD-ECOIND's core areas of expertise.
- **"Brain drain":** The institute may have difficulty retaining qualified researchers and young talents due to more competitive salaries and benefits offered by the private sector or international institutions, which may lead to loss of talent and reduced research capabilities of the institute. High turnover rate can lead to loss of talent and institutional knowledge.
- **Stricter administrative and reporting regulations:** Stricter administrative and bureaucratic requirements for research grants and project management involving additional effort could disconnect human resources from mainstream research activities, reducing the institute's efficiency and innovation capacity.

## VII. PRESENTATION OF THE STRATEGIC AREAS OF INCD-ECOIND

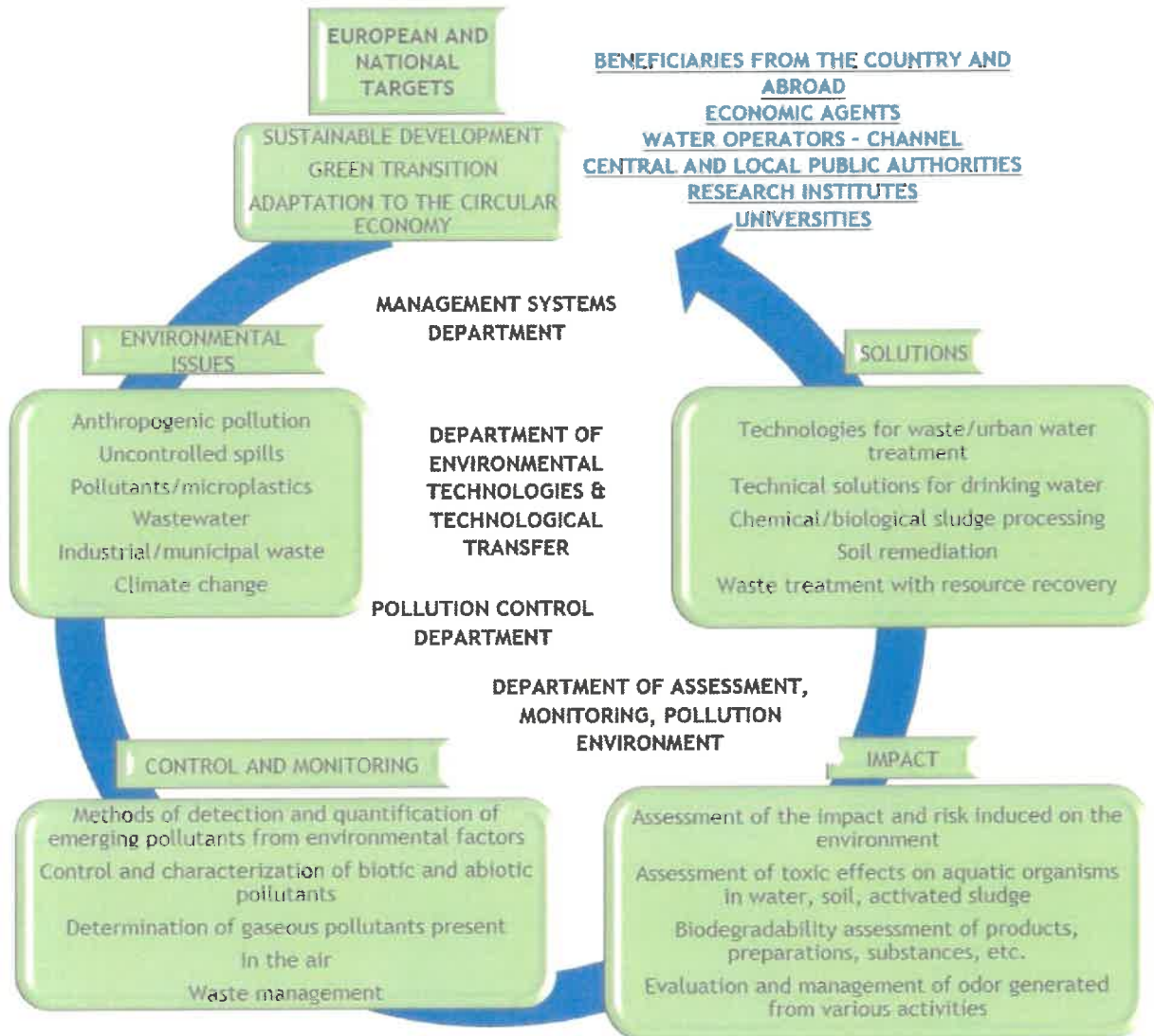
### VII.1. Research and development activities

The activity profile of the institute, permanently adapted to the requirements of the internal and external environmental market, essentially includes **advanced and applied research, mainly experimental, intended in particular to control, evaluate, prevent, reduce and combat industrial pollution.**

Currently, INCD-ECOIND carries out basic and oriented fundamental research activities in order to increase the level of knowledge in environmental chemistry and biology, biodiversity conservation and sustainable development and applied research activities, of a precompetitive type, in the field of identification, quantification and assessment of pollution, as well as preventing and combating pollution, especially that generated by industrial activities, but also by other branches of the national economy.

**The main directions of the activity** correspond to current trends at European and world level in the field of environmental protection and the needs of the economic environment in order to meet the requirements

regarding respect for the quality of the environment, in close connection with the increase in industrial performance and product competitiveness (Figure 1).



*Figure 1 - The main directions of the activity of NRD I ECOIND*

## VII.2. Innovation and technology transfer activities

The transfer of research results and the exploitation of existing infrastructure is carried out through the Technology Transfer Center (CTT-ECOIND).

In the context of research-development-innovation activities at the institute level, the transfer of research results to interested economic agents is envisaged in order to encourage collaboration through innovation projects (one of the general objectives of the national strategy SNCDI 2022-2027) by undertaking actions such as:

- stimulating the integration of fundamental research with technological development;
- identifying and supporting continuity in technological development;
- assessing the advancement of the level of technological maturity;
- collaboration and partnerships for technological advancement.

The commercialization of research activities is expected to take place through partnerships with companies that can further develop the research results, thus increasing the value and, ultimately, bringing

a product or service to the market. Here, internal and especially international partners represent a key objective.

### VII.3. Communications, Engagement and Dissemination

**Priority actions to increase the promotion and visibility of the institute** will consider the following strategic targets:

- **Intensification of external collaborations with specialists and entities in the field** through the joint application of research projects, through networking actions and the conclusion of partnerships leading both to the increase in the number of projects won at the European level and to the integration of NRDI ECOIND in the European space of research and affiliation to European research infrastructures;
- **Organizing the international symposium "Environment and Industry (SIMI)" annually** and intensifying actions to promote it among the international community to attract new international specialists in the field;
- **Increasing the number of ISI articles published by researchers at the institute**, increasing the quality and number of articles published in journals in the Q1/Q2 area; increasing the number of participations in prestigious international conferences and the number of participants in the institute with plenary/invited papers;
- **Continuation of the biannual editing of the journal "Romanian Journal of Ecology & Environmental Chemistry (RJEEC)"**, increasing the quality of published works and works published by foreign researchers; actions for indexing the **RJEEC journal in the SCOPUS database**;
- **Continuation of the organization of matchmaking events /round tables /workshops** dedicated to the promotion and dissemination of the results obtained within the research projects;
- **Participation of researchers in the editorial committees of prestigious journals** and the scientific committees of international conferences in the field;
- **Intensification of the institute's membership as a member of international associations and entities** to identify new opportunities for collaboration and implicitly for expanding visibility on an international level

### VII.4. Human resources

One of the priority strategic objectives of NRDI ECOIND is the development of human resources while maintaining and increasing the scientific skills of researchers.

On 30.08.2024, ECOIND received from the European Commission the right to use the **"HR Excellence in Research"** logo as a result of aligning the institute's human resources practices with those of the principles of the European Charter of Researchers and the Code of Conduct for the recruitment researchers (<https://euraxess.ec.europa.eu/jobs/hrs4r/awarded>).

Currently, the institute is in the implementation phase of the Action Plan for HRS4R. For the next period, the institute aims that **with the implementation of the action plan, it will also benefit from the support of experts through the World Bank Program for the improvement of human resources policy.**

Thus, NRDI ECOIND's priority actions will be to attract new young researchers and researchers with experience in the field, **continuous training of researchers, mentoring, mobility schemes, attractive remuneration packages and career development opportunities to improve employees' skills** and align them to the institute's objectives.

Considering that NRDI ECOIND benefits from a highly qualified research staff with multidisciplinary expertise that allows the institute to apply for complex research projects and collaborate in various scientific fields both nationally and internationally, **another priority will be to maintain policy based on incentives for scientific production and to identify new forms of stimulation of personnel with outstanding results in research-development-innovation activity.**

**The institute will also continue to support the research and development activities of students, master's students, doctoral students and early career researchers, promote teamwork and**

**collaboration through interdepartmental projects and collaborative tools** to improve communication and cooperation between researchers.

**Last but not least**, the institute will continue to improve the system of evaluating the performance of researchers and recognizing the evolution from the scientific point of view of researchers, **by periodically organizing promotion competitions in the scientific degrees CSI, CSII, CSIII and CS.**

## VII.6. Research and development infrastructure and communication system

**NRDI ECOIND has one of the most efficient research and development infrastructures** in the field of industrial ecology in Romania, including **over 100 state-of-the-art equipment and installations.**

NRDI ECOIND's state-of-the-art research infrastructure, designed to meet the demands of the most ambitious research projects, also provides the basis for expanding technology and know-how transfer activities to the private sector, as well as for stimulating public-private partnerships leading to innovation and applied research.

**The research laboratories have the necessary software support for the proper performance of the respective activity:** *specific software applications /dedicated to high-performance analytical equipment, intended for the acquisition and processing of analytical data or specific programs for the dispersion of pollutants in water/air; sound dispersion; control of treatment or purification processes, mathematical modeling of physico-chemical and biological processes; calculation of measurement uncertainty, etc*

In the next period, for the development of new research directions in areas aimed at the strategic priorities of the EU, Horizon Europe missions and national priorities, the institute will continue the investment in high-performance research equipment and facilities that facilitate the development of these directions and the alignment with the proposed objectives.

## VIII. STRATEGIC OBJECTIVES AND TRANSVERSAL OBJECTIVES OF PROPOSED BY NRDI ECOIND FOR PERIOD 2025-2029

The general development priorities for INCD-ECOIND to maintain itself through quality and performance among the top organizations active in the field of research and services specific to the fields of industrial ecology and environmental protection, to gain and maintain the trust of customers, internal and external partners and collaborators are represented by **strategic objectives (those that contribute directly to the fulfillment of the institute's purpose) and transversal objectives (those that contribute indirectly to the institute's purpose and relate to its good management and operation).**

### VIII.1. Strategic objectives (SO)

**SO.1. Orientation of research-development and innovation activity towards directions corresponding to the fields of intelligent specialization** with the following strategic sub-objectives:

SO.1.1. developing new research directions at institute level and strengthening and orienting current directions towards the strategic priorities of the European Union and Horizon Europe missions, in areas such as:

- a specialized technologies for potabilization and wastewater treatment also oriented towards public health by aligning with the "One Health" concept;
- climate change and its impact at national level;
- development of the Artificial Intelligence component at the institute level in order to improve process automation and quality control;
- decontamination and remediation of soils through the use of nature-based solutions;
- developing technological solutions and services focused on urban transformation (air quality, noise/vibration and smell monitoring in urban environments);

- solutions applied for the issue of emerging pollutants in various environmental matrices and products with impact in environmental policy recommendations, decisions and industrial practices;
- a superior recovery of waste/useful components from waste as secondary raw materials in order to align with European circular economy targets;

SO.1.2. promoting research-development-innovation activities that respond to market requirements and societal challenges;

SO.1.3. the development of multidisciplinary research directions to facilitate access to studies and complex research projects;

SO.1.4. increasing the number of project proposals at national and international level and the number of projects in partnership with economic agents, research institutes and universities;

SO.1.5. improving partnerships and internationalization based on strategic priorities.

**SO.2. Increasing the level of visibility of CDI results, promoting the transition to open science (Open Science) and maintaining progress in scientific research of excellence** with the following strategic sub-objectives:

SO.2.1. increasing the productivity and quality of scientific work at institute level;

SO.2.2. initiating actions for SCOPUS indexing of the *Romanian Journal of Ecology and Environmental Chemistry*;

SO.2.3. ensuring the continuity of the organization of the *International Environment and Industry Symposium* and the participation of a wider range of foreign researchers;

SO.2.4. free access to publications and data from research;

SO.2.5. continued development of the ECOLIB institutional repository;

SO.2.6. stimulating interaction and collaboration between NRD ECOIND's research groups and the wider scientific community;

SO.2.7. development of the website, communication on social networks, participation in international conferences, workshops, exhibitions and other events to disseminate and promote research results.

**SO.3. Development and capitalization of the research infrastructure of NRD ECOIND** with the following sub-objective

SO.3.1. Development of research infrastructure in order to maintain and increase research capacity;

SO.3.2. Opening access to research infrastructure to operators from the public and private environment;

SO.3.3. Identification of projects/funding opportunities for the development of the emerging ECOCIM research infrastructure.

**SO.4. Developing human resources while maintaining and increasing the scientific skills of researchers** with the following strategic sub-objectives:

SO.4.1. attracting new young researchers and researchers with experience in the field, including from abroad (especially from Diaspora);

SO.4.2. improving the human resources policy of the performance appraisal system and increasing the skills of researchers through mobility schemes;

SO.4.3. implementation of the initial action plan HRS4R (European Charter for Researchers and Code of Conduct for the Recruitment of Researchers), development and implementation of the revised action plan;

- SO.4.4. identifying new forms of staff stimulation with outstanding results in research-development-innovation activity;
- SO.4.5. ensuring the continuous professional development of CDI staff;
- SO.4.6. supporting the research and development activities of students, master's students, doctoral students, researchers at the beginning of their careers;
- SO.4.7. recognizing the evolution from a scientific point of view of researchers, by promoting in scientific degrees.

**SO.5 Development of technological and knowledge transfer and development of innovation capacity with the following strategic sub-objectives**

- SO.5.1. developing the potential for knowledge transfer and technology transfer of the CDI results obtained;
- SO.5.2. supporting the development of partnerships with economic agents, universities, research and development entities, public institutions, leading to an increase in the number of applicable CDI results;
- SO.5.3. increasing the number of patentable results at the NRDI ECOIND level, by ensuring effective management of industrial property rights;
- SO.5.4. increasing the visibility of the activities aimed at the technological and knowledge transfer carried out at the NRDI-ECOIND level, to attract national and international partners;
- SO.5.5. increasing skills in the field of technology transfer and developing innovation capacity.

## VIII.2. Transversal objectives

**TO.1 Development of the portfolio of research and environmental services offered by NRDI ECOIND with the following transversal sub-objectives:**

- TO.1.1. strengthening NRDI-ECOIND's position as a leader on the market of environmental research and services in Romania;
- TO.1.2. diversification and effective promotion of the offer of research and environmental services;
- TO.1.3. maintaining and developing RENAR accreditation;
- TO.1.4. maintaining the necessary attestations and certificates for carrying out environmental and water management documentation;
- TO.1.5. increasing the operational incomes of the institute.

**TO.2. Maintaining and improving the Integrated Management System for Quality, Environment, Innovation and Health and Safety at Work implemented and/or certified in accordance with international reference standards.**

**TO.3. Improving integrated operational management for activities carried out in all organizational structures of the institute.**

**TO.4. The administration of the institute's patrimony for the purpose of carrying out in optimal conditions the activities to achieve the established research-development-innovation objectives.**

**TO.5. Increasing the quality of the work climate in the institute with the following transversal sub-objectives:**

- TO.5.1. alignment with the legislative, institutional and procedural framework regarding the recruitment of research staff and gender equality in research;
- TO.5.2. maintaining "HR Excellence" in research.

**TO.6. Institutional capacity building**

**TO 6.1. Developing institutional capacity** through participation in the Strategic Growth Programme supported by the World Bank

IX. ACTION PLAN 2025-2029

Multiannual action plan

SO/ TO	Sub-SO/ subTO	Time planning				Responsible	Resources
		2025	2026	2027	2028		
<b>STRATEGIC OBJECTIVES</b>							
<b>SO 1. Orientation of research-development and innovation activity towards directions corresponding to the fields of intelligent specialization</b>							
SO.1.	SO.1.1	-5 new/consolidated research directions	-5 new/consolidated research directions	-5 new/consolidated research directions	-5 new/consolidated research directions	RD	intern
OS.1.	OS.1.1	-1 center of competence/excellence and RDI consortia in areas of strategic importance in implementation	1 center of competence/excellence and RDI consortia in areas of strategic importance in implementation	-1 center of competence/excellence and RDI consortia in areas of strategic importance in implementation	-1 center of competence/excellence and RDI consortia in areas of strategic importance in implementation	RD	intern
SO.1.	SO.1.2	-7 RDI results responding to market demands and societal challenges	-12 CDI results responding to market demands and societal challenges	-7 CDI results responding to market demands and societal challenges	-7 CDI results responding to market demands and societal challenges	RD	intern
SO.1.	SO.1.3	-3 EU projects submitted	-3 EU projects submitted	-3 EU projects submitted	-3 EU projects submitted	RD	intern
SO.1.	SO.1.3	-5 national projects submitted	-15 national projects submitted	-5 national projects submitted	-10 national projects submitted	RD	intern
SO.1.	SO.1.3	-1 EU project accepted for funding	-1 EU project accepted for funding	-1 EU project accepted for funding	-1 EU project accepted for funding	RD	intern
SO.1.	SO.1.3	-1 national project accepted for funding	-4 national projects accepted for funding	-1 national project accepted for funding	-3 national projects accepted for funding	RD	intern
SO.1.	SO.1.3	-1 internal mini-grant organized, including with the participation of students	-1 internal mini-grant organized, including with the participation of students	-1 internal mini-grant organized, including with the participation of students	-1 internal mini-grant organized, including with the participation of students	RD	intern
SO.1.	SO.1.3	-16 young researchers involved in EU projects	-16 young researchers involved in EU projects	-16 young researchers involved in EU projects	-16 young researchers involved in EU projects	RD	intern
SO.1.	SO.1.3	-25 young researchers involved in national projects	-25 young researchers involved in national projects	-25 young researchers involved in national projects	-25 young researchers involved in national projects	RD	intern
SO.1.	SO.1.3	-6 visits/events organized with potential and existing collaborators from	6 visits/events organized with potential and existing collaborators from	6 visits/events organized with potential and existing collaborators from	6 visits/events organized with potential and existing collaborators from the private sector	RD	intern

	the private sector	collaborators from the private sector	the private sector					
SO.1.	SO.1.3	-1 partnership and internationalization plan				RD	intern	
SO.1.	SO.1.3	-3 promotion events through national/international platforms, networks or clusters /year				RD	intern	
SO.1.	SO.1.3	-10 international partnerships strengthened/developed				RD	intern	
<b>SO 2. Increasing the level of visibility of RDI results, promoting the transition to open science (Open Science) and maintaining progress in scientific research excellence</b>								
SO.2.	SO.2.1.	-26 articles indexed in ISI and WOS of which: 14 articles published in Q1/Q2 journals;	-28 articles indexed in ISI and WOS of which: 15 articles published in Q1/Q2 journals;	-30 articles indexed in ISI and WOS of which: 16 articles published in Q1/Q2 journals;	-32 articles indexed in ISI and WOS of which: 17 articles published in Q1/Q2 journals;	-34 articles indexed in ISI and WOS of which: 18 articles published in Q1/Q2 journals;	RD+MD	intern
SO.2.	SO.2.1.	-6 articles published in Q1/Q2 journals with lead author/correspondent from Ecoind	-7 articles published in Q1/Q2 journals with lead author/correspondent from Ecoind	-8 articles published in Q1/Q2 journals with lead author/correspondent from Ecoind	-9 articles published in Q1/Q2 journals with lead author/correspondent from Ecoind	-10 articles published in Q1/Q2 journals with lead author/correspondent from Ecoind	RD+MD	intern
SO.2.	SO.2.1.	-4 national and international patent applications;					RD+MD	intern
SO.2.	SO.2.1.	-4 national/international patents obtained					RD+MD	intern
SO.2.	SO.2.1.	-20 national/international awards obtained					RD+MD	intern
SO.2.	SO.2.1.	-1 book/book chapters published nationally and internationally	-2 books/book chapters published nationally and internationally	-1 book/book chapters published nationally and internationally	-1 book/book chapters published nationally and internationally;	-2 books/book chapters published nationally and internationally	RD+MD	intern
SO.2.	SO.2.1.	-20 communications presented at national and international conferences	-25 communications presented at national and international conferences	-30 communications presented at national and international conferences	-35 communications presented at national and international conferences	-40 communications presented at national and international conferences	RD+MD	intern
SO.2.	SO.2.1.	- internationally recognized RJECC journal					RD+MD	intern
SO.2.	SO.2.1.	- RJECC indexation actions in SCOPUS initiated;			- RJECC indexation actions in SCOPUS initiated;		MD	intern
SO.2.	SO.2.1.	-1 SIMI symposium	-1 SIMI symposium	-1 SIMI symposium	-1 SIMI symposium	-1 SIMI symposium	RD+MD	intern
SO.2.	SO.2.1.	-2 actions to popularize the symposium	-2 actions to popularize the symposium	-2 actions to popularize the symposium	2 actions to popularize the symposium	2 actions to popularize the symposium	MD	intern
SO.2.	SO.2.2.	-minimum 30% foreign participants in the symposium	-minimum 30% foreign participants in the symposium	-minimum 30% foreign participants in the symposium	-minimum 30% foreign participants in the symposium	-minimum 30% foreign participants in the symposium	RD+MD	intern
SO.2.	SO.2.2.	-1 Open Science procedure;					RD	intern
SO.2.	SO.2.2.	-1 updated ECOLIB institutional repository					RD	intern

SO.2.	SO.2.3.	-1 ECOIND website/social media platforms updated periodically;	MD	intern
<b>SO 3. Development and capitalization of research infrastructure</b>				
SO.3.	SO.3.1.	-14 new equipment purchased	RD	intern/other
SO.3.	SO.3.1.	-5 proposals for projects also aimed at the development of research infrastructure	RD	intern/other
SO.3.	SO.3.1.	-actions to identify some projects /opportunities for developing the emerging ECOCIM infrastructure	RD	intern
SO.3.	SO.3.2.	10 research, development and innovation partnerships/contracts concluded with operators in the public and private environment where use is made of/access to existing research infrastructure;	RD	intern
SO.3.	SO.3.3.	-14 research facilities updated in the EERTIS platform;	RD	intern
<b>SO 4. Developing human resources while maintaining and increasing the scientific skills of researchers</b>				
SO.4.	SO.4.1.	-3 young graduates/experienced staff employed	HR+RD	intern
SO.4.	SO.4.1.	-4 young graduates/experienced staff employed	HR+RD	intern
SO.4.	SO.4.1.	-3 young graduates/experienced staff employed	HR+RD	intern
SO.4.	SO.4.1.	-4 young graduates/experienced staff employed	HR+RD	intern
SO.4.	SO.4.1.	-5 new research jobs supported (ENI)	HR+RD	intern
SO.4.	SO.4.1.	-2 events to promote employment provision	HR+RD	intern
SO.4.	SO.4.1.	-2 events to promote employment provision	HR+RD	intern
SO.4.	SO.4.1.	-1 human resources policy and OTM-R policy	HR+RD	intern
SO.4.	SO.4.1.	-1 updated performance appraisal system	HR+RD	intern
SO.4.	SO.4.1.	-15 mobilities supported for researchers in order to carry out professional training courses	HR+RD	intern
SO.4.	SO.4.2.	- 1 initial HRS4R action plan implemented	HR+RD	intern
SO.4.	SO.4.2.	-80% employee satisfaction index	HR	intern
SO.4.	SO.4.3.	-1 revised staff incentive procedure	HR	intern
SO.4.	SO.4.3.	- trainings/vocational training courses organized internally	HR	intern
SO.4.	SO.4.3.	- trainings/vocational training courses organized internally	HR	intern
SO.4.	SO.4.3.	-20 internships	RD+SD	intern/other
SO.4.	SO.4.3.	-16 students/doctoral students supported	RD+SD	intern/other
SO.4.	SO.4.3.	-5 PhD's	RD+SD	intern/other
SO.4.	SO.4.4.	-1 competition for promotion in organized scientific degrees	HR	intern
SO.4.	SO.4.4.	-1 competition for promotion in organized scientific degrees	HR	intern
SO.4.	SO.4.4.	-1 competition for promotion in organized scientific degrees	HR	intern
SO.4.	SO.4.4.	-1 competition for promotion in organized scientific degrees	HR	intern
<b>SO 5. Development of technological and knowledge transfer and development of innovation capacity</b>				
SO.5.	SO.5.1.	-6 contracts concluded with the private sector	RD+CTT	intern

SO.5.	SO.5.1.	-11 partnerships with public/private institutions	-2 RDI results with transfer potential	-2 RDI results with transfer potential	-3 RDI results with transfer potential	-3 RDI results with transfer potential	-3 RDI results with transfer potential	RD+CTT	intern
SO.5.	SO.5.2.	-2 RDI results with transfer potential	-2 RDI results with transfer potential	-3 RDI results with transfer potential	-3 RDI results with transfer potential	-3 RDI results with transfer potential	-3 RDI results with transfer potential	RD+CTT	intern
SO.5.	SO.5.3.	-1 intellectual property policy						RD+CTT	intern
SO.5.	SO.5.4.	-2 round table events/matchmaking /, etc. /year						RD+CTT	intern
SO.5.	SO.5.4.	-3 actions to stimulate innovation and creativity (including competitions/workshop sessions and mentoring)	-4 actions to stimulate innovation and creativity (including competitions/workshop sessions and mentoring)	-4 actions to stimulate innovation and creativity (including competitions/workshop sessions and mentoring)	-4 actions to stimulate innovation and creativity (including competitions/workshop sessions and mentoring)	-4 actions to stimulate innovation and creativity (including competitions/workshop sessions and mentoring)	-4 actions to stimulate innovation and creativity (including competitions/workshop sessions and mentoring)	RD+CTT	intern/other
SO.5.	SO.5.4.	-10 trained personnel with high competencies in technology transfer and innovation.						RD+CTT	intern/other
SO.5.	SO.5.4.	-innovation management system maintained						RD+CTT	intern/other
<b>TRANSVERSAL OBJECTIVES</b>									
<b>TO 1. Development of the portfolio of research and environmental services offered by INCD-ECOIND</b>									
TO.1.	TO.1.1.	-NRDI ECOIND certification maintained	-NRDI ECOIND certification maintained	-NRDI ECOIND certification maintained	-NRDI ECOIND certification maintained	-NRDI ECOIND certification maintained	-NRDI ECOIND certification maintained	RD	intern
TO.1.	TO.1.2.	-10 announcements/year on the web or on social media platforms regarding the CDI services offered by the institute						RD	intern
TO.1.	TO.1.3.	-maintaining RENAR accreditation	-maintaining RENAR accreditation	-maintaining RENAR accreditation	-maintaining RENAR accreditation	-maintaining RENAR accreditation	-maintaining RENAR accreditation	RD	intern
TO.1.	TO.1.4.	-maintaining the attestation for the development of environmental studies and technical documentation for obtaining water management approvals and authorizations	-maintaining the attestation for the development of environmental studies and technical documentation for obtaining water management approvals and authorizations	-maintaining the attestation for the development of environmental studies and technical documentation for obtaining water management approvals and authorizations	-maintaining the attestation for the development of environmental studies and technical documentation for obtaining water management approvals and authorizations	-maintaining the attestation for the development of environmental studies and technical documentation for obtaining water management approvals and authorizations	-maintaining the attestation for the development of environmental studies and technical documentation for obtaining water management approvals and authorizations	RD	intern
TO.1.	TO.1.5.	-increase in average earned income by 5% compared to the average income from 2019-2023						RD	intern
<b>OT 2. Maintaining and improving the Integrated Management System for Quality, Environment, Innovation and Health and Safety at Work</b>									
OT.2.	OT.2.	-1 integrated quality, health and safety management system at work maintained						RD+GD	intern
<b>OT 3. Improving integrated operational management</b>									
OT.3.	OT.3.	-1 functional BI system and a customization/year involving the additional digitization of NRDI ECOIND activity						RD+GD	intern

<b>OT 4. Administration of the institute's heritage</b>			
OT.4.	OT.4.	-1 up-to-date renewed INCD-ECOIND property and building insurance policy	AD intern
<b>OT 5. Increasing the quality of the work climate in the institute</b>			
OT.5.	OT.5.1.	-1 gender equality strategy in force	GD intern
OT.5.	OT.5.2.	-1 gender equality plan developed and monitored	intern
OT.5.	OT.5.3.	-1 HR Excellence logo maintained	HR intern
<b>OBJECTIV TRANSVERSAL 6. Institutional capacity building</b>			
OT.6.	OT.6.1.	- 1 set of initiatives to improve project management (through actions such as round tables/matchmaking/etc./year, monitoring the success rate of projects won, by creating a framework for Intellectual property, Innovation management and project management, etc) - 1 set of initiatives for the recognition of scientific activity (through actions such as symbolic prizes awarded to innovators/year at an ECOIND event, through 1 Margareta Nicolau fellowship/award, etc) - 1 ECOIND website updated with CDI projects/results - 1 set of initiatives for communication and dissemination of scientific results (such as actions such as national/international awards obtained, foreign participants at SIMI symposium, through 1 action taken in "Initiative of scientific communication and development of future researchers", association to 1 living lab (on the Ocean mission)	RD+MD+SD+GD+CTT intern/other

# RD-Research Departments  
# MD-Marketing Department  
# SD-Scientific Director  
# DG-General Director  
# CTT – Technology Transfer Center  
# AD – Administrative Department  
# HR – Human Resources Department

**Director general INCD-ECOIND**  
**Dr. chim. Luoana Florentina PASCU**

