Metals
Industry
Research and
Development
Center

ANNUAL REPORT 2024

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MESSAGE from the SECRETARY

Congratulations to the DOST-Metals Industry Research and Development Center (MIRDC) for another year of excellence in research, development, and technological innovation, all in pursuit of improving the quality of life for Filipinos.

The DOST-MIRDC continues to drive economic and social progress through groundbreaking research, transformative technologies, and sustainable solutions. Your commitment to advancing the metals, engineering, and allied industries strengthens national resilience and global competitiveness.

This year, your pursuit of innovation has led to remarkable contributions that empower industries, generate employment, and accelerate economic growth. More than just overcoming challenges, you have embraced them, translating research into real-world applications that bridge the gap between scientific discovery and industrial progress. Through your R&D activities, technology transfer initiatives, and technical assistance, you are paving the way for a future defined by progress and sustainability.

The DOST commends the meaningful collaborations you have nurtured with the private sector, the academe, and government institutions. These partnerships cultivate a thriving ecosystem of knowledge exchange, fostering solutions to industry challenges and championing sustainable practices. By turning ideas into real-world applications, we not only address societal challenges but also promote human well-being, foster wealth creation, reinforce wealth protection, and institutionalize sustainability—the four pillars that guide our mission at DOST.

As we reflect on another year of accomplishments, I am confident that the dedicated men and women of DOST-MIRDC will persist in their mission of harnessing science, technology, and innovation to propel the metals, engineering, and allied industries forward. Your dedication will undoubtedly provide solutions, open opportunities and strengthen the foundation of a robust and future-ready economy.

Sa siyensya, teknolohiya at inobasyon, ang industriya ng metal ay patuloy na magpapatibay ng ating ekonomiya!

RENATO U. SOLIDUM, JR.
Secretary, DOST
and Chairperson, MIRDC Governing Council

MESSAGE from the EXECUTIVE DIRECTOR

It is with great pride and enthusiasm that we present the DOST-Metals Industry Research and Development Center's (DOST-MIRDC) Annual Report for 2024, showcasing our continued efforts to advance the metals, engineering, and allied industries. This report is a testament to our shared commitment to pioneering innovation, driving sustainability, and strengthening industry competitiveness.

This year's report highlights the crucial role of the metals, engineering, and allied industries in nation-building. It details DOST-MIRDC's research and development initiatives in critical fields including agriculture and aquaculture technologies, environmental preservation, defense applications, healthcare, aerospace, marine solutions, innovations in manufacturing, and Industry 4.0 applications. It also features the Center's technology transfer efforts and science and technology services, which are instrumental in empowering industries, fostering innovation, and promoting sustainability. These initiatives are strategically aligned with the DOST's four pillars — promotion of human well-being, wealth creation, wealth protection, and sustainability — ensuring that our efforts contribute meaningfully to national development and economic resilience.

As we reflect on our achievements over the past year and prepare for the challenges and opportunities ahead, DOST-MIRDC remains steadfast in its mission to support industry growth and transformation. Through collaboration with our valued stakeholders and partners, we are confident in our ability to overcome challenges, seize new opportunities, and contribute to a more resilient and sustainable future.

We extend our deepest gratitude to our stakeholders, partners, and colleagues for your unwavering support and dedication. Together, let us continue to shape a future driven by innovation, sustainability, and progress.

ROBERT O. DIZON
Executive Director, MIRDC

Vision

Center of excellence in science, technology and innovation for a globally-competitive metals, engineering and allied industries by 2025.

Mission

We are committed to provide both government and private sectors in the metals, engineering and allied industries with professional management and technical expertise on the training of engineers and technicians; information exchange; quality control and testing; research and development; technology transfer; and business economics and advisory services.

Quality, Environmental, and Information Security Policy

We are committed to provide products and services to both the government and the private sectors in the metals and engineering and allied industries with the highest standards of quality and reliability within our capabilities and resources and aligned to our strategic direction, to comply with applicable statutory and regulatory requirements to plan and implement actions to address risks and opportunities and to continually improve the effectiveness of our Quality, Environmental and Information Security Management Systems in order to enhance customer satisfaction at all times.

We shall manage and control our activities in order to minimize adverse impacts on the environment, prevent pollution and safeguard the health and safety of all employees, stakeholders, customers, external providers, and the surrounding community.

Core Values

Professionalism

We adhere to the highest ethical standards of performance.

We value our work and are committed to perform to the best of our ability.

Responsiveness

We spearhead implementation of projects that address the needs of the metals and engineering industries.

We find solutions to real-life problems through science, technology and innovation.

Integrity

We act responsibly, work honestly, and encourage transparency.

Dynamism

We perform our jobs with vigor and enthusiasm.

We welcome change as an opportunity for growth and continual improvement.

Excellence

We adhere to world-class performance and continuous improvement in all we do.

We always do our best in every task/ endeavor.

About the photo:

This striking recessed artwork, prominently displayed on the ceiling of the Center's Gold building, is visible from the second landing just before the top floor. It features metal pouring (in red) into gear teeth, symbolizing the vital role of the metals, engineering, and allied industries as the driving force behind national development.

2024
YEAR IN REVIEW

18

R&D projects completed (100% of target)

31

partnerships with public, private, and international stakeholders were created and maintained (100% of target)

100%
timeliness of projects implemented

6

technologies transferred (100% of target)

36
technologies diffused (133% of target)

100%
of requests for technology transfer delivered on time

6,667
technical services delivered (138% of target)

98.54%
of clients rated the Center's technical services as satisfactory or higher

2
ISO Certification/ Accreditation maintained

4,750
unique clients served

100%
of clients rated the Center's technology transfer services as satisfactory or higher

P30,422,128
revenue generated

Research and Development

R&D for Environmental Protection

Design and Development of a Floating Solid Waste Collector System for DENR

Co-created with the Department of Environment and Natural Resources – Environmental Management Bureau (DENR EMB-NCR), this harvester is geared to pioneer the cleansing of Metro Manila's waterways. It is designed to collect solid waste littered throughout the rivers and canals that channel through the cities, as well as gathering water hyacinths that contribute to flooding and clogging buildup.

The harvester system is composed of the waste collector itself, a high-capacity transfer conveyor, and high-speed barges that act as carriers of the collected materials to be transported and unloaded into garbage trucks for proper disposal.

The vessels were officially turned over to the DENR in December 2024, which promises that a cleaner and greener Metro Manila waterways can be enjoyed in the near future.

Design Improvement of Existing Chain Link Fencing Machine to Produce Slope Protection Circular Wire Mesh

In partnership with Talking Apples Inc. (TAI), the Center developed a prototype for producing a circular wire mesh structure. This allowed TAI to locally produce wire mesh rather than importing from Switzerland, greatly reducing the costs.

High-tensile strength circular wire mesh will benefit the National Government Infrastructure Program of the Department of Public Works and Highways (DPWH) and all the road users of the government's road network, as well as improved disaster management in the country.

R&D for Agro-Industrial Productivity and Advancement

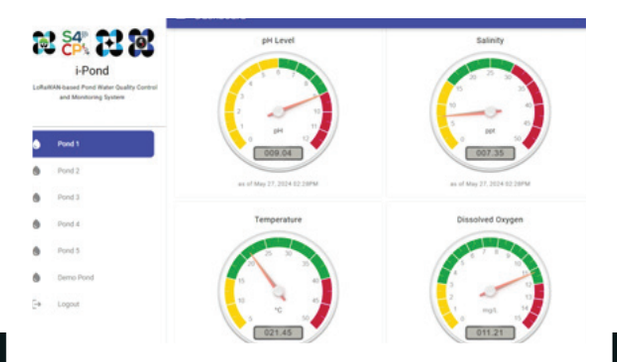
Agriculture

Design and Development of iPond

This long-range wide-area network (LoRaWAN)-based system was created to ensure positive yields from shrimp farms, which also boasts a sustainable energy supply via solar panels.

The iPond automatically detects significant changes in the water (temperature, pH, dissolved oxygen, and salinity) and generates commands to devices that keep the pond in optimal condition for the shrimps.

The Center's partner for this R&D initiative tested the prototype in three shrimp grow-out cycles and it performed with consistent reliability, and now adopts this new technology in their operation. This technology can already be adopted by other shrimp farms that are interested in iPond's advanced monitoring system.



This locally developed technology was featured in the Seoul International Invention Fair (SIIF) held at COEX, Seoul, South Korea from November 27-31, 2024. The iPOND secured a Bronze Award from the SIIF and the Best International Invention Award from the Malaysian Association of Research Scientists.

Design and Development of Integrated Seafood Dimension Acquisition Using Computer Vision (ISDA CV)

The Center developed a device that accurately measures fish length and weight, ridding the inaccuracies presented by using manual methods. This R&D initiative is targeted to be used by marine life monitoring organizations for their R&D programs.

ISDA CV uses computer vision technology to measure fish length, and load cells to detect fish weight. Measurement data are recorded and stored in a local server for further analysis. Aside from boosting productivity in aquaculture, this system can create commercial opportunities for local fabricators.

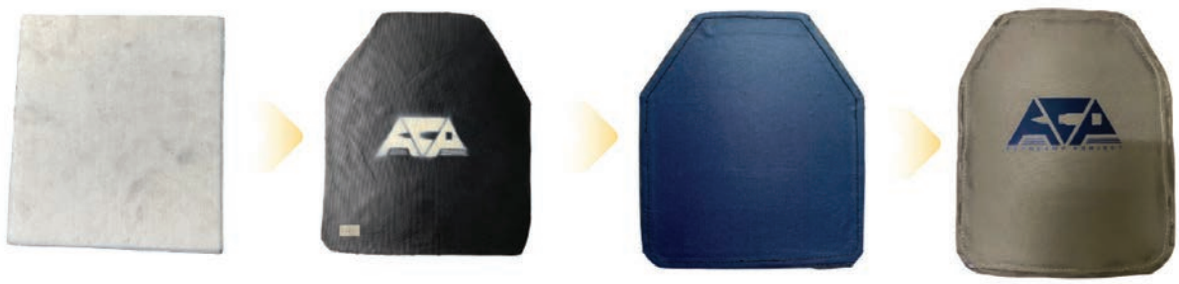
Design and Development of an Automated Control and Monitoring System in the Overall Productivity of Recirculating Aquaculture System (RAS)

A RAS monitoring system was developed to monitor and control the water quality parameters of a RAS pond in a partner company in Roxas, Oriental Mindoro. Ammonia, pH, temperature, salinity, and dissolved oxygen were specifically monitored to make the prototype affordable. The prototypes also feature an application of the IoT technology where the operator can view the pond's status anywhere via the internet.

The prototype developed was projected to benefit the operator of the pond with PHP 1.2 Million worth of savings in a span of five years. In addition, research agreements were also forged with local MSMEs that pledged to adopt the developed technology.

AeroComp: Enhanced Lightweight Fiber-Reinforced Composite Structures for Defense Applications

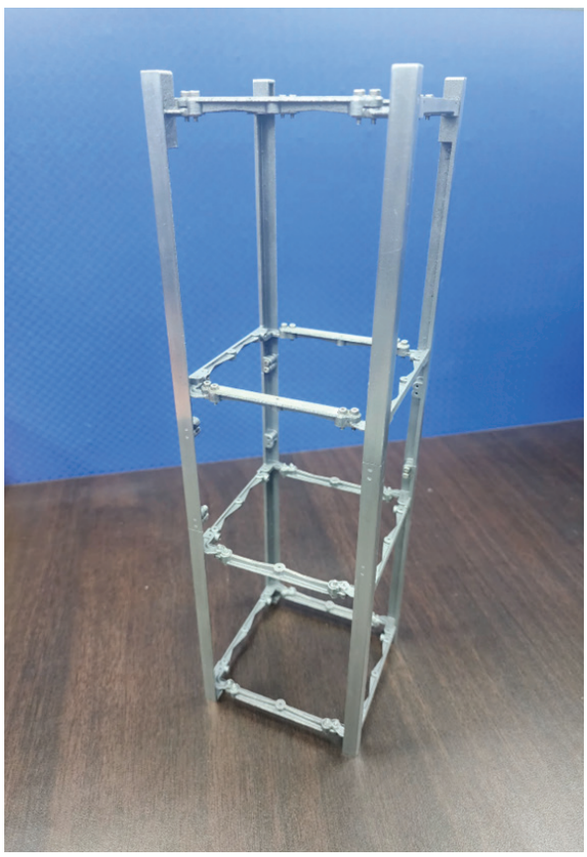
This project developed three products using additive manufacturing: (1) 3D-printed Riot Shield Mold, 3D-printed FAST Helmet Mold, and (3) 3D-printed Curve Armor Plate Mold. This joint R&D between the MIRDC, University of the Philippines Diliman - Department of Mining, Metallurgical, and Materials Engineering (UPD-DMMME), Air Force Research and Development Center (AFRDC), and Naval Research and Technology Development Center (NRTDC) aims to reduce the country's dependence on importing ballistic gears and equipment, which may also revolutionize the local production of complex composite structures.



Fabrication of a Robust Aerospace Modular Enclosure (FRAME)

The Center successfully manufactured and optimized a three-unit (3U) cubesat frame. After optimization, the cubesat frame that originally weighed 333 grams weighed only 155 grams. Microsatellites to be launched in space can be designed with more flexibility. Due to its reduced weight, production of microsatellites can be more cost-efficient.

This breakthrough may also begin the self-sufficiency of the Philippines in producing frames and other microsatellite components which will save a large amount of funds.



Research on the Manufacturability of 3D-printed Lattice-Based Panels Using DMLS for Satellite Applications

The Center designed and fabricated full-sized lattice panel prototypes for space launch applications. Together with the Philippine Space Agency, the Center conducted comprehensive thermomechanical simulations and confirmed that the design of the lattice panel is indeed suitable for aerospace use. Comprehensive and tensile testing were used to determine structural integrity and post-processing techniques were implemented to enhance quality.

The lattice panels were designed with the following configurations: (1) body-centered cubic; (2) octet; and (3) gyroid, and were fabricated using direct metal laser sintering, an advanced manufacturing technology available at DOST-MIRDC's Advanced Manufacturing Center (AMCen). This success in production could change spacecraft component manufacturing, which can extend to satellite manufacturing and other lightweight aerospace applications.

Comparative Study of Analytical Techniques Using Handheld Laser-Induced Breakdown Spectrometer (LIBS) and Handheld Energy Dispersive X-ray Fluorescence Spectrometer (ED-XRF) with Spark-Optical Emission Spectrometer (Spark-OES)

Deformed steel bars contain critical elements such as carbon (C), silicon (Si), manganese (Mn), phosphorus (P), and sulfur (S). Elemental content analysis of steel bars is done using technologies available in the market. The Center compared the performance of a handheld laser-induced breakdown spectrometer and handheld energy dispersive x-ray fluorescence spectrometer with a spark optical emission spectrometer (spark-OES).

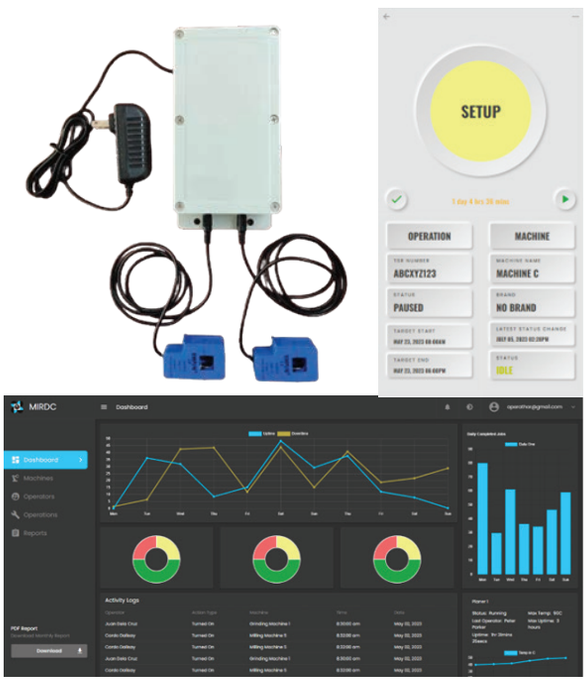
It was observed that there is a positive correlation between LIBS and Spark-OES for C content, suggesting LIBS is a viable alternative for rapid carbon screening. The EDXRF also correlated with Spark-OES for Si and Mn, highlighting its speed and ease of use. However, detection for P and S for the LIBS and EDXRF proved to have weak responses compared to Spark-OES.

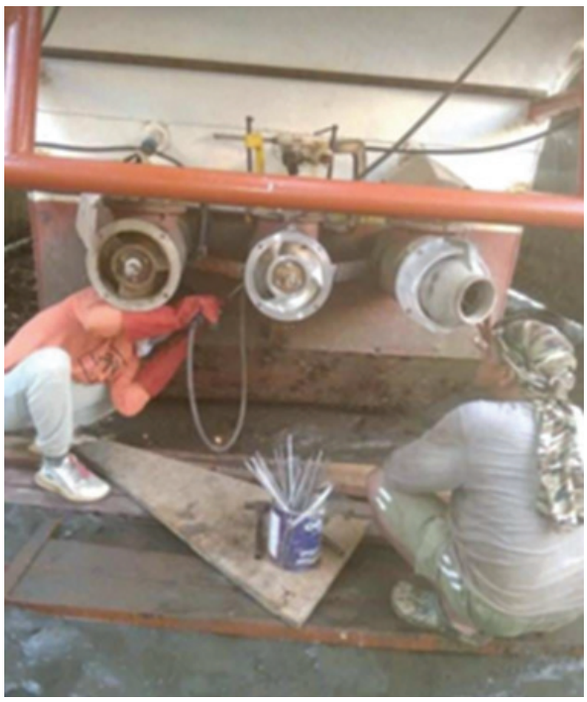
The study concludes that the LIBS and EDXRF demonstrate promising capabilities for rapid screening of critical elements such as C, Si, and Mn, making the two devices viable for on-site testing, which can promote economic efficiency in construction practices. However, LIBS and EDXRF cannot fully replace Spark-OES in the analysis of P and S. To summarize, LIBS and EDXRF could be effectively employed for specific applications, particularly in preliminary screening stages, while traditional methods like Spark-OES remain essential for definitive analysis.

Pre-Commercialization of IOT-Based Monitoring System for Machine Shop

The Center developed an IoT-based machine monitoring system that will enhance operational efficiency and modernize machine shops. The system provides real-time monitoring of machine status, including whether machines are running, idle, or off.

R&D partners Aton Marketing, G-Start Builders Corp., and P.IMES Corp. used their machine shops for the field testing site, which demonstrated the system's capabilities in monitoring machine productivity status, as well as showing reports on machine uptime and downtime.





Rapid and Advanced Remanufacturing of Marine Propulsion System (RAMMPS)

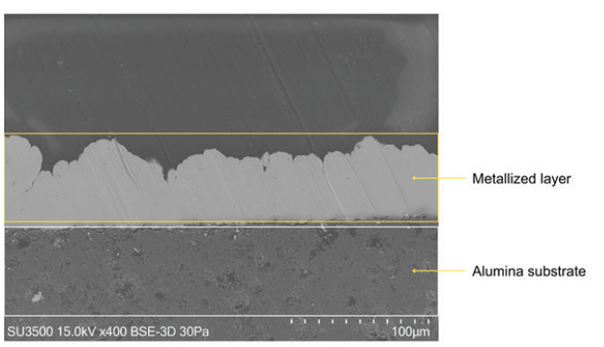
The Center embarked on an initiative to remanufacture 10 water jet propulsion units using hybrid manufacturing processes. 3D scanning and metrology techniques were employed to reverse-engineer existing components.

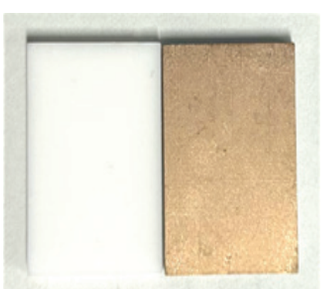
This project, implemented in partnership with Aklan State University, is a response to the growing demand for cost-effective, ecofriendly, and safe marine transport systems. It also boosts the industry's self-reliance in marine component production.

Metallization of 3D Printed Ceramics

The Center developed and patented a method for the metallization of 3D-printed ceramics with the use of stereolithography technology and electroplating. This R&D initiative aims to enhance the physical properties of materials, such as adhesion strength and electrical connectivity.

This metallization method may prove to be groundbreaking with the industries' increasing demand on 3D-printed ceramics and other multifunctional materials that can operate under extreme conditions while maintaining precise electronic performance. Biomedical implants and electronic components are only some examples of the potential applications where this method can be adapted to.





Study on the 3D Printing-Assisted Investment Casting for Detailed Ring Designs

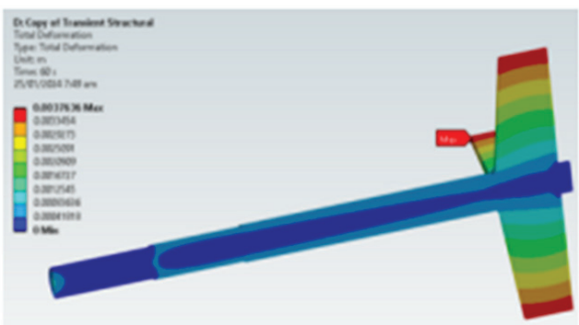
MIRDC integrated the use of additive manufacturing to investment casting in fabricating rings, showcasing the advancement of using 3D printing in the casting process. Instead of conventional patternmaking and shell-building processes, the molds were produced through 3D printing. This way, production schedules are faster and can cope with market demand.

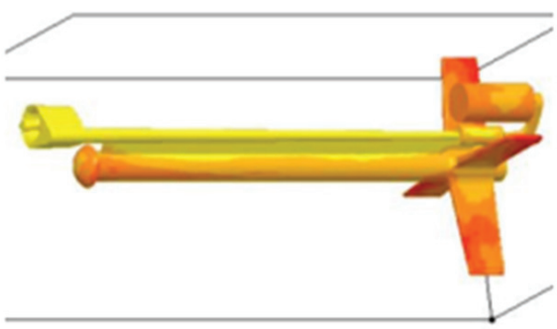
Integrating 3D printing into the casting process necessitated the creation of machines to complete the manufacture of the rings. Hence, this project also produced the centrifugal casting machine and the vacuum investment machine.

Development of Casting Design of a Fan Shaft with Verification through Casting Simulation and Validation via Trial Casting

This joint project with Metals Engineering Resources Corp. (METERCOR) demonstrated the advantages of using casting simulations in developing complex designs featuring long sections and thin features.

The development of proven effective fan shaft casting took 12 weeks, and through this process, areas for improvement were identified in equipment and procedures. This project is expected to provide necessary data that will benefit the industry, which will lead to faster development activities and be more cost effective.

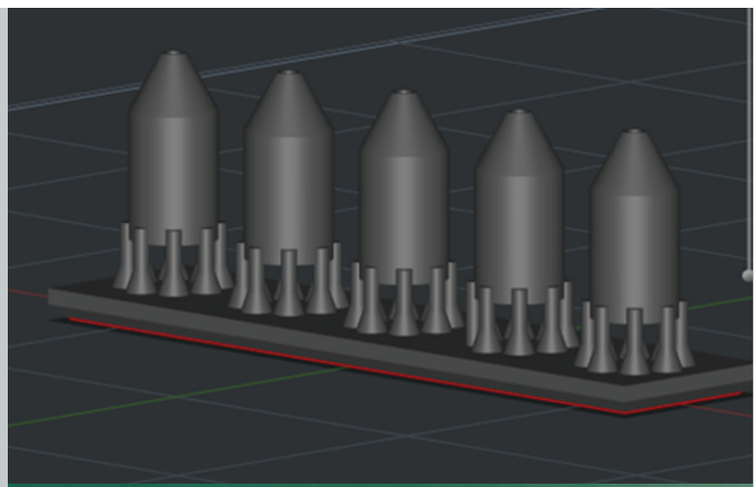




Design and Development of 3D Printed Vacuum Suction Tip

DOST-MIRDC designed and developed a 3D-printed vacuum suction tip that is electrostatic discharge (ESD) compliant for industrial use. This initiative will provide low-cost but high-performance customizable suction tips that will be used by automated manufacturing systems.

This manufacturing success could promote the fabrication of locally developed solutions through additive manufacturing.



Formulation and Testing of Coconut Oil as Sustainability Machining Fluid in Collaboration with INTI (Instituto Nacional de Tecnología Industrial)

The project developed three formulations: (1) virgin coconut oil-based fluid, (2) cooking coconut oil-based fluid, and (3) emulsifiable fluid using cooking coconut oil. Only the second and third formulations passed physical and chemical tests and were tested on MIRDC's conventional and CNC machines. Tests included specific gravity, pH, corrosion resistance, flashpoint, biodegradability, and metal specimen roughness for mild steel, stainless steel, and aluminum.

R&D for Health Security

Design Improvement of OstreaVent II Adult Ventilator (OV2)

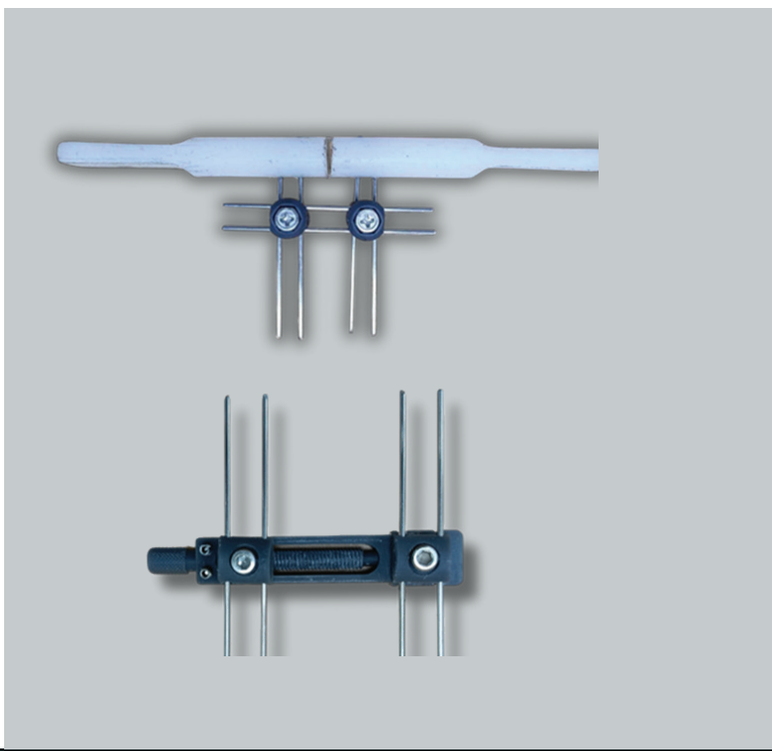
MIRDC upgraded the OstreaVent II Adult Ventilator (OV2), which was developed by the Center during the heat of the pandemic in 2020. The new version of the OV2 is easier to fabricate and more durable than the original version. It now uses alternative materials since the materials used in the 2020 version are quite limited.

The casing now consists of 3D printed acrylonitrile styrene acrylate (ASA) material which is highly durable and UV resistant, and the manifold is now stainless steel with commercially available fittings. Ten new units of OV2 were fabricated, tested, and passed the protocol requirements, and are now ready for field testing in various hospitals, which will be conducted in partnership with the Breath of Life Foundation.

Rapid Prototyping of an External Fixation System for Local Manufacture

The Center along with UP Manila fabricated a 3D-printed metacarpal external fixation system which can be locally produced. Additive manufacturing is utilized in this process, which allows multiple design iterations at a reduced cost.

Testing of this prototype focuses on stability and ease of use that will meet practical needs of surgeons and improve patient outcomes. Successful production will address the existing shortage of appropriate external fixation equipment, promising enhanced surgical care within the country.



Balik Scientist Dr. Albert Causo Supports DOST-MIRDC's Promotion of Industry 4.0

Dr. Albert Causo is an automation, artificial intelligence, and robotics expert affiliated with ALGOrhythm Robotics Center in Malaysia as its Program Director. Through the Balik Scientist Program, Dr. Causo collaborated with DOST MIRDC's Advanced Mechatronics, Robotics and Industrial Automation Laboratory (AMERIAL) to showcase the advancements in Industry 4.0 technologies in other countries and promote its integration into various industries nationwide as he held a series of seminars specializing on automation. In his Balik Scientist exit presentation titled "Are We Ready for Robots? Opportunities and Challenges for Robotics in the Philippines," he noted that the country needs to catch up with global automation, and sees this challenge as an opportunity for growth and innovation.

Special thanks to DOST-MIRDC's R&D Partners:

- *UP Manila*
- *UP Diliman - Department of Mining, Metallurgical, and Materials Engineering (UPD-DMMME)*
- *Air Force Research and Development Center (AFRDC)*
- *Naval Research and Technology Development Center (NRTDC)*
- *Philippine Space Agency (PhilSA)*
- *CKKC Electrical Supply*
- *Aklan State University*
- *Aqua Tierra Agri-Industrial Farms Inc.*
- *Talking Apples Inc.*
- *Instituto Nacional De Technologia Industria (National Institute of Industrial Technology) of Argentina (INTI)*
- *Aton Marketing, P.IMES, and G-Start Builders Corp.*
- *AGRITEKTURA Enterprises*
- *Breath of Life Foundation.*
- *DENR EMB-NCR*

Technology Transfer

6 Technologies adopted

7 Fabricators accredited

8 Licensing agreements finalized

Industrial Controls Corporation (ICC), Quezon City, Metro Manila
- Building a Universal Mount for Heavy-Barrel Automated Weapon Integration (BUHAWI)

SAFER PH Innovations, Inc., Angeles City, Pampanga
- Building a Universal Mount for Heavy-Barrel Automated Weapon Integration (BUHAWI)

TACTICS SOG Industries, Inc., Taguig City, Metro Manila
- Building a Universal Mount for Heavy-Barrel Automated Weapon Integration (BUHAWI)

DM Baylon Manufacturing and Industrial Inc., Dagupan City, Pangasinan
- Modular Water Retort
- LPG-fired Spray Dryer

Agricomp Machineries and Construction Corp. (AMCC), Cauayan, Isabela
- Micro-cupola

Gecar Machine Solutions, Inc. Quezon City, Metro Manila
- Automated Trash Rake (ATR)

Metal Hardware Industrial Product Corp., Quezon City, Metro Manila
- Wrought Iron Forming Machine

Sales Up for MIRDC Licensee

The adoption of MIRDC technologies by Gecar Machine Solutions, Inc. raised the company's annual sales by more than 30% in the fabrication of the MIRDC designed and developed equipment as follows:

1. 1 unit Vertical Batch Water Retort for LGU of Dingalan, Aurora
2. 1 unit Vacuum Fryer for LGU of Dingalan, Aurora
3. 1 unit Bench Top Freeze Dryer for LGU of Dingalan, Aurora
4. 1 unit Vertical Batch Water Retort for Pangasinan State University

Promotion for Technology Diffusion

36 Technologies diffused (133% of target)

16 Promotional events conducted

1,020 Attendees to promotional events

100% of attendees rated the Center's promotional events as very satisfactory or higher

MAJOR EVENTS

2024 Regional Science and Technology Week (RSTW) Celebrations

The DOST-MIRDC showcased its technologies and services to 12 regions during their respective RSTW celebrations. The Center featured its Advanced Mechatronics, Robotics, and Industrial Automation Laboratory (AMERIAL), Advanced Manufacturing Center (AMCen), Mold Technology Support Center (MTSC), Metals Engineering and Innovation Centers (MEIC), and food processing technologies, among others.

TeknoMETALino Forums

The DOST-MIRDC held its forums dubbed as TeknoMETALino at the RSTW celebrations around the country and during the 2024 NSTW celebration in Cagayan de Oro City. The forums featured technologies and facilities such as the i-POND, additive manufacturing or 3D printing, Smart RAS, food processing technologies, AMERIAL, AMCen, MTSC, and MEICs.

2024 National Science and Technology Week

The DOST-MIRDC was part of the “Wealth Creation” exhibit during the 2024 NSTW Celebration on November 27 to December 1, 2024 at The Atrium, Limketkai Center, Cagayan de Oro City. The Center showcased AMERIAL’s Human-Machine Interface Supervisory Control and Data Acquisition (HMI SCADA) technology, AMCen’s 3D printing technologies, services, and products, contributing to the central theme ”Siyensya, Teknolohiya at Inobasyon: Kabalikat sa Matatag, Maginhawa, at Panatag na Kinabukasan.”

Project HATCH MOA Signing

DOST-MIRDC signed a tripartite agreement with the Department of Agriculture National Fisheries Research and Development Institute (DA-NFRDI) and DA Bureau of Fisheries and Aquatic Resources (BFAR) to boost milkfish production through hatchery automation, entitled "Project HATCH: Heat Assisted Temperature Control and Monitoring Systems for Hatchery Management of Milkfish," on August 20, 2024.

The project is expected to benefit the aquaculture industry in the Philippines, as well as consumers of milkfish and industries related to metals, engineering, and aquaculture.

2024 National Youth Science, Technology, and Innovation Festival

The 2024 NYSTIF was held on September 18-21, 2024, at the Philippine International Convention Center (PICC). As part of the festival, DOST-MIRDC led an activity that brought together junior high school students from various schools, who eagerly participated in AMCen's 3D printing workshop.

The workshop successfully engaged and inspired young minds, equipping them with valuable skills and fostering an interest in additive manufacturing and problem-solving. A special recognition was awarded to the group with the best design, highlighting their innovative approach to the assigned challenge. The event showcased the transformative power of science and technology in shaping the next generation of innovators.

Launching and Turnover of the Floating Solid Waste Collector System to the DENR EMB-NCR

The launching of the DOST-MIRDC designed and developed floating solid waste collector system was held on June 13, 2024 at the Pasig River Esplanade. This technology, developed in partnership with the Department of Environment and Natural Resources Environmental Management Bureau-NCR (DENR EMB-NCR), is poised to address the persistent issues of solid waste and the overpopulation of water hyacinths in Metro Manila's waterways. It also underscores the government's collaborative efforts in promoting sustainable environmental practices and innovative technological solutions.

On December 20, 2024, the technology was turned over to the DENR EMB-NCR.

AMDev MOU Signing

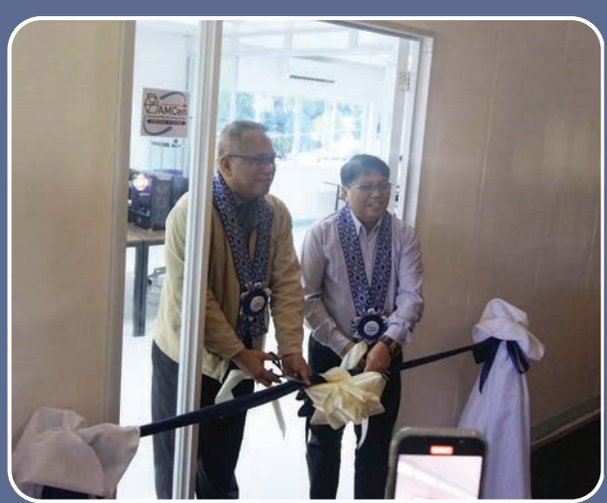
AMCen partnered with the Unilab Foundation for the Advanced Manufacturing Workforce Development Alliance (AMDev) project to provide industry personnel training in additive manufacturing. The 3Ducation Formation team is currently preparing a training calendar to facilitate regular sessions for AMDev alliance members.

Through the USAID-supported AMDev program, Unilab Foundation has also collaborated with DOST-MIRDC to develop a highly skilled and adaptive workforce. This initiative aims to align workforce competencies with the evolving demands of the advanced manufacturing sector by establishing well-defined skills and qualification descriptors, competency frameworks, and training standards.

Launching of AMCen Central Visayas

The DOST Region VII, in collaboration with the DOST-MIRDC, inaugurated AMCen Central Visayas, the first AMCen facility outside Metro Manila. AMCen Central Visayas is located at the Provincial Science and Technology Office – Cebu and is envisioned to contribute significantly to the region's industrial and technological development. With funding from DOST VII, AMCen Central Visayas will be a hub for academic research, business purposes, and community collaborations where the transformation of ideas into practical innovative solutions will be encouraged and supported through additive manufacturing.

At the core of this initiative is the Cebu Innovation Hub, established by DOST VII in partnership with the Wadhwani Foundation and KILSA Global. The hub fosters ideation, enabling concepts to be developed and realized through AMCen Central Visayas' cutting-edge resources, including a range of 3D printing technologies, from low-fidelity prototypes to high-precision printers and scanners. The launch also introduced the AMCen Integrated Online System, designed to streamline operations and enhance accessibility for stakeholders. A consultative meeting with industry representatives ensured the facility aligns with the region's manufacturing needs. This initiative positions Central Visayas as a key player in advanced manufacturing and innovation, extending AMCen's reach beyond Metro Manila for the first time.



Turnover of MEICs Batch 1 to Partner Universities in the Regions

The DOST-MIRDC turned over equipment to three MEICs as part of the delivery of the 'Establishment of the Metals and Engineering Innovation Center in CAR, Region I, II, III, and X (MEIC Batch1)' project. This project is in cooperation with DOST Regional Offices and host state universities and colleges. With the turnover, the host SUC assumes the responsibility for the operations, maintenance, and sustainability of the facility. Details of this accomplishment are as follows:

Name of the host university	Date of Turnover
Ifugao State University (IFSU) *CAR – Lagawe Ifugao*	August 7, 2024
Cagayan State University (CSU) Carig Campus *Region II – Tuguegarao City, Cagayan*	September 25, 2024
Nueva Ecija University of Science and Technology (NEUST) Region III – Cabanatuan City, Nueva Ecija	December 10, 2024

Launching of the Metals and Engineering Innovation Centers Batch 2

DOST-MIRDC continuously engages in activities that drive innovation, promote skills development and upgrading, and support regional economic growth through empowering metals, engineering, and allied industries across the country. MEIC Batch 2 project focuses its efforts on Regions IVA, IVB, V, VI, VII, VIII, IX, XI, XII, and XIII. Below are the completed MEICs under Batch 2 that were launched in 2024:

Eastern Visayas State University (EVSU)
Region VIII – Tacloban City
June 26, 2024

Bicol State College of Applied Science & Technology (BISCAST)
Region V – Naga City
June 27, 2024

Mindanao State University (MSU) – GenSan
Region XII – General Santos City
October 3, 2024

Batangas State University
Region IVA – Batangas City
October 7, 2024

University of Southeastern Philippines (USeP)
Region XI – Davao City
November 11, 2024

Zamboanga Peninsula Polytechnic State University (ZPPSU),
Region IX – Zamboanga City
November 20, 2024

2024 METALS AND ENGINEERING (M&E) WEEK CELEBRATION

This event is held every third week of June. For this year's M&E Week celebration, the DOST-MIRDC held its Industry Forum, the 3rd National M&E Conference, conducted free webinars, an open house tour of its facilities, and the M&E Skills Competition and Awarding.

2024 M&E Industry Forum

The Forum provided updates on the country's metals, engineering, and allied industries, featuring presentations on metalworking, die and mold, welding, mechatronics, robotics, and aerospace.

A key highlight was the unveiling of the ASTM International Facility Safety Marker and the Advanced Manufacturing Workforce Development Alliance (AMDev) marker. These markers affirm AMCen's compliance with international additive manufacturing safety standards and its status as the third advanced manufacturing institute in partnership with Unilab Foundation, Inc. and USAID.

The event concluded with an open discussion between the Center and the industry. DOST executives and local industry players represented by industry association officials identified challenges, recognized one another's efforts, and expressed commitment to contribute to the advancement of the metals, engineering, and allied industries.

3rd National M&E Conference

The 3rd National M&E Conference was held during the 2024 M&E Week celebration at the Hilton Manila Hotel, Pasay City. The conference saw the presentation of eight plenary speakers who presented their research on technologies and services for the metals, engineering, and allied industries.

M&E Skills Competition

The 7th M&E Skills Competition strengthened the partnership between DOST-MIRDC and the metals, engineering, and allied industries. Partnering with the Center for this year's skills competition are the Mechatronics and Robotics Society of the Philippines, the Philippine Welding Society, and the PDMA, Inc.

WELDING CATEGORY:

- Metal Fitting and Cutting in Carbon Steel plate
- Flux Cord Arc Welding (FCAW 3G)
- Gas Metal Arc Welding in Aluminum Plate (Fillet Weld), 2F and 3F position

DRAFTING CATEGORY:

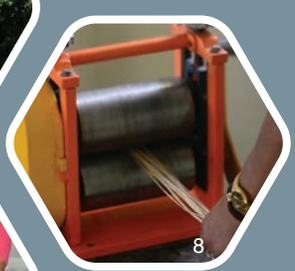
- CAD using Solidworks

MECHATRONICS/ROBOTICS CATEGORIES:

- Internet of Things (IoT)
- Robotics
- Mechatronics
- Research and Development

TECHNOLOGIES FOR COMMERCIALIZATION

1. Building a Universal Mount for Heavy-Barrel Automated Weapon Integration (BUHAWI)
2. Hybrid Electric Road Train
3. Hybrid Electric Train
4. Automated Guideway Transit
5. Automatic Trash Rake
6. Integrated Wrought Iron Forming Equipment (iWIFE)
7. Floating Solid Waste Collector System
8. Tikog Flattening Machine
9. Pandanus Leaves Slitter-Presser
10. Abaca Fiber Stripping Machine
11. Rice Harvester Attachment
12. Rice Transplanter Attachment
13. Compact Rice Mill Chute
14. Superheated Steam Treatment System for Stabilized Brown Rice Production
15. Water Retort
16. Spray Dryer
17. Freeze Dryer
18. Vacuum Fryer
19. Electric Potter's Wheel
20. Jigger and Jolly Machine
21. Retractable Antenna Mask (RAM)
22. i-POND
23. IoT-based Monitoring System for Machine Shop
24. Conveyorized Okra Dryer



Science and Technology Services

Technical Services Highlights

The Center's development and production services are showcased in the project commissioned by the following clients:

1. World-renowned Filipino artist Ram Mallari, Jr. of Steampunk Art Phils., Inc., worked with the Center to produce 15-foot bronze statues of Gen. Emilio Aguinaldo and Andres Bonifacio. The MIRDC foundrymen utilized the Center's induction furnace to melt and pour metal into ceramic molds. These statues are now in front of the New Cavite Provincial Capitol.

2. MIRDC had the privilege of fabricating a prototype skid shoe for the Presidential helicopter, a crucial component in a chopper's landing gear system. This earned the Center a plaque of appreciation from the 250th Presidential Airlift Wing in August 2024.

3. Mr. Elmer Perile, a fabricator and machine shop owner in Pasig, collaborated with MIRDC to reverse-engineer and fabricate a hypoid bevel gear system. The project was successfully executed through the combined expertise of MIRDC's TSSS and AMCen teams, who leveraged their skills in 5-axis CNC machining, 3D scanning, and 3D printing. Despite the challenges posed by the absence of a data sheet and the degraded condition of the gear samples, the teams effectively reconstructed the system.

15-foot bronze statue of Andres Bonifacio

4. MIRDC manufactured a gun bolt, a key component for the Philippine Air Force's .50-caliber machine gun firing mechanism, supporting local design and production while cutting costs by nearly 50% and minimizing import dependence. The bolt passed a 500-round firing test without deformation or loss of functionality, showcasing MIRDC's precision and effectiveness.

5. Besteq Industrial Machining Corp. collaborated with MIRDC to produce a complex steel rim die design for Toyota. Given the complexity and challenges to produce the die, the Center developed a specialized machining process which utilized a large CNC machine that has a capacity of producing components up to 2 meters, ensuring the precision and quality for Toyota's needs.

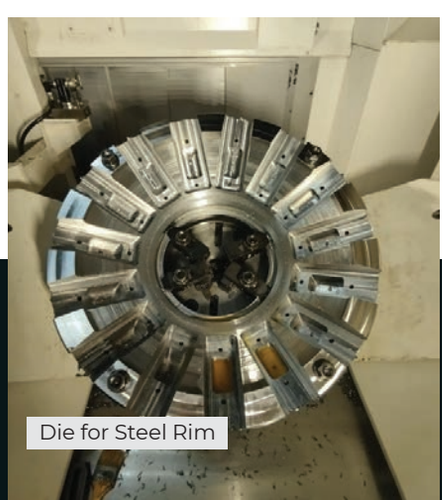
6. The Philippine National Police Special Action Force (PNP-SAF) partnered with the Center in producing a brass raven statue which serves as their emblem. Through the process of investment casting, this raven was brought to life with intricate details, which will now serve the nation alongside the force.

7. Technological University of the Philippines Manila (TUP-Manila) students collaborated with the Center for their thesis requirements. With the help of MIRDC, the students successfully fabricated a Semi-Automatic Hammer Forging Machine with a Tri-Speed Indicator, which can produce strong and durable metal products. The Center received a certificate of appreciation from TUP's Mechanical Engineering Technology Department for providing support and hands-on experience to their students, giving them a glimpse of challenges that they could experience in manufacturing.

8. Support to other divisions/projects:
   - Provided facility and manpower to 22 training programs of the Center
   - Led the QMS Internal Audit
   - Led the creation of the Public Service Continuity Plan (PSCP)
   - Successfully maintained compliance with the PRB-Metallurgical Engineering Physical Inspection and Monitoring requirements for the Center's Heat Treatment and Metalcasting activities, ensuring its continued authorization to operate the Foundry
   - Provided metalworking and material handling services to:
     - AMCEN
     - OV2.2
     - COBRA
     - TRIAMPH
     - MTSC
     - H3DENR
     - WIREMESH
     - MEIC
     - I-POND
     - RAMMPS
     - RINGS
     - Single Cylinder Diesel Engine
     - HATCH
     - RAS, and
     - ISDA-CV


Hypoid bevel gear


Machine Gun Bolt Display


Die for Steel Rim

Analysis and Testing Highlights

(1) On April 17 to 18, 2024, the Philippine Accreditation Bureau (PAB) of the Department of Trade and Industry (DTI) conducted the first Surveillance Audit of the Mechanical and Chemical Testing Laboratories through an onsite assessment. Following a satisfactory audit outcome, the Center successfully retained its ISO 17025:2017 accreditation.

This accreditation reaffirms the expertise and competence of ATD's Testing and Calibration Laboratories.

(2) The Center actively supports DTI programs and PRC requirements in promoting quality and product safety through various engagements. ATD's Approved Signatories contribute as Technical Assessors and Experts in testing and calibration programs.

In addition to regular calibration services, the Center participated in several proficiency testing programs:

- The Metrology Lab successfully passed the Gauge Block Proficiency Testing conducted by South Quality Argentina.
- The NDT Lab achieved satisfactory results in the latest proficiency testing for Radiographic and Ultrasonic Testing by PT Australia.
- The Physico-Chemical Laboratory successfully passed Compalab's International Proficiency Testing for the Chemical Analysis of Aluminum Alloy.

Additionally, on August 19, 2024, the Analytical Laboratories Section (ALS) received a Certificate of Authority to Operate (CATO) from the PRC Board of Chemistry (PRC-BOC) after meeting all Chemistry Law requirements.

(3) The ATD laboratories provided services to various agencies and well-known companies, demonstrating the trust they have earned across industries.

The Mechanical Metallurgy (MM) and Non-Destructive Testing (NDT) Laboratories were commissioned by railway corporations for material calibration and testing, playing a key role in the North-South Commuter Railway, Metro Manila Subway, and MRT 7 projects.

The Philippine Coast Guard utilized the NDT Laboratory's Magnetic Particle Testing for handgun inspections, while Michelin partnered with the Autoparts Testing Laboratory (ATL) for Tire Endurance Testing.

The Physico-Chemical Laboratory supported the Bureau of Soils and Waste Management's composting facilities project and assisted a major food chain by providing material identification services to enhance quality control.

The Corrosion Laboratory upgraded its Salt Spray Test to 1,000 hours, increasing its capabilities and attracting new clients.

On a larger scale, the Instrumentation and Metrology Laboratories extended services to agencies such as the Department of Public Works and Highways - Bureau of Research and Standards and DOST Regional Offices (CAR, III-Pampanga, VI-Iloilo, IX) to support regional development.

Additionally, the Instrumentation Laboratory acquired new reference standards for Electrical, Temperature, and Mass parameters through the Onelab project, *Smarter Onelab for Industry 4.0 through Testing and Calibration, Education, and Discovery (Onelab for TED)*. This investment enhances productivity and optimizes calibration processes with advanced equipment.

Seminars/Workshops/Skills Training Programs

5,996 Clients were served by the Center's training programs

6,679 Industry personnel were trained by the Center

Mold Technology Support Center (MTSC)

3,127 Industry personnel trained	**89** Training programs conducted	**2** New training porgrams implemented
63 Agencies and companies that availed training programs	**37** Technical services rendered 96.99% of clients rated the services as satisfactory or bettter	**12** Short-term consultancies provided

Adhering to its mandate, the Center provided technical expertise and professional management to the industries, which can be seen here:

- 173 training programs were conducted, summed up from the Center's on-site training programs, regional programs, face-to-face seminars, and webinars
- The Center collaborated with the **Rotary International District 3880** (Rotary Club Mandaluyong Central) and **Philippine Welding Society Inc.** in establishing the **Advanced Welding Training Center (AWTC)**. This partnership increased the programs that the Center provides, which include Arc Gouging, Oxy-Acetylene Welding, TIG Welding, Aluminum Welding, and many more.

Consultancy Services

There are a total of **595** consultancy services conducted by the MIRDC to private firms, other government institutions, academe, and individuals in the field of metalworking processes, metal casting, food processing, additive manufacturing, and productivity improvement.

FACILITIES OF THE DOST-MIRDC

Non-Destructive Testing

Calibration and Metrology Laboratory

Physico-Chemical Laboratory

Auto-Parts Testing Laboratory

Mechanical Laboratory

Physical Metallurgy Laboratory

Surface Engineering Facility

Metal Casting Facility

Die and Mold Solution Center

Gear Making Facility

Sheet Metal Fabrication Facility

Advanced Welding Training Center

Advanced Manufacturing Center

Advanced Mechatronics, Robotics, and Industrial Automation Laboratory

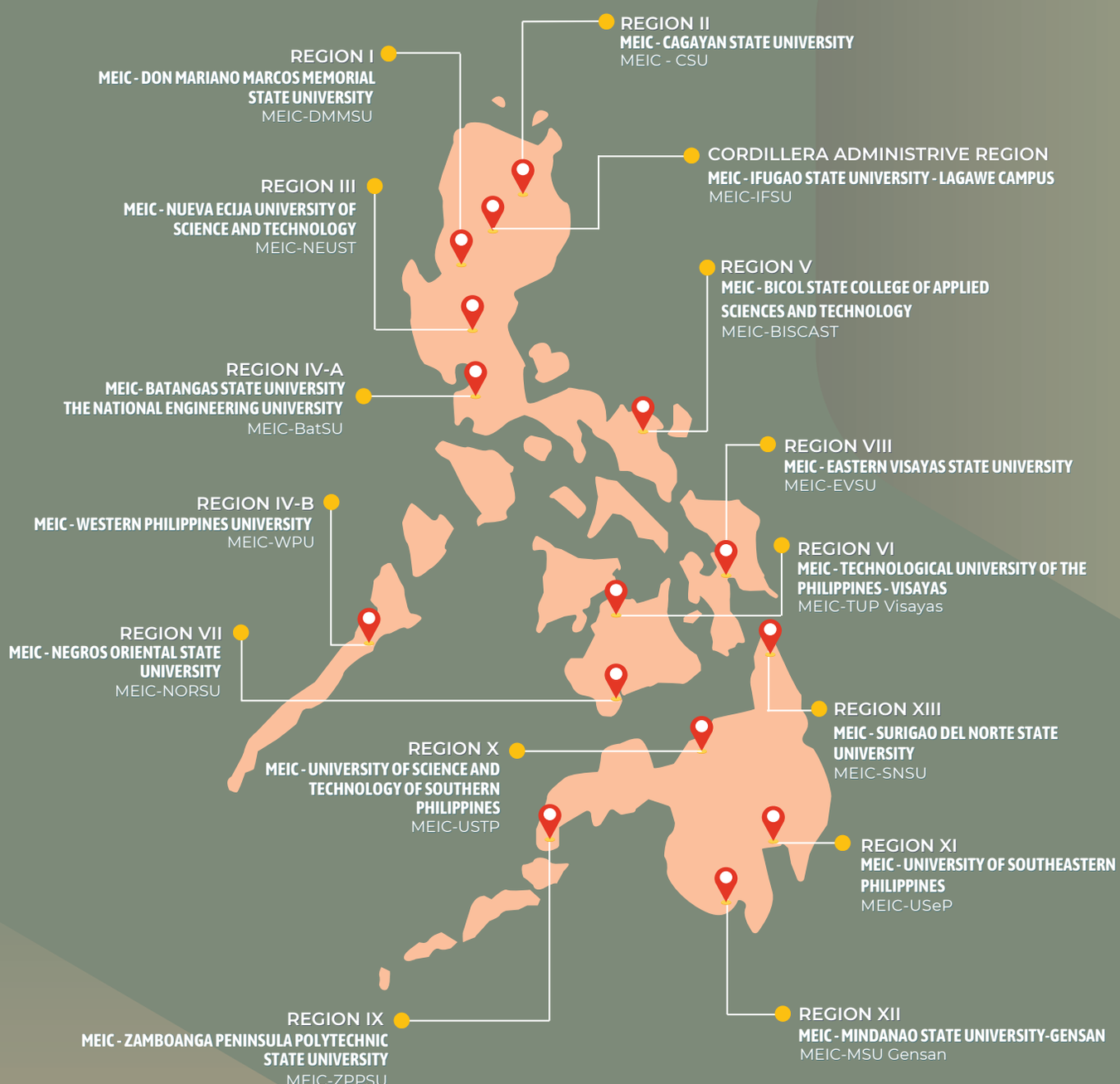
Mold Technology Support Center

Metals and Engineering Innovation Center

(see next page)

METALS AND ENGINEERING INNOVATION CENTER

Established in partnership with state universities and colleges nationwide.



Awards and Recognitions Received

Division Model Employee - Level I

Eugene P. Guevara
Metals Technologist III
Materials and Process Research Division

Maria Luisa A. Fajarda
Laboratory Inspector III
Analysis and Testing Division

Arnel T. Tuvillo
Administrative Aide VI
Finance and Administrative Division

Alfredo Z. Panganiban
Data Controller II
Planning and Management Division

Pascual N. Lumanta
Metals Technologist V
Prototyping Division

Bobby F. Fronda
Metals Technologist V
Technical Solution Services Section

Tracy Ann U. Tolentino
Administrative Assistant V
Technology Diffusion Division

Division Model Employee - Level II

Arvin Yan V. Pacia
Senior *Science Research Specialist*
Analysis and Testing Division

Mary Grace B. Opon
Administrative Officer III
Finance and Administrative Division

Lemuel N. Apusaga
Senior Science Research Specialist
Materials and Process Research DIvision

Nicole Ann Portia U. De Luna
Science Research Specialist II
Prototyping Division

Arby F. Coria
Science Research Specialist II
Technical Solution Services Section

Ma. Rodessa Grace A. Mercado
Planning Officer II
Planning and Management Division

Linda G. Rivera
Senior Science Research Specialist
Technology Diffusion Division

MIRDC Model Employee

Level I
Arnel T. Tuvillo
Administrative Aide VI
Finance and Administrative Division

Level II
Arvin Yan V. Pacia
Senior Science Research Specialist
Analysis and Testing Division

Core Value Award

Professionalism
Ronie S. Alamon
Senior Science Research Specialist
Prototyping Division

Responsiveness
Rey N. Mariposque
Senior Science Research Specialist
Technology Diffusion Division

Integrity
Joein L. Luces
Senior Science Research Specialist
Prototyping Division

Dynamism
Mervin B. Gorospe
Senior Science Research Specialist
Technology Diffusion Division

Excellence
Jelly N. Ortiz
Supervising Administrative Officer
Finance and Administrative Division

Performance Excellence Award

Walter V. Bonggat
Metals Technologist IV
Mold Technology Support Center

Salvador T. Gelilang
Science Research Specialist II
Mold Technology Support Center

Reynaldo L. Dela Cruz Jr.
Training Specialist IV
Technology Diffusion Division

Luis C. Forbes
Metals Technologist III
Analysis and Testing Division

Samuel A. Ysit
Electronics and Communications Equipment Technician IV
Technical Solution Services Section

Jaquelin J. Agonoy
Training Specialist II
Technology Diffusion Division

Ma. Elena G. Gurimbao
Training Specialist III
Technology Diffusion Division

Marvin N. Musnit
Metals Technologist III
Mold Technology Support Center

Alma C. Dupagan
Training Specialist II
Technology Diffusion Division

Luisito N. Alcantara
Electronics and Communications Equipment Technician IV
Analysis and Testing Division

Mary Joy R. Baroña
Metals Technologist IV
Analysis and Testing Division

Myro Jon M. Baroña
Laboratory Inspector I
Analysis and Testing Division

Eduardo N. Diasanta
Laboratory Inspector III
Analysis and Testing Division

Claudine R. Sinag
Training Specialist II
Technology Diffusion Division

MIRDC Best Section Award

Industrial Training Section (ITS)
Technology Diffusion Division

Academic Awards (Graduate)

Jayson P. Rogelio
Supervising Science Research Specialist
Prototyping Division
Doctor of Philosophy in Electronics and Communications Engineering (Ph.D. ECE)

Cost Economy Measure Award

Technology Advisory and Business Development Section (TABDS)
Technology Diffusion Division

Eunice A. Bautista
Planning Officer III
Planning and Management Division
Completed Diploma in Research and Development Management

Trainer of the Year

Reynaldo L. Dela Cruz Jr.
Training Specialist IV
Technology Diffusion Division

Technical Assistant of the Year

Jan Michael E. Saludes
Metals technologist IV
Technical Solution Services Section

Civil Service Commission - Program to Institutionalize Meritocracy and Excellence in Human Resource Management (PRIME-HRM)

DOST-Metals Industry Research and Development Center
Bronze Award

Featured in International Webpage

Not A Woman's Job
Jenny C. Velasco
Senior Science Research Specialist
Technical Solution Services Section

2024 Seoul International Invention Fair

i-POND
Bronze Award

Glenn D. Espeña	*PD*
Isidro D. Millo	*PD*
Jayson P. Rogelio	*PD*
Franz Joseph D. Libao	*PD*
Godfreyson J. Nardo	*PD*
Nicole Ann Portia U. De Luna	*PD*
Von Jansen G. Comedia	*PD*
Ronie S. Alamon	*PD*
Maybelyn D. Rivera	*TDD*
Arnest Jerome N. Mojica	*PD*
Paulo G. Raton	*PD*

NAST Award - Highest Number of Industrial Design

1. Recoil Compensator for Caliber 0.50 Heavy Barrel Machine Gun
Technologists: Jonathan Q. Puerto, Rodnel O. Tamayo, Fred P. Liza, Manuel O. Alberto Jr., Romanico F. Salido, Anthony Aldrin V. Beltran Registration Number: 32022050586
2. Firing Mechanism for Caliber 0.50 Heavy Barrel Machine Gun
Technologists: Jonathan Q. Puerto, Rodnel O. Tamayo, Fred P. Liza, Manuel O. Alberto Jr., Romanico F. Salido, Anthony Aldrin V. Beltran Registration Number: 32022050587
3. Charging Mechanism for Caliber 0.50 Heavy Barrel Machine Gun
Technologists: Jonathan Q. Puerto, Rodnel O. Tamayo, Fred P. Liza, Manuel O. Alberto Jr., Romanico F. Salido, Anthony Aldrin V. Beltran Registration Number: 32022050588
4. Mobile Trailer Truck for Food Processing
Technologists: Ronie S. Alamon, Raymond S. De Ocampo, Joein L. Luces, Isidro D. Millo, Emelita P. Bagsit, Jenny Ann Lawas, Jayson S. Candil Registration Number: 32022050047

2024 DOST Intellectual Property Awards - International Publication Award

Assessment of Philippine MSMEs' Shop Floor Automation Level and Barriers to Their Technology Upgrading	**Robert O. Dizon**	*Office of the Executive Director*
	Glen D. Espeña	*PD*
	Franz Joseph D. Libao	*PD*
	Von Jansen G. Comedia	*PD*
	Nicole Ann Portia U. De Luna	*PD*
	Godfreyson J. Nardo	*PD*
IoT-Based Monitoring of KE-55 Milling Machine for Improved Machine Shop Operations	**Franz Joseph D. Libao**	*PD*
	Nicole Ann Portia U. De Luna	*PD*
Enhancing Water Quality Control and Monitoring in Shrimp Farms with LoRaWAN Technology	**Glenn D. Espeña**	PD
	Franz Joseph D. Libao	PD
	Maybelyn D. Rivera	TDD
	Von Jansen G. Comedia	PD
	Arnest Jerome N. Mojica	PD
Automated Control and IoT-Based Water Quality Monitoring System for a Molobicus Tilapia Recirculating Aquaculture System (RAS)	**Glen D. Espeña**	*PD*
	Franz Joseph D. Libao	*PD*
	Nicole Ann Portia U. De Luna	*PD*
	Von Jansen G. Comedia	*PD*
	Oscar Sheen M. Villaverde II	*PD*
	Ana Mari C. Atienza	
Finite Element Analysis and Modeling of a Hydraulic Wire Mesh Rounder and Efficacy of I-Beam Reinforcement in Wire Mesh Mold Beds	**Jayson P. Rogelio**	*PD*
	Ronie S. Alamon	*PD*
	Isidro D. Millo	*PD*
	Francisco C. Dime	*MTSC*
	Joein L. Luces	*PD*
	B-Jay D. Latigo	*PD*
	John Ray L. Mericuelo	*PD*
Modal Analysis, Computational Fluid Dynamics and Harmonic Response Analysis of a 3D Printed X-ray Film Handler for Assistant Robotic System using Finite Element Method.	**Jayson P. Rogelio**	*PD*
	Leif Oliver B. Coronado	*MPRD*
	Denise Daryl A. Florante	*MPRD*
Finite Element Analysis and Modeling of a Hydraulic Wire Mesh Rounder and Efficacy of I-Beam Reinforcement in Wire Mesh Mold Beds	**Jayson P. Rogelio**	*PD*
	Ronie S. Alamon	*PD*
	Isidro D. Millo	*PD*
	Francisco C. Dime	*MTSC*
	Joein L. Luces	*PD*
	B-Jay D. Latigo	*PD*
	John Ray L. Mericuelo	*PD*
Characterization of Pili Nut Shell (Canarium ovatum Engl.) as Potential Additive in 3D Printing Filaments	**Salvador T. Gelilang**	*MTSC*
	Francisco C. Dime	*MTSC*
	Jayson P. Rogelio	*PD*

Object Detection and Segmentation Using Deeplabv3 Deep Neural Network for a Portable X-ray Source Model	**Jayson P. Rogelio**	*PD*
Design and Development of Deployable Food Hub with Static Analysis of A Trailer Chassis Using Finite Element Analysis	**Jayson P. Rogelio** **Ronie S. Alamon** **Isidro D. Millo** **Joein L. Luces** **B-Jay D. Latigo** **John Ray L. Mercuelo**	*PD* *PD* *PD* *PD* *PD* *PD*
Pico-Hydro Turbine and Pump for Small Scale Agricultural Electrification and Irrigation: A Review of Similar Ventures	**Jayson P. Rogelio** **Francisco C. Dime**	*PD* *MTSC*
Utiliizing Sumulation-Driven Finite Element Analysis for Optimal Propeller Design of a 1kW Pico-Hydroelectric Turbine	**Jayson P. Rogelio** **Francisco C. Dime**	*PD* *MTSC*

Intellectual Property Awards - Approved Utility Model

• *A Lab-Scale Dephosphorization Apparatus for Molten Metal Refining*	**Lemuel N. Apusaga** **Frederick Campoy**	*MPRD* *MPRD*

Intellectual Property Awards - Approved Industrial Design

• *3D Printed Case for Light Pollution Luminance Device (POLLUX) Registration No. 3/2023/051401*	**Alvin M. Buison** **Ulysses B. Ante** **Jozal B. Carrido** **Leif Oliver B. Coronado** **Ramcis Allen A. Chan**	*MPRD* *MPRD* *MPRD* *MPRD* *MPRD*
• *3D Printed Case for POLLUX Mobility Device (PMD) Registration No. 3/2023/051402* • *Surveillance Camera Enclosure Registratin No. 3/2023/051403*	**Jonathan Q. Puerto** **Fred P. Liza** **Ulysses B. Ante** **Alvin M. Buison** **Eugene P. Guevara** **Ronald Joaquin B. Javate** **Jose Bernardo L. Padaca III**	*OED* *MPRD* *MPRD* *MPRD* *MPRD* *MPRD* *MPRD*
• *Electric Kick Scooter (EKS) Assembly Registration No. 3/2023/051050*	**Jose Bernardo L. Padaca III** **Alvin M. Buison** **Ulysses B. Ante** **Leof Oliver B. Coronado** **Hannah H. Ramos** **Eugene P. Guevarra**	*MPRD* *MPRD* *MPRD* *MPRD* *MPRD* *MPRD*
• *Conical Plastic Container and Packaging Box for the Improvised Explosive Device (IED) Disruptor Registration No. 3/2023/051231*	**Fred P. Liza** **Alvin M. Buison** **Ulysses B. Ante** **Denise Daryl A. Florante** **Vladimir M. Sarmiento**	*MPRD* *MPRD* *MPRD* *MPRD* *MPRD*

Cultivating an Organizational Environment that Promotes an Engaged, Competent Workforce

The DOST-MIRDC strives to boost the confidence and develop resilience of employees through strategies that will enable them to grow, learn, and be productive without compromising the feeling of enjoyment in their respective workplace.

During the year 2024, several technical and non-technical seminars and training programs were conducted to enhance our employees' knowledge and skills in our respective fields. Moreover, activities such as the annual sports fest, DOST-MIRDC employees' day, year-end thanksgiving celebration, healthy lifestyle/physical fitness programs, mental health programs, and blood donation drives were also held to promote a work-life balance among our employees.

Because at MIRDC, we believe that happy employees are productive and efficient employees.

2024 Financial Statements

Utilization Rate Per Allotment Class

Allotment Class	Allotment*	Obligations Incured	BURS %
Personnel Services	221,569,166.64	186,487,664.54	84.17%
Maintenance and Other Operating Expense	55,592,833.36	55,440,441.61	99.73%
Capital Outlay	-		0.00%
RLIP	11,956,000.00	11,956,000.00	100.00%
LFP - MOOE	5,698,000.00	5,507,082.68	96.65%
LFP - CO	17,000,000.00	16,999,900.43	100.00%
Special Purpose Fund*	20,176,373.00	20,176,372.27	100.00%
Continuing Appropriation	4,544,500.64	4,538,588.26	99.87%
Total	**336,536,873.64**	**301,106,049.79**	**89.47%**

**change in amount of allotment due to reclassification/ realignment*

MIRDC Organizational Structure

Governing Council Members

RENATO U. SOLIDUM, JR.
DOST Secretary

ROBERT O. DIZON
Executive Director, MIRDC

JEREMY T. AGUINEA
Engineering Industry Sector

AUGUSTO C. SOLIMAN
Allied Industry Sector

BERNARDO V. BITANGA
DENR - Mines and Geosciences Bureau

NEIL P. CATAJAY
DTI - Bureau of Philippine Standards

DIONISIO G. ALVINDIA
Department of Agriculture - PhilMech

REYNALDO D. LIGNES
DTI - Board of Investments

BIEN A. GANAPIN
National Economic & Development Authority

ROBERTO M. COLA
Metals Industry Sector

Top Management

Engr. Jonathan Q. Puerto
Deputy Executive Director for Technical Services

Engr. Robert O. Dizon
Executive Director, MIRDC

Dr. Agustin M. Fudolig
Deputy Executive Director for Research and Development

Management Committee

Office of the Executive Director

Planning and Management Division

Technology Diffusion Division

Finance and Administrative Division

Analysis and Testing Division

Prototyping Division

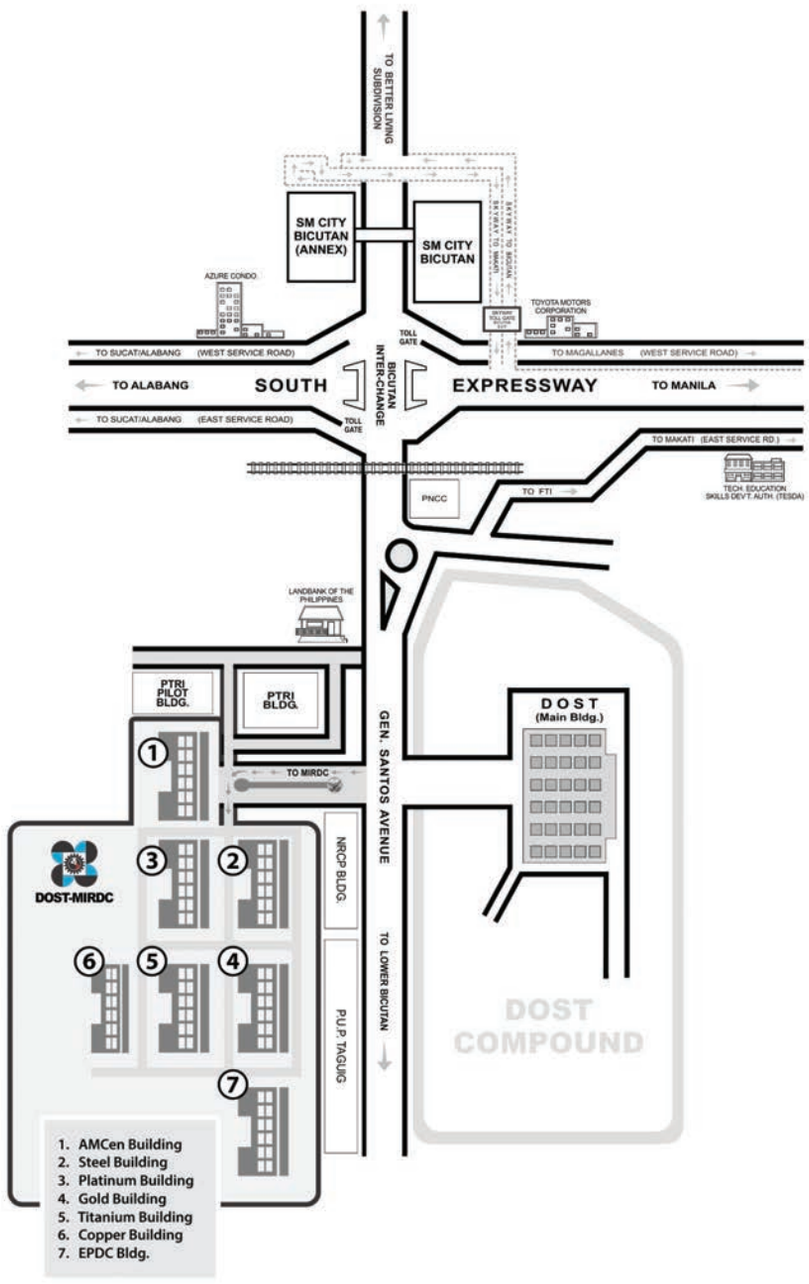
Materials and Process Research Division

Technical Solutions Services Section

Editorial Board

Top: Jonathan Q. Puerto *(Editor-In-Chief)*
(From L-R)
Row 1: Lina B. Afable, Zalda R. Gayahan, Kathlyn Kai H. Negado, Linda G. Rivera
Row 2: Jocelyn F. Dime, Michelle Ann A. Magsalin, Sharel Shyateza M. Abellar, Advent Fei R. Bañez
Row 3: Jose Bernardo L. Padaca III, Diddier B. Sibal, Christian M. Ibañez, Von Jansen G. Comedia
Row 4: Ronald L. Agustin, Tracy Ann U. Toletino, Deborah Jaymerci D. Balota, James Bernard S. Herrera

LOCATION MAP



MIRDC Hymn

Kaya Ko, Kaya Mo, Kaya Nating Lahat

Tungkulin mo’t tungkulin ko
Paglingkuran lahat kayo
Buong husay, buong ingat
Sa lahat ng oras
Gamit ang Agham at Teknolohiya
Patuloy na manaliksik pa
Handog twina, bagong kaalaman
Industriyang metal mapayaman
Kung kaya ko, ay kaya mo
At kaya nating lahat
Lahat ng bagay na mabigat
Kung sama-sama’y mabubuhat
Ang pag-unlad matutupad
Kung matapat ang gaganap
Ikaw, ako, tayong lahat
Isusulong ang bukas

Koro 1
Kaya ko, kaya mo, kaya nating lahat
Industriya ay tutulungan, pribado o gobyerno man
MIRDC ang Sentro na magbubuklod nito
Ang tagumpay makakamit kung sama-sama tayo
Instrumental
Tungkulin ay gagampanan, kakayahan ilalaan
Tayo ay maglilingkod nang buong katapatan
Gagawin nang mabilis, lahat sa tamang paraan
At ating mararating tagumpay na inaasam
(Ulitin ang Koro 1)
Koro 2 (a capella)
Kaya ko, kaya mo, kaya nating lahat
Ating baya’y tutulungan, marating ang pag-unlad
Tayo ay magtulungan upang ating marating
Ang pag-unlad kung sama-sama’y kaya natin
(Ulitin ang Koro 1 at instrumental)
Kaya ko, kaya mo, kaya nating lahat

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