

MIRDC Conducts Competency-Based Human Resource Management Training



Participants pose for a class picture after successful completion of Competency-Based HR Management Training.

Recognizing the robust impact of Human Resource development, the Metals Industry Research and Development Center (MIRDC) successfully implemented a comprehensive series of training

entitled “Strengthening S & T Capabilities Through Competency-Based Human Resource Management for the Department of Science and Technology (DOST) Agencies.” The said training which was conducted

from September to November 2016 has (4) components and was attended by forty (40) participants comprising of Chiefs, Technical Specialists and

Continuation on p3

MIRDC Takes on Transition to ISO 9001:2015

The Department of Science and Technology–Metals Industry Research and Development Center (DOST-MIRDC) once again demonstrates dynamism, one of its five (5) core values: Professionalism, Responsiveness, Integrity, Dynamism, and Excellence (P.R.I.D.E). The Center's vigor and inclination toward progress shine through as it embarks on yet another challenge – the

transition from ISO 9001:2008 to the 9001:2015 QMS.

Products, services, and systems need to be safe, efficient, and of quality to ensure customer satisfaction, convenient international trade, and

improved environment. Hence, the requirement for standardization. What started as a meeting among 65 representatives from 25 countries in

Continuation on p3

In this issue

- » MIRDC Holds Turn Over Ceremony of Waste Plastic Chair Mold Set to the Villar SIPAG Foundation
- » MIRDC Welcomes Its New Governing Council Member
- » BOI Taps DOST for Joint Study on Iron Production
- » Latest Technologies Featured to Strengthen Power and Energy
- » Tikog Flattening Machine Replaces Manual Process
- » MIRDC Assistance Fortifies Local Surface Finishing Industry

From the Executive Director

The Metals Industry Research and Development Center was home to quite a lot of activities in the last four months of 2016, and the people who make up the Center played key roles in making all of them happen.

We partnered with the Civil Service Commission for the conduct of the training on 'Strengthening S&T Capabilities through Competency-based Human Resource Management for the DOST Agencies.' We also held the Philippine Quality Award (PQA) Awareness Seminar for internal participants. Also, the Center's Quality Management System (QMS) Committee spearheaded the conduct of ISO 9001:2015 Awareness Seminar, Risk Management Seminar, and Internal Quality Audit as prelude to the DOST-MIRDC's upgrade to the newest version of ISO 9001. We intend to keep improving and growing professionally so that we can provide better service to the industry.

In October, we had the Closing Ceremonies for the fifth and last batch of trainees of the Die and Mold Designers and Makers (D2M2) training program. Along with our collaborators, the Department of Trade and Industry – Board of Investments (DTI-BOI) and the Philippine Die and Mold Association, Inc. (PDMA), the Center officially closed the D2M2 Project with a program held in December.

The Center continually finds ways to advance its R&D capabilities and takes aggressive moves to promote and diffuse these technologies. Our engineers and technical staff carried out the design and development of Waste Plastic Chair Mold and the Tikog Flattening Machine which were successfully turned over to their beneficiaries: the Villar SIPAG Foundation and the CARE Philippines, respectively. The plastic chair molds have already created very significant increase in the productivity of the Foundation's Waste Plastic Factory as they allow production of a bigger number of school chairs, at a much lower cost and with much ease to the operators. The Tikog Flattening Machine, on the other hand, helps improve the productivity of the women weavers of Basey, Eastern Samar and thus energizing their Tikog handicraft industry.

DOST-MIRDC-developed technologies were featured at the recently held DOST Technology Transfer Day. We showcased technologies for agriculture, food processing, and advanced transportation. Here we were able to forge a total of 16 initial agreements with interested technology adopters for the licensing of various technologies.

With our ardent desire to bring our technologies within the reach of the industry, we also take advantage of opportunities to nurture our linkages and make sure that we are on the radar of relevant institutions. The Center gave its full support to the Mechatronics and Robotics Society of the Philippines (MRSP) as it held its convention which was attended by participants from all over the country. We also signed a Memorandum of Agreement with the BOI and the Philippine Council for Industry, Energy, and Emerging Technology Research and Development (PCIEERD) for a joint feasibility study on boosting local production of iron. A series of meetings was held between the DOST-MIRDC and the Metal Industries Research and Development Center-Taiwan (MIRDC-Taiwan) regarding areas of cooperation that are most beneficial to the M&E and allied industries.

At the DOST-MIRDC, we do not take things sitting down. We seek opportunities, we live up to our vision, and we keep up with the demands of the industry that we so passionately serve.



Robert O. Dizon
Executive Director, MIRDC

metals industry TRENDS & EVENTS

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Metals Industry Trends and Events is a triply newsletter of the Metals Industry Research and Development Center (MIRDC), an agency of the Department of Science and Technology (DOST).

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Printed in-house

Administrative Officers involved in Human Resource functions across the different agencies of the Department of Science and Technology. The training components are as follows:

Comprehensive Modelling and Profiling (September 7-9) – a course that provides techniques and strategies vital in creating the link between the essential requirements of a job and aligning the knowledge, skills, abilities and behavioral characteristics of employees in order to meet the strategic goals and objectives of the organization.

Development of Competency-based QS and Job Descriptions (October 5-7) – a course that covers an introduction into the basics of the competency approach to Human Resource (HR) management, including concepts, principles, and the practice of competencies

Competency Assessment (October 26-28) – a course that discusses the principles and practice of assessment within the context of the competency-based approach to HR management.

Integration in the Recruitment and Promotion System (November 22-23) – a course that provides a process for identifying the required level of competencies of people in the organization and assessing how these competencies will meet future demands challenges in the organization.

The training program was funded by the Department of Science and Technology - Human Resource Development Program (DOST-HRDP) and includes two coaching sessions conducted by the Civil Service Commission – Civil Service Institute (CSC-CSI). Ms. Jocelyn Cano Linsao-Ng, Senior HR & OD Consultant of the CSC-CSI, served as the learning service provider of the said training.

The competency framework, initiated by the Civil Service Commission, introduces various applications of competency models and job outlines that meet the organization's mission, vision and strategic goals. In line with this, the Administrative and General Services Section under the Financial and

Administrative Division (FAD-AGSS) of the MIRDC facilitated the said training to optimize the DOST employees' appreciation of their capabilities to effectively perform at peak levels. The conduct of the competency-based human resource management training is seen as an ideal way of highlighting the importance of developing competency framework as part of the improvement strategies for the agency's human capital. Through this training, personnel assessment is not only focused on the employees' best potentials but also leaned towards specifically fitting these capabilities and talents to tasks that will effectively contribute to the achievement of the agency's goals. The said training involves much more than conventional development programs. With elements to keep, the competency-based human resource management training will allow DOST personnel to gain an edge in unlocking the full potential of their respective agencies.

MIRDC Takes on Transition...from cover

1946 to discuss International Standardization led to the creation of the International Organization for Standardization (ISO). The first ISO standard, ISO/R 1:1951, is known as the Standard reference temperature for industrial length measurements. Many standards followed afterwards, and many countries signed up as ISO members. The Philippines joined the ISO as a Member Body in 1968.

The DOST-MIRDC's operations are in accordance with statutory and regulatory laws, and all employees are enjoined by Top Management in the Center's initiatives to obtain clearances, licenses, and certifications/accreditations. The Center's journey along the road to laboratory accreditation began in 1996 when its Analysis, Testing, and Inspection Division earned accreditation from the Bureau of Product Standards Laboratory Accreditation Scheme (BPSLAS), Philippines. The Center intensified its accreditation pursuits and gained the National Association of Testing Authorities (NATA), an international accreditation from Australia, for its

Instrumentation Laboratory in 1998. In that same year, the DOST-MIRDC became part of the growing number of organizations committed to put a Quality Management System (QMS) in place, specifically for its Precision Casting Unit to ensure that its investment casting products meet world-class standards and guarantee acceptance to international markets. In 2001, the DOST-MIRDC received Center-wide ISO 14001 Environment Management System (EMS) certification and ISO 9001:1994 certification for its Industrial Training and Staff Development Section (ITSDS). This was upgraded to ISO 9001:2000 version in 2002, as the Center designs and implements training programs in conformance with international requirements and standards. The Investment Casting Unit under the Metal Casting Technology Division (MCTD) became certified to ISO 9002:1994, also in 2002.

Determination is what the DOST-MIRDC is truly made of, because it has its eyes fixed on its goals and it stops at nothing until these goals are

accomplished. In 2004, the Analysis and Testing Division (ATD) pursued P N S ISO/IEC 17025:2000 reaccreditation. On a much larger scale, the DOST-MIRDC finally earned a Center-wide ISO 9001:2000 certification of its QMS in 2005.

The many years of QMS implementation has helped the Center carve a niche in the industry. DOST-MIRDC is a name that has strongly become synonymous to reliability, credibility, and world-class quality. The Center, an advocate of continual improvement, proactively pursues ISO recertification and readily migrates to the new version of the ISO 9001 standard.

The latest edition of the ISO 9001 was published in 23 September 2015. The 2015 version follows the same high-level structure as other ISO management systems, and focuses more on risk-based thinking. Proven to be an effective management tool, the ISO 9001 did more than just enable the DOST-MIRDC meet customer and stakeholder requirements. It

MIRDC Holds Turn Over Ceremony of Waste Plastic Chair Mold Set to the Villar SIPAG Foundation



The Villar SIPAG Foundation, through its Managing Director Senator Cynthia A. Villar, sought the assistance of the Metals Industry Research and Development Center (MIRDC) in the fabrication of a mold set for school plastic arm chair components, as well as in enhancing expertise in establishing process flow that will improve the quality of the product, ensure safety of the operator, and increase productivity.

The Villar SIPAG foundation created the Waste Plastic Factory located in Ilaya, Las Piñas City. The factory, inaugurated last May 24, 2013, has an average production of ten (10) units of school chairs per day. With the

current production rate of the facility, it consumes an average of 7,200 kgs of waste plastic every month.

The mold set is one of the major accomplishments of the project “Establishment of a Die and Mold Solution Center.” The initial prototype consists seven (7) mold sets, namely: arm, arm support, leg brace, back rest, chair seat, left leg, and right leg. The project also provided the working table, transfer table and an improved cooling tub designed to accommodate the new mold size and meet cooling requirements. The new mold set design is made of a solid aluminum three plate compression mold for easy product removal and mold durability. Prototyping Division (PD) engineers and technicians from the Die and Mold team composed of Engr. Jose B. Ferrer, Engr. Gharry M. Bathan, Engr. Geronimo Y. Bernardo, Engr. Romanico F. Salido, Mr. Vincent Boy E. Manabat and Mr. Rommel G. Adame, under the leadership of PD Chief Engr. Fred P. Liza, came up with the design of the mold set. The team performed a thorough study of the existing operations of the SIPAG facility in order to deliver the best project outputs.

Utilization of the new mold set doubled

the production capacity from 10 to 20 chairs a day. This is mainly because the new mold set design and new system implemented is more ergonomic and less laborious to their personnel. Further, the cost of water for cooling and filling materials was also significantly reduced. The mold set was already replicated, i.e., three (3) additional sets will be deployed to three (3) different locations: one set each for Luzon, Visayas and Mindanao facility of the Villar SIPAG Foundation. MIRDC Executive Director Robert O. Dizon, together with Deputy Executive Director Jonathan Q. Puerto and the project team formally turned over the mold set last September 29, 2016 at the Villar SIPAG Foundation Lobby in Las Piñas, Metro Manila.



continually brings the Center closer to realizing its vision of being the center of excellence in science, technology, and innovation for a globally competitive metals, engineering, and allied industries by 2025.

This transition to the newest version of the ISO 9001 coincides with the Center's celebration of its 50th Founding Anniversary. Known to the industry as a proactive organization, the DOST-MIRDC is currently going through the necessary preparations for

the upcoming upgrade. Dr. Danilo N. Pilar, the Center's Quality Management Representative (QMR), began the conduct of ISO 9001:2015 Awareness Seminar for the DOST-MIRDC personnel, as well as Risk Management Awareness Seminar at the start of 2016. Designated document controllers began the task of revising relevant documented information and the deployment of new ones to meet the requirements of the revised standard. The reorientation

of Internal Auditors served as prelude to the center-wide Internal Quality Audit held in November 2016. Next in line is the external surveillance audit to be held in March 2017.

The DOST-MIRDC is no stranger to certification initiatives. There is an air of cool confidence and optimism that the ISO 9001:2015 certification is the next DOST-MIRDC success story about to happen.

MIRDC Joins Technology Transfer Day

The Metals Industry Research and Development Center (MIRDC) actively joined the Technology Transfer Day organized by the Department of Science and Technology (DOST) thru the Technology Application and Promotion Institute (TAPI) on 27 April 2016 at the Sofitel Philippine Plaza Manila. Themed “PROMISE: Promoting Research and Outstanding Milestones in Innovation and Science for Entrepreneurship,” the DOST Technology Transfer Day opened promising opportunities for enterprises and organizations to invest on Filipino technologies in the areas of agricultural productivity, industry competitiveness, countryside development, environment and disaster risk reduction management, and quality healthcare. As many as 74 locally-developed technologies of the DOST were identified for possible technology transfer and adoption.

The MIRDC showcased locally-developed technologies such as food processing equipment, hydroseeder, rice transplanter attachment for hand tractors, CNC router, automated guideway transit, and hybrid electric road train. The Center, in partnership with the Industrial Technology Development Institute (ITDI), handed the licensing negotiations for the fabrication of food processing equipment.

In the Visayas, the Regional Technology Transfer Day was held in Ormoc City Superdome, Ormoc, Leyte on 14 September 2016 in collaboration with the DOST VIII together with the Ormoc City Chamber of Commerce and Industry (OrCham) and the Eastern Visayas State University. Engr. Fred P. Liza, Division Chief of the MIRDC's Prototyping Division, presented the food processing equipment. Several parties signified their interest to invest on the

technology and is now up for evaluation. In Mindanao, the Mindanao Technology Transfer Day celebration was held at the SMX Convention Center, SM Lanang, Davao City on 13 December 2016 in cooperation with the Minda DOST Regions and Mindanao Business Council. Engr. Ma. Girlie M. Millo, Chief of the MIRDC's Technology Advisory and Business Development Section, promoted the food processing equipment and the Hybrid Electric Road Train technology.

The events brought together technology generators, research institutions, investors and stakeholders for a unique opportunity to build meaningful partnerships and forge technology transfer deals between industry players and the DOST's leading innovators.



Some scenes during the Regional Techno Transfer Day in Ormoc City.



Some scenes during the Regional Techno Transfer Day in Davao City.

MIRDC Grants Awards for Deserving Employees

The Metals Industry Research and Development Center (MIRDC) gave out awards and recognitions to deserving officials and employees

during the Thanksgiving Party held last 16 December 2016. The event was a year-end activity where officers and employees gathered together to thank

the Almighty God for all the Center's achievements for the year 2016.

The following employees were

The following employees were awarded:

Utility Model Awardees

1. Ronie S. Alamon
Isidro D. Millo
Jose B. Ferrer
Project Title: Water Removal through a Freeze Drying Machine
2. Joein L. Luces
Nico Deus O. Villafranca
Project Title: Compact Rice Mill Diverting Chute

Scientific Paper Published Awardees

1. Isidro D. Millo
Emerito V. Banal
Ronie S. Alamon
Raymond S. De Ocampo
Pepito M. Soriano III
Geoffrey L. Abulencia
Project Title: Design and Development of Sugarcane Loader for Small-Scale Farms
2. Gharry M. Bathan
Jose B. Ferrer
Vincent Boy E. Manabat
Fred P. Liza
Cameron B. Yao
Renann G. Baldovino

Project Title: An Electric Shake Table System for Disaster and Emergency Preparedness Training

3. Remartin S. Maglantay
Renann G. Baldovino
Allan John S. Limson
Fred P. Liza
Jonathan Q. Puerto
Project Title: An Integrated Control System of Batch-Type Fluidized Bed Dryer (FBD) System for Stabilized Brown Rice
4. Jayson P. Rogelio
Renann G. Baldovino
Allan John S. Limson
Fred P. Liza
Jonathan Q. Puerto
Project Title: A Low-Cost Integrated Control System for the 3-axis Computer Numerical Control (CNC)
5. Cameron B. Yao
Jayson P. Rogelio
Renann G. Baldovino
Project Title: A Fuzzy-Pulse Width Modulation Control of Algorithm for a Computer Numerically Laser Machine



Loyalty Awardees

– employees who have served the Center for a number of years.

- 20 Years - Lina B. Afable
Maria Gracia M. Peralta
Adonis T. Marquez
- 25 Years - Linda G. Rivera
- 35 Years - Rebecca C. Jabson
- 40 Years - Benson A. Ragasa
Serafin N. Garcia
Rosalinda M. Cruz

also acknowledged for completing their post graduate courses: Rea C. Castro; Osric Primo Bern A. Quibot; Zalda R. Gayahan; Concesa T. Cortez; and Anthony Greg F. Alonzo, while Karl Andrew S. Chavez and James Asher B. Cabarloc were also recognized for passing the licensure exams in engineering.

MIRDC encourages creativity, innovativeness, efficiency, integrity and productivity among its officials and employees in delivering public

service in order to boost organizational productivity and create profound impact to the industry. Its Program on Awards and Incentives for Service Excellence (PRAISE) serves to recognize and award officials and employees for their suggestions, innovative ideas, inventions, discoveries, superior accomplishments, heroic deeds, exemplary behaviour, extraordinary acts or services in the public interest and other personal efforts which contribute to efficiency, effectiveness, and improvement in government operations.

The following employees received the CORE VALUES Award for 2016:



Professionalism: Reynaldo O. Bayot
Responsiveness: Lemuel N. Apusaga
Integrity: Katherine T. Llanto
Dynamism: Laila R. Porlucas
Excellence: James Asher B. Cabarloc

The Process Research Section (PRS) of the Materials and Process Research Division (MPRD) received the Innovation Award.

MIRDC Concludes a Successful Die and Mold Designers and Makers (D2M2) Project



MIRDC Executive Director, Engr. Robert O. Dizon, welcomes all the guests.

The D2M2 Project is implemented by the Metals Industry Research and Development Center (MIRDC) in collaboration with the Philippine Die

and Mold Association of the Philippines, Inc. (PDMA) and the Department of Trade and Industry-Board of Investments (DTI-BOI).

Since its implementation in Dec. 2015, the Center produced five (5) batches of D2M2 graduates. The Prototyping Division (PD) handled the monitoring of the graduates' employment status and reported the following: thirty-nine (39) graduates are employed and engaged in die and mold jobs; ten (10) graduates have non-die and mold-related jobs; and eight (8) graduates decided to continue their studies. Trainees of batch four (4) coming from the academe had resumed teaching in their respective universities.

The Closing Ceremonies of the D2M2 Project was successfully held on December 20, 2016 at the Titanium Auditorium of the newly renovated Mechanical Workshop II, now Titanium Building, MIRDC Compound, Bicutan, Taguig City. Engr. Robert O. Dizon, MIRDC Executive Director, welcomed the guests speakers as well as guests from cooperating agencies/institutions

Continuation on p10

Five innovative materials for sustainable structural engineering

Pricey Energy Star equipment and rooftop green gardens are impossible to install in every home in developing countries. But smaller scale and more appropriate materials are available, and they can build sustainable, strong homes anywhere in the world. From design to construction to operation, the process should not only consider sustainability, but also the environment and the appropriate needs of the users.

Structural engineering dictates the material and the geometry of the structure, which in turn, dictate the resources and construction methods used in a project. By choosing the right materials, structural engineers can improve project's sustainability. They can also satisfy the needs and safety of a building's users with innovative and appropriate designs. Resources also should be easily accessible to the building's users and the construction process should be done with the community, ideally educating people to be self-sufficient.

Some innovative materials and techniques suitable for sustainable and appropriate structural engineering include:

Seismic retrofitting: After the January 2010 earthquake in Haiti, damaged structures needed to be rapidly repaired and rebuilt. Retrofitting is a cost-effective way to improve upon existing damaged structures to reduce accidents and deaths from future earthquakes.

In Haiti, several retrofitting methods were used to improve structural integrity. Those methods include increasing the shear wall density to resist seismic loads on structures, repairing deterioration due to corrosion or sulfate attack, and strengthening ground conditions and foundations in liquefaction zones. Most importantly, the local community of Haiti also helped with the retrofitting process where trained local engineers now can work independently on future reconstruction or retrofitting projects. The

Denver-based NGO Build Change has made nearly 28,000 buildings safer in Haiti by using retrofitting techniques.

Compressed earth blocks: The Earth Block Resettlement Project in Mozambique used compressed earth blocks (CEBs) for building their resettlement structures. CEBs are composed of mixed dry subsoil, clay, and waste aggregates, such as building rubble, compressed with a machine press of hydraulic compactor at high pressures. CEBs have a compressive strength that exceeds the requirements for regular cement blocks. Most importantly, they are sustainable since the earth blocks used only 8% cement, a material that requires high carbon emissions to produce. Because any soil slurry is used for bonding instead of cement mortar, the construction process is also faster, and low technology can be used to manufacture them. CEBs also have better insulation properties than regular concrete blocks.

Trombe walls: The Druk White Lotus School in Ladakh, India used Trombe walls as a passive solar design that optimizes thermal performance. A Trombe wall consists of an external wall made of glass or plastic glazing panes and an internal wall with high heat capacity, with a small air gap separating the two walls. Sunlight heats the wall during the day. At night, as the wall cools, it heats the air in the gap that then circulates to the interior via vents. The system is perfect for Ladakh, since the region enjoys 320 sunny days a year. Before Trombe walls were used, traditional fuel, wood, and kerosene were used for heating, generating indoor air pollution that caused health problems.

Eco-ladrillo bottle bricks: The name eco-ladrillo is derived from the Spanish word for "brick". But instead of baked clay, the technique uses plastic bottles as a construction material. Bottle walls were used by the nonprofit Hug it Forward to help local communities in Guatemala build 12 schools for US\$15,000 each. In the Dominican

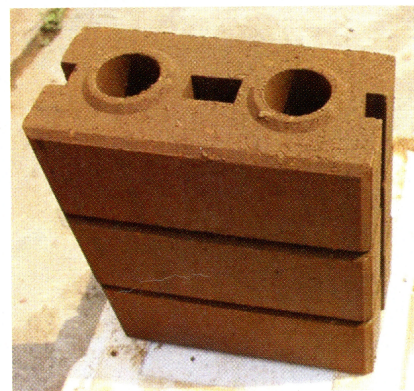
Republic, eco-ladrillos figured into a project organized by students from Humboldt State University and RevArk in 2011. The schoolroom, called the La Yuca Eco-Ladrillo, used eco-ladrillo walls made out of plastic bottles filled with renewable waste material, which were both accessible and locally available. The eco-ladrillo weigh less than traditional concrete walls, therefore they are less of a threat to safety if they collapse.

Earth Bags: Woven polypropylene bags filled with locally available inorganic material and moist subsoil, called earth bags, were used to build an educational center in Nepal. The bags are designed to have internal stability and resilience against earthquakes due to the self-interlocking nature and the consolidation of the moist fill inside. The bags are also connected by barbed wire and mesh for friction and tension resistance to shifting

Proof of the effectiveness of the technique is that, unlike many structures built from concrete blocks and bricks, the education center built with simple earth bags survived the devastating 2015 earthquake in Nepal.

YAN CHU is a structural engineer from Hong Kong. For more about development engineering, go to engineeringforchange.org

Source: Mechanical Engineering, August 2016, p.15



Three compressed earth blocks.

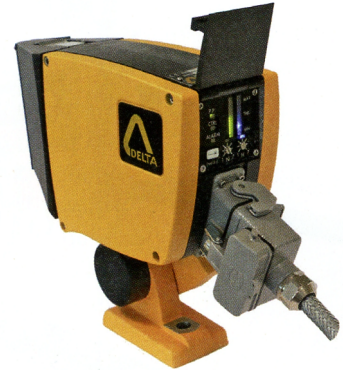
Scanning sensor for hot metal

Delta has introduced a hot metal detector for use in rolling mills and at continuous casters. Rota-Sonde DC4500 is a robust, reliable and easy to handle sensor equipped with a back panel including an LED bar graph, which shows the live level of the signal from the photocell and the setup of the threshold. The user can switch on a laser line which corresponds exactly to the scanned field, making the setup diagnostics and the alignment of the system extremely easy. No tools are required for

regular maintenance, as the unit is equipped with a flip cover on its back and a draw latch on the hood. The larger sensitivity ranges allow detection of steel products at a temperature as low as 180°C. For applications where the sensor is exposed to direct radiation, Delta proposes an optional stainless steel heat shield. Another very useful accessory is the junction box for remote settings and diagnostics, when access to the sensor is difficult.

Contact: www.deltasensor.eu

Source: *MPT International* 5/2016, p.65



Detector for hot environments

Customized CNC flame-cutting machine

Framag has designed a CNC flame-cutting machine for Dillinger Hüttenwerke. The machine is capable of longitudinal and transverse cutting, as well as contour cutting (circles, round blanks and tooth bar profiles) and trimming.

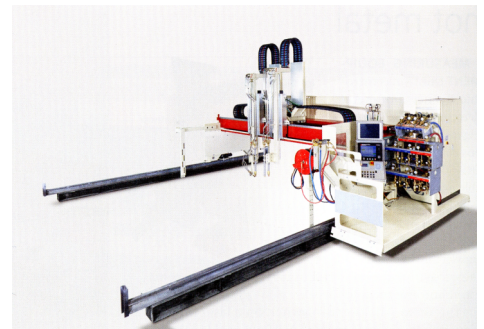
Framag equips their flame-cutting machines with a Siemens PLC as standard. As Dillinger was using BURNY controls on their existing CNC machines, Framag was challenged to install two control types: Siemens PLC for longitudinal and transverse cutting and BURNY

for the CNC application. This allows the operator to control the entire system from one operating panel and switch between the two controls.

The machine for Dillinger uses a new nozzle technology which ensures a small cut gap. The wide range of material sizes required a height-adjustable and swiveling flame cutter, as the slabs have to be sharpened for further processing. The machine cuts slabs of max 400 mm cutting thickness and 4,000 mm cutting widths as well as ingots of max. 1,000 mm cutting thickness and 2,500 mm cutting width at temperatures of up to 400°C.

Contact: www.framag.com

Source: *MPT International* 5/2016, p.66



Flame-cutting unit with CNC application

Preparation technology for metal recovery from dusts

For the recovery of metals and metal compounds, contained in dust, the dust is agglomerated by granulation, palletization or compaction/briquetting. In virtually all cases the agglomeration process is preceded by a mixing process. This is because the inherent moisture of the dust alone does not provide sufficient compactability and other materials, e.g. carbon carriers, liquids and additives, often have to be mixed in along with binders. In addition the moisture, additives and

binders need to be evenly distributed in order to achieve sufficiently homogeneous product. Eirich mixers are used in a great many recycling plants. Where the granules (diameters of up to 8 mm) are suitable for the downstream process, mixing and granulating takes place in a single step, without transferring. Examples include the agglomeration of dust from steelwork for recirculation to the sintering belt or charging to reduction processes, or for the agglomeration of converter dusts containing zinc for charging for the Waelz process.

A stainless steel recycler in France used to achieve insufficiently

homogeneous mixing and inconsistent briquette strength as a result. He replaced its planetary mixer with an Eirich mixer. Afterwards the briquette strength was up to 20% higher than the target strength. This made it possible to reduce the amount of binder by 25% and the mixing time from 5 to 3 minutes. Although only operated in a single shift, the new mixing system will pay off in just one year.

Contact: www.eirich.de

Source: *MPT International* 5/2016, p.63

MIRDC Update

MIRDC Concludes...from p7



Engr. Fred P. Liza, PD Chief, introduces the guest speaker.



Engr. Elenita P. San Juan presents the final evaluation report of the D2M2 project.



Senator Cynthia A. Villar, top most row, 10th from the left, graces the D2M2 Closing Ceremonies.

(government agencies), partner support organizations, and academe.

Engr. Fred P. Liza, Division Chief of the Prototyping Division, introduced Engr. Elenita P. San Juan, D2M2 consultant, who presented the final assessment and evaluation of the said project. Present during the program were two of the key personalities in the D2M2 Project. Mr. Amelito E. Umali, Division Chief, Sectoral Studies Division, Industrial Policy Services of the DTI-BOI and Mr. Virgilio F. Lanzuela of the PDMA who delivered their brief messages.

The D2M2 Project Closing Ceremonies was graced and inspired by three special guests of honor headed by Senator Cynthia A. Villar, who expressed her heartfelt gratitude, on behalf of the Villar Sipag Foundation, for the services and assistance extended by MIRDC in the

development of waste plastic school chair mold set for use by their plastic recycling factory. According to Sen. Villar, the mold set hastened the production of more durable school chair that the foundation distributes to public schools. She is also looking forward for another possible assistance of MIRDC on the fabrication of additional chair molders to be deployed in their factories in Visayas (Iloilo) and Mindanao (Cagayan de Oro).

Mr. Melchor L. Heñosa, an inventor, thanked MIRDC for helping him in the conceptualization of his "leak sealing valve for brake system of motor vehicle" invention.

Lastly, Ms. Anita A. Ogrimen, who heads the Basey Association for Native Industry Growth (Banig) in Eastern Samar, expressed gratitude to the MIRDC for the assistance on the

conceptualization and fabrication of the Tikog Flattening Machine. In her message, she requested further assistance in the fabrication of a drying machine or an equipment to be used for appropriate drying of the Tikog strands. Tikog is a native reed plant used as a new material for mat weaving.

Towards the end of the program, an open forum was conducted by the D2M2 consultant with the participation of the PDMA Technical Working Group (PDMA-TWG), DTI-BOI and the MIRDC project team.

With manpower development as the D2M2 project's major output, the existing deficiencies in the number of skilled manpower in the local tool and die sector will most definitely be addressed.

Electronics Exports Seen Growing by as much as 5% this Year

DESPITE an expected sluggish global market, the Semiconductor and Electronics Industries in the Philippines Inc. (SEIPI) has maintained a bullish outlook as it decided to retain its export growth target of 2 to 5 percent this year.

According to SEIPI president Dan Lachica, the move was decided by the group during a board meeting last month as recent regional and global developments were not expected to make a significant dent on the electronics sector.

"There's no compelling reason to change [our export growth targets]. Brexit or Britain's impending exit from the European Union will not have a

major impact," Lachica said in an interview with the Inquirer.

"We don't believe that the dispute with China will significantly affect electronics exports—unlike agriculture—to China because electronics demand is practically inelastic due to the transition to a digital economy," Lachica explained. Given the current growth targets, the Philippine electronics industry might be able to finally recover lost ground as export revenues were targeted to reach as much as \$30.3 billion this year, he added.

Last month, the United Nations-backed Permanent Court of Arbitration in The Hague ruled that China had no

historic title over the South China Sea and that it violated the sovereign rights of the Philippines. Effectively, the court upheld the Philippines' rights in its sea dispute with China.

Earlier in June, 52 percent of Britain's voting population decided to leave the European Union—a move seen to add uncertainty to the global economy.

SEIPI is also retaining its growth targets even as the Export Development Council (EDC) has already significantly cut its own forecasts.

Late last month, the EDC approved a revised set of export growth targets that would see a more

MIRDC Update continued...

MIRDC Welcomes its New Governing Council Member

The Department of Science and Technology – Metals Industry Research and Development Center (DOST-MIRDC) warmly welcomed the newest member of its Governing Council (GC), Engr. Antonio 'Tony' A. Gimenez. He took the place of Engr. Marcelo B. Villanueva who was with the GC for six (6) years. Engr. Gimenez assumed his GC membership in December 2016.

Engr. Tony is a BS Metallurgical Engineering graduate of the University of the Philippines Diliman. He later pursued an Executive MBA Course at the Ateneo Business School in Makati City, and took up Strategic Business Economics at the University of Asia and the Pacific.

The newest GC member has a rich professional background. His first jobs include those as an Assistant Shift Supervisor and Mill Engineering Staff, and as a Foundry Service Engineer in the private sector, and as a Senior Research Engineer at the DOST-MIRDC. He then returned to the private sector and worked for various prestigious companies. He worked for more than 10 years at the Delta Motor Corp. and rose to become the Assistant Vice President and MAN Bus & Truck Plant Manager. Engr. Gimenez transferred to the Nissan Motors Phils.,

Inc. where he was Export Development Manager and Vice President – Division Manager for Manufacturing at the same time. Later, he moved to the Sun Valley Manufacturing and Development Corp. and became its Vice President and General Manager. His career continued at the Pilipinas Halla Tech Corp. where he was Executive Vice President and General Manager, and much later at the AG & P Co. of Manila and held the position of Resident General Manager.

Aside from working with the private and public sector, he also forged a wide network among people and organizations in the metals, engineering, and allied industries through his stint as Executive Director (ED) in major industry associations like the Philippine Die and Mold Association (PDMA), the Motor Vehicles Parts Manufacturers Association of the Philippines (MVPMPAP), as well as with the Center for Automotive Technology Corp (CATC). He likewise went into consultancy service for M&E companies. In fact, Engr. Gimenez is presently a consultant for the DOST-MIRDC's 'Small Diesel Engine Project' and consultant to the President of the Marycheck Quarry for the



production of quick lime and hydrated lime. His deep involvement with the M&E world is evident in his being President, of the Futenco Philippines Corp. which is in the renewable off-grid power generation and biomass fuel production business.

The DOST-MIRDC is looking forward to more productive and meaningful public service. With Engr. Gimenez as part of the GC, public service is going to be very fulfilling in 2017 and beyond.

conservative outlook for the country this year and in 2017 to reflect the current volatilities in the global market. For 2016, the growth of merchandise exports is expected to be flat or zero, while that of services is expected at only 9 percent. This would bring the growth of the country's total exports to only 3 percent for 2016, EDC executive director Senen M. Perlada said in an earlier interview.

For 2017, the outlook for total export growth will also be a conservative 3 percent.

“What will bring the growth in exports is still the electronics sector, which are poised to grow 3 to 5 percent. I think they will be able to hit that growth and that will be significant since electronics account for half of our exports. The chemicals sector is also seen to be strong this year, while some of the agriculture-based exports are expected to recover in the second half. So this means that despite our merchandise exports posting a negative growth of 6.6 percent in the first five months of the year, we still see

that there are very good chances that we can at least post a flat growth this year,” Perlada earlier told the Inquirer.

Source: Philippine Daily Inquirer, August 8, 2016

BOI Taps DOST for Joint Study on Iron Production



IRON STEEL STUDY: The Metals Industry Research and Development and Philippine Council for Industry, Energy and Emerging Technology Research and Development signed a memorandum of agreement for the conduct of a feasibility study designed to boost the local production of iron using the country's indigenous mineral resources. Photo shows Trade Undersecretary for Industry Development and BOI managing head Ceferino S. Rodolfo (middle) with other signatories of the agreement MIRDC executive director Robert O. Dizon (left) and PCIEERD deputy executive director Raul C. Sabularse.

The Board of Investments (BOI) and the Department of Science and Technology (DOST) have agreed to conduct a joint feasibility study to boost the local production of iron using indigenous mineral resources.

Trade Undersecretary and BOI managing head Ceferino Rodolfo said the study is in line with President Duterte's order to pursue industrialization and create the country's own steel industry.

“A genuine local iron and steel industry is a strategic element for the country's socioeconomic development. It can serve as backbone for many sectors of the economy as it is highly interrelated with many sectors specifically infrastructure, power, transportation and manufacturing industries,” Rodolfo said.

“In fact, President Duterte specifically gave directives to look into the viability of local magnetite ores,

particularly black sand, as intermediate iron products for use in the production of iron and steel,” he added.

Under the agreement, both agencies will share in funding the study while the DOST's Metals Industry Research and Development Bureau will serve as implementing agency.

The study, according to the BOI, will identify and establish the preliminary technical feasibility of the ironmaking technology suitable for the processing of local magnetite ore, particularly black sand, into intermediate products for use in the production of iron and steel.

The study also aims to determine the economic feasibility of putting up an iron making facility in the country in the context of availability and location of black sand and reductants, the location of markets, and other necessary factors such transport facilities and power sourcing.

The Philippine Iron and Steel Institute said the country's steel consumption reached 8.76 million metric tons (MT) last year, 20 percent more than the 7.2 million MT recorded in 2014.

Iron and steel were the country's sixth biggest import products at \$1.7 billion in 2015. The imports came mostly from China, Russia, Korea, Japan and Taiwan.

Source: The Philippine Star, November 23, 2016

MIRDC Donates Technical Journals to TUP



(Top photo) On 11 November 2016, Mr. Roy J. Garbin, TUP College Librarian, receives various bound Journals donated by the MIRDC with the presence of Dr. Agustin M. Fudolig, MIRDC Deputy Executive Director (center), and Ms. Yolanda C. Sumagui, (second from right), State Auditor for MIRDC.

The Metals Industry Research and Development Center (MIRDC) donated various hard-bound journals on metals and engineering to the Technological University of the Philippines (TUP)–Taguig Campus.

The donation of books is part of the MIRDC Library's commitment to provide collection of reference materials. As one of the facilities of the MIRDC, the Library offers and provides study areas, electronic access to M&E industry-related materials and likewise, space conducive for research to both internal and external customers.

Consequently, the TUP is very grateful for the donated journals which they will make available in their learning resource center. The journals are great addition to TUP's collections, and will further help students and faculty members gain more insight about metals and engineering.



Latest Technologies Featured to Strengthen Power and Energy

The PowerTrends is the most significant power and energy event in the Philippines hosted by the Department of Energy (DOE). The 2016 PowerTrends, which showcased the 11th International Exhibition and Conference on Directions for Energy, Power and Electricity, was held on 21-23 September 2016 at the SMX Convention Center, Pasay City, Philippines. The three-day event focused on new opportunities within the energy sector. This year's PowerTrends incorporated two other major events: Energy Expo and Electech. The Energy Expo featured new, renewable and alternative sources of energy, green energy and energy efficiency technologies as well as coal, nuclear, oil and gas. On the other hand, the Electech presented the latest technologies for power, energy, electrical, electronics and lighting for commerce, infrastructure and homes.

There were support activities such as Parallel Technical Sessions, Workshops and Product Demos by Sponsors and Exhibitors with topics ranging from new technologies, solutions and latest products and

services for the power, energy and electrical industries.

The event also featured a German pavilion, which is promoted by the Federal Ministry for Economic Affairs and Energy of Germany. Also joining the event were the UK Trade and Investment, the Renewable Energy Association of the Philippines, the Energy Efficiency Practitioners Association of the Philippines, and the German-Philippine Chamber of Commerce and Industry (GPCCI).

The DOST-MIRDC participated in the event and proudly showcased its developed R&D projects: the

Automated Guideway Transit (AGT) and the Hybrid Electric Road Train. Exhibit viewers who crowded around the MIRDC booth learned that the Filipinos are able to develop an efficient alternative transport system to address the worsening vehicular traffic congestion, and likewise, to enhance Filipino engineering skills to build better competitive advantage.

Successfully organized by the Leverage International (Consultants), Inc., this biennial event will be held annually beginning in 2016 to support the rapidly changing demands of the public.



MIRDC representatives present the Center's Advanced Transportation projects in the 2016 PowerTrends.

Tikog Flattening Machine Replaces Manual Process



Turnover of "Tikog Flattening Machine" held on September 16, 2016 in Tacloban, Leyte .

CARE Philippines, founded in 1945, is a leading humanitarian organization fighting global poverty. CARE had worked in the Philippines since 1949, providing emergency relief when disaster strikes and helping communities prepare for disasters. CARE has been supporting women weavers from Basey , Eastern Samar who lost their livelihood after Yolanda.

The municipality of Basey is known for its colorful 'tikog' handicrafts such as bags, boxes and mats, among others. "Tikog" is a weed- like plant that belongs to sedges family. It has slender stem approximately 3-4 millimeter in diameter and about 1.5 to 1.7 meters long when fully matured. It grows together with other grasses to serve as its support while growing tall. The

sedge is planted at a distance of about 1.5 by 1.5 meters apart, usually harvested fresh with green color, and sun dried.

Used as raw material for handicraft products, tikog is pounded ("bayo") for about 30 minutes using a round wooden object known as pestle. The pounded tikog undergoes the so called "lagot," where it is placed between a folded cloth supported by a piece of wood and a straight-edged slot of wood or bamboo and pulled several times for a few minutes. This process makes the tikog material even that results to better quality tikog handicraft products. For the weavers, the process is very hard, time consuming, and with added production cost.

It is in this light that the Metals Industry Research and Development Center (MIRDC), in partnership with CARE Philippines, developed a Tikog Flattening Machine for the women weavers of Basey.

Through the development of mechanical flattening machines, the weavers of Basey, Eastern Samar are relieved of their burden in processing tikog plants. The machine simultaneously performs both "bayo" and "lagot" with less effort and produces more output at lower cost and processing time with improved quality.

The MIRDC turned over the Tikog Flattening Machine last 16 September 2016 to CARE Philippines and to the women weavers of Basey.



The Tikog plant.



Pounding of tikog.



Conventional way of performing "lagot."

MIRDC Assistance Fortifies Local Surface Finishing Industry



Dr. Danilo N. Pilar presents the industry study and the requirements of the government for registration as an industry association.

The Metals Industry Research and Development Center held a pair of consultative dialogues participated in by representatives from the electroplating sector on October 19 and December 5, 2016 at the MIRDC Silver Auditorium. Industry players joined the Center in discussing and brainstorming appropriate solutions to relevant issues to help boost the sector and eventually assisting the industry association in its plan to move on and be registered. Dr. Danilo N. Pilar, Chief of the Technology Diffusion Division (TDD) of the MIRDC, presented the



Mr. Ruperto C. Magno of Chrome Dazzler Corporation emphasizes the need to unite and able to move forward.



Mr. Virgilio F. Lanzuela of Philippine Die and Mold Association & CEO of Rollmaster Machinery and Industrial Services Corporation shares his thoughts on the need to unite.

recent industry study and the draft of the association by-laws and likewise, actively facilitated the consultative dialogues.

Some of the most relevant matters discussed in the dialogue resulted to the following inputs and recommendation: a) electroplating companies are in need of training for employees; b) the electroplating industry in general seeks reliable service providers for rectifiers; c) the industry players feel positive about the business opportunities being created by the booming aerospace industry; and d) electroplating company owners recognize that the best way to gain customer loyalty is to give quality service. The participants also gave their insights about long-term solutions to enhance productivity of the electroplating industry. One of the most pressing challenges faced by the industry is environmental compliance. Company owners are recommending the setting-up of common service facility where electroplating companies can bring their wastewater for treatment at reasonable fees. Also, the industry players agreed with the idea of re-establishing the Philippine Electroplaters Association (PEA) because of the many benefits that industry association membership can offer to them. Mr. Virgilio F. Lanzuela, immediate past national president of the Metalworking Industries Association of the Philippines (MIAP) and CEO of the Rollmaster Machinery and Industrial Services Corporation,

shared with the group that, through the PEA, a proposal for the establishment of a common service facility for waste water treatment may be submitted for funding considerations by DOST. The group decided to change and broaden the scope of membership of the association and chose the term “surface finishers” to cover other electroplating-related processes. Election was held during the December dialogue and resulted to the following interim officers :

President: Edmund Lim (Neco Philippines, Inc.)

Vice President: Gregorio B. Leal (Brillo Semicon Plating Services)

Secretary: Annalyn L. Aragona (Chrome Dazzler Corp.)

Treasurer: Menchie Dela Cruz (ASMICO Industries and Trading Corp.)

Auditor: Remedios S. Dela Vega (Iron Lady Design and Finishing Works)



Mr. Greg B. Leal of Brillo Semicon Plating Services expresses his views on industry concerns.



Engr. Wilfredo R. Lim answers some of the queries of the participants regarding waste water treatment.

Special Feature

The name of the association to be registered is finalized as "Philippine Society of Surface Finishers." The group decided that membership to the society will include companies that belong to the following categories:

1. Technology resource providers / suppliers;
2. Decorative plating – automotive and precious metal;
3. Industrial plating – semicon, galvanizing, anodizing, texturing;
4. Metal coating – PVD/CVD, thermal spraying, plasma spraying; and
5. Government/academe (ex officio).

The scope of membership will be refined since there are still some specific groups that are not covered by these categories.



Mr. Rommel T. Baldevarona of Sanno Philippines Manufacturing Corp.



Ms. Estela P. Benigno of Neco Philippines, Inc.



Ms. Corazon S. Rodriguez of Chrome Dazzler Corporation.



Ms. Sonia L. Ocampo of Van der Horst Technology Phils., Inc. cites a scenario wherein the industry will be losing revenues due to product related issues.



Ms. Marriane L. Malimata of Pure-Chem Technology Phils., Inc.



Ms. Annalyn L. Aragona of Chrome Dazzler Corporation.

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