

The Hybrid Electric Road Train Hits Highways of GenSan City



(Seated from L to R) Engr. Sammy Malawan of DOST XII (representing Dr. Zenaida P. Hadji Raof Laidan), Engr. Robert O. Dizon (Executive Director of DOST-MIRDC), and Hon. Ronnel C. Rivera (GenSan City Mayor) sign the MOU witnessed by DOST Secretary Fortunato T. De La Pe a (SFTP) and Gensan City Councilor Atty. Dominador S. Lagare, Jr.

Key personalities from the Department of Science and Technology-Metals Industry Research and Development Center (DOST-MIRDC), the DOST Regional Office XII (DOST XII), and the local government unit

(LGU) of General Santos City inked a Memorandum of Understanding (MOU) to formalize their commitment regarding the conduct of technology demonstration run of the HERT in GenSan and the eventual use of the HERT by the LGU of GenSan at no cost. The DOST Secretary Fortunato T. De La Pe a, residents of GenSan, guests from various sectors of the municipality, and media representatives witnessed as Engr. Robert O. Dizon, Executive Director of the DOST-MIRDC, Dr. Zenaida P. Hadji-Raof Laidan, Director of DOST XII (represented by Assistant Regional Director Engr. Sammy Malawan), and Hon. Ronnel C. Rivera, Mayor of GenSan, signed the MOU. The ceremony took place in the afternoon of 16 December 2017 at the Plaza Heneral Santos in General Santos City.

The people of GenSan were excited and welcomed the HERT with open arms. In his Opening Remarks, Councilor Dominador 'Jun' S. Lagare, Jr. informed the audience that it was the idea of Mayor Rivera to use the HERT for GenSan's tourism purposes. Now that the HERT is finally in GenSan, the Councilor took advantage of the opportunity to read to the crowd, especially that DOST Secretary De La Pe a was among the most distinguished guests, his 'wish list' which includes: (1) the DOST to also consider bringing to GenSan the Automated Guideway Transit (AGT) System; (2) the DOST to seriously consider putting up an institute for learning in the field of transportation and research and development in Gensan; and (3) the DOST to bring the Light Version of the HERT to GenSan. Councilor Lagare ended his

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Focus Group Discussion on Welding and Metalcasting Sectors

Data show that many companies are competing to serve the same sectors, while there is still a lot of market to be served in other sectors. For companies who serve limited market, it is recommended to practice "job sharing" to support the micro-sized shops. To do this, there are some hindrances that should be addressed first. According to Mr. Virgilio F. Lanzuela, the hindrances include lack of skills, obsolete equipment, and lack of management skills. They need to upgrade to be more competitive. Most small companies cannot compete for government projects. Presently, the government is spending so much on mechanization. Much as small welding companies would like to bid for the job, they could not compete due mostly to costing and reliability issues.

This idea of job sharing is somewhat similar to "clustering" which was previously included in the roadmaps, but was not pushed through due to change of management. A

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The last four months of the year were spent with activities that allowed us to show support to industry partners and tap the cooperation of our fellow DOST-attached agencies. We joined the Mechatronics and Robotics Society (MRSP) as they held their 3rd National Convention. We participated in the Regional S&T Fairs, attended the 2017 Regional Inventions Contest and Exhibit (RICE) of the DOST-NCR, and promoted healthier living among our employees through the Anthropometric Assessment spearheaded by the DOST-Food and Nutrition Research Institute (DOST-FNRI). Moreover, we recognized the importance of sharpening our skills in technical writing and initiated the conduct of a week-long Training Workshop on Scientific Writing for DOST Researchers.

On top of these, we engaged in activities that we marked as milestones for some of the Center's projects in the months of September to December 2017. We officially opened the Gear Making and Basic Design Training Program. We invited guests from the DOST and the media to join us on a train ride aboard the Filipino-made Hybrid Electric Train (HET) to update them on the HET project's progress and we participated in the summit for the project 'Rollout of DOST-developed Food Processing Equipment to the Regions,' specifically the Food Innovation Centers (FICs). Further, we invited guests from the industry, the government, and the media to join us in the final presentation of the gap analysis on the HET conducted by the Systra Philippines, Inc. Furthermore, we held a Focus Group Discussion to validate results of the welding and metalcasting surveys. Lastly, we signed a Memorandum of Understanding with the DOST XII and the LGU of General Santos City involving the technology demo runs of the Hybrid Electric Road Train (HERT) and ultimately, the adoption of the

HERT as part of GenSan City's grand plan of modernizing their transportation system.

In addition, the positive outcome of our tech transfer initiatives keeps the Center inspired. Four of our food processing equipment, namely: Spray Dryer, Vacuum Fryer, Water Retort, and Freeze Dryer were licensed to Agricom Machineries and Construction Corporation of Cauayan City, Isabela. The licensing agreement was signed in November 2017.

We at the DOST-MIRDC understand how important it is to keep our eyes open and focused on our vision. As 2017 comes to a close, we welcome the opportunity to pause for a while, step back, and assess how far we have gone in serving the M&E and allied industries. We intend to remain attuned and responsive. We want the Center's engagements to convey our earnest aspiration to constantly be a relevant ally of the M&E industries, and we are optimistic that our strategies are carried out to establish an even stronger partnership with the industry in the coming years.



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Executive Director, MIRDC

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message by expressing support to locally-made technologies. 'We welcome the innovations of the DOST here with open arms. Atin pong tangkilikin ang gawang Pinoy.'

Dr. Zenaida P. Hadji Raof Laidan, in her message delivered by Engr. Sammy Malawan, expressed happiness 'now that the HERT is already part of GenSan.' She further gave her assurance that the DOST 12 will do its part stipulated in the MOU because she believes 'that synergy must continuously be created.' Representing the residents of the city of GenSan, the Honorable Mayor Ronnel C. Rivera expressed strong commitment to find ways to modernize the transport system of the city. He said he welcomes the opportunity and possibility of adopting the HERT technology. He assumes that many will resist, but said that 'this is the kind of change we must embrace.' The mayor said GenSan is open to technologies for the country's future. Likewise, he said that he looks forward to the mass production of the HERT prototype.

In response to the warm and gracious welcome of the city of GenSan to the HERT, DOST-MIRDC Executive Director Dizon expressed the Center's commitment to ensure the success of GenSan's adoption of the HERT. 'We are turning over not just the Road Train. We are turning over a technology, we are turning over our technical support. At makakaasa kayo na ano mang testing ang gagawin nyo

po, ano mang modes of operation ang inyong susubukan, we will be here to support you all the way,' stated Dir. Dizon. DOST Secretary De La Pe a recognized that Hon. Mayor Rivera is a very well-respected entrepreneur and that this, according to SFTP, may enable the mayor to fulfill a significant role in the DOST's technology transfer and commercialization objectives. With the Mayor's intervention, according to SFTP, R&D outputs of the

DOST will not only be proven functional, but will most likely be acknowledged as beneficial to society as well.

The messages were immediately followed by the ribbon-cutting ceremonies and the demo run of the HERT. This event marked an optimistic beginning of the transformation and modernization of the transport system in the city of General Santos.



GenSan City Mayor Ronnel C. Rivera (L) and DOST Secretary Fortunato T. De La Pe a acknowledge the important roles and their respective commitments in the successful adoption of the HERT by GenSan City.



DOST Secretary De La Pe a and GenSan City Mayor Rivera lead the ribbon-cutting ceremonies (L), the DOST-MIRDC Executive Director Dizon, along with other guests, board the HERT for the demo run.



Focus Group Discussion...from cover



Deputy Director Agustin M. Fudolig welcomes the guests of the FGD.

accordingly perform to be able to gain profit. On obsolete equipment, this particular hindrance can be addressed through the acquisition of equipment. This hindrance can be alleviated by availing DOST SET-UP to acquire new equipment.

There is a need for welding companies to use new welding equipment in order to develop the capabilities necessary to venture into new and bigger market.

The particular kinds of welding equipment that the welding companies could invest in are the following:



Dr. Pilar facilitates the FGD on welding and metalcasting.

thermit welding, TIG, semi-automatic welding machine, GMAW, plastic welding, plasma welding machine, submerged flux core welding, induction heater instead of ceramic heater and robotic welding, among others. The aim of upgrading is to

system of job sharing should be established so that for every project approved in a particular sector, several companies will collaborate and



Dr. Danilo N. Pilar presents the survey results of welding and metalcasting.



Mr. Jerry Hui, PMAI president, discusses his views on the issue of raw materials in metalcasting.



Mr. Sam Cunanan speaks on the issues of welding training programs as MIRDC Director Robert O. Dizon and other participants listen attentively.



MIRDC-MPRD Chief, Engr. Rodnel O. Tamayo, talks on the possibility of the establishment of a Foundry Institute.



PWS President Reynaldo L. Dela Cruz speaks about the total representation of the Philippine welding industry while Engr. Veronico F. Reyes of Precision Foundry of the Philippines listens.



Mr. Arnel C. Samonte of GNQ speaks on the issue of personnel development of welders.

bring down the power consumption and to develop new markets.

As for metalcasting, the sector can still cope up with competition. We have advantages that are limited to certain areas only, such as training. Relative to the government's plan to phase-out jeepneys, the local metalcasting industry will be busy doing melting of scraps sourced from decommissioned jeepneys. Mr. Jerry Hui, the President of the Philippine Metalcasting Association, Incorporated (PMAI), asked if the government could provide assistance by implementing a program that focuses on reducing the cost of raw materials. China increased its cost on exported raw materials and Mr. Hui expressed concern on coping with the competition.

The industry may be able to cope with customers' quality requirements if there are interventions. Presently, the industrial machinery and automotive industries are the ones largely served by most local metalcasting companies. The capability building interventions needed by the industry to serve other remaining markets should focus more on enhancing workforce or personnel skills, which must be on a continuing basis.

The DOST-MIRDC realizes that these concerns can be addressed through the establishment of a Foundry Institute. Having a common metalcasting facility is a strategy that will best serve the sector. This idea is based on the previous industry roadmap of the metalcasting industry. FGD participants inquired about the present situation of foundry schools and what initiatives are being done to develop them. There is a need to fix the curriculum of universities specifically on metallurgy. Next year, a project proposal will be submitted to the Board of Investments (BOI) for funding. The project involves the acquisition of new equipment for MIRDC and universities, improvement of value-adding products, as well as the conduct of market study on localization of metalcast products. This is in partnership with the PMAI.

High cost of production is number one on the list of weaknesses among metalcasting companies. With the soon-to-be established Foundry Institute, relevant interventions and services will be made available in order to help the industry overcome the issue on production cost, particularly power cost and raw materials. Also, a

decrease in the cost of the silica sand will be most helpful to the industry.

Industry players brought out other important issues about the welding industry. Among these are the lack of organized national test qualification, and the need to identify and clarify what industries make up the metals and engineering sector.

In summary, the FGD on welding and metalcasting sectors helped to validate the results of the study which will also strengthen its recommendations.

DOST-MIRDC Creates a Technical Solutions Services (TSS) Group to Enhance Delivery of Services

In the exigency of service and in the pursuit of optimizing efficient and effective delivery of its technical services, the Department of Science and Technology - Metals Industry Research and Development Center (DOST-MIRDC) formed a Technical Solutions Services (TSS) group that commenced operations on November 6, 2017. Improving job acceptance process and monitoring and releasing jobs for machining, welding and fabrication, heat treatment, surface engineering, and metalcasting are the main concerns of the TSS.

The group is headed by Engr. Edilbert M. Dela Peña, a Senior Science Research Specialist. Joining him are Engr. Wilfredo R. Lim, Senior Science Research Specialist (Asst. Head); Engr. Cornelio Y. Baldon and Engr. Jojit M. Velasco, both Science Research Specialist II (Technical Engineers); Mr. Rommel G. Adame, Draftsman IV and Mr. Virgilio E. Pasco, Metal Technologist III (Technical Assistants); and Mr. Alfredo B. Anchorez, Administrative Aide III (Technical Aide).

The TSS is placed under the direct supervision, direction, and control of the Office of the Executive Director and is tasked to perform the following duties and responsibilities, among others:

- Provide and facilitate end-to-end technical solutions for

small and medium enterprises (SME) involved in the metals, engineering, and allied industries, particularly those solutions that focus on technical consultancy on metalworking processes;

- Ensure efficient and effective delivery of technical services from acceptance to production planning, cost estimation, monitoring and control, and product release;
- Spearhead the external relations program to bridge SME as well as industry needs with other service providers;
- Optimize productivity of the above-mentioned technical services of the Center.

The TSS is currently putting in place more effective procedures for critical job processing such as acceptance, scheduling, cost estimation, among others for both external and internal jobs.

The TSS is doing its part to sustain the Center's continual improvement initiatives to better achieve the MIRDC's quality objectives in accordance with the over-changing requirements of its customers and other interested parties.



TSS head Engr. Edilbert M. Dela Peña (in black jacket) presides a meeting with his group.



TSS staff busy at work.



A client discusses the scope of work with a TSS staff.

Hybrid Electric Train (HET): Performance Gap Analysis Presentation



MIRDC director Engr. Robert O. Dizon delivers his inspirational message.

One of the major accomplishments of the Center is the hybrid electric train (HET). The locally designed and developed HET consists of five (5) coaches primarily powered by diesel fuel and electric-powered battery. This project, closely coordinated with the Philippine National Railways (PNR), is aimed mainly at increasing the existing number of trainsets presently in service in the country. The HET went through regular daily test runs on a 1.2-kilometer stretch of track at the PNR Tutuban station in 2016, prior to and after its official launching. It was then subjected to a series of tests along the Sta. Rosa and Mamatid stations in Laguna to assess its reliability and safety.

The DOST-MIRDC management directed the project team to conduct further performance test and endurance tests, and to recognize the importance and benefits of identifying all areas of improvement. Relative to this, on December 11, 2017 at the



Engr. Pablo Q. Acuin presents the project highlights.



SPI expert Mr. Philippe Wessbecher talks about the gap analysis.

Platinum Auditorium, MIRDC, the Gap Analysis of HET was presented. Engr. Robert O. Dizon, MIRDC Executive Director, welcomed the guests and participants and also delivered an inspirational message. Dr. Rowena Cristina L. Guevara, DOST Undersecretary for Research and Development graced the occasion.

Engr. Pablo Q. Acuin, HET project leader, presented the following project highlights:

a. The need to improve the performance of the HET especially the technical part of the testing considering the limitations of the present set-up;

- b. The DOST-MIRDC team needs to facilitate an immediate improvement based on the gap analysis presented by Systra Philippines, Inc. (SPI);
- c. There is a need to improve coordination regarding testing and facility sharing of the DOST, DOTr and PNR, if the government is really serious in providing solutions to critical transportation problem; and
- d. There is a need for a third party to tell the public that the HET is “ready and safe for public use.”

The gap analysis presentation of Mr. Philippe Wessbecher, Rolling Stock Expert from the SPI, needs immediate action as the public is

waiting for the result of the testing and development of the HET. During the forum, media practitioners inquired on relevant and sensible concerns from the presenters. They were enlightened from the answers of the MIRDC key officials and SPI expert, Mr. Wessbecher.

Another notable discussant mentioned that while the HET is still undergoing test performance, the government should already work on the improvements of the hybrid electric road train to help solve the mass transportation problems experienced daily. He stated that there was a study comparing the costs of providing mass transportation either through railways or road train. The findings according to him is that there is almost equal amount of expenses incurred for both. Since the problem is urgent, it is a must to “go road train first” while the HET is getting better for quality performance.

MIRDC Features Technologies in Regional S&T Fairs

Pushing the Center's research outputs further to reach more Filipinos, the DOST-MIRDC brought to the regional S&T fairs its developed technologies. Themed as “Science for the People,” the regional fairs featured various activities such as technology fora and exhibits of S&T services and products.

Throughout the regional fairs, the DOST-MIRDC featured several technologies and its newest facilities, such as: the Advanced Transport Program composed of the Automated Guideway Transit (AGT) System, Hybrid Electric Road Train (HERT), and Hybrid Electric Train (HET); the Superheated Steam Treatment System for Brown Rice; the Retrofitted Compact Rice Mill for Brown Rice Production; the Hand Tractor Attachments – Transplanter & Harvester; among others. The featured facilities include the Die and Mold Solution Center; the Gear Making and Assembly Facility; and the Auto Parts Testing Facility.

Hosted by the Department of Science and Technology (DOST) Regional Offices, the DOST-MIRDC joined the Regional Science and Technology Week (RSTW) celebrations held in the following regions: DOST Caraga held at Robinson's Place, Butuan City on August 8-10, 2017; DOST II held at FL Dy Coliseum, Cauayan City, Isabela on August 14-18, 2017; DOST VI held at SM-Iloilo on August 29-31, 2017; DOST IX held at Palacio del Sur, Pagadian City, Zamboanga on September 12-13, 2017; DOST VIII held at Robinson's Place, Tacloban City on September 19-21, 2017; DOST X held at the Atrium-Limketkai, Cagayan de Oro City on September 19-21, 2017; DOST I held at Candon Civic Center, Candon City, Ilocos Sur; DOST-CAR held at Tabuk City, Kalinga; and DOST XII held at the KCC Convention Center, General Santos City.



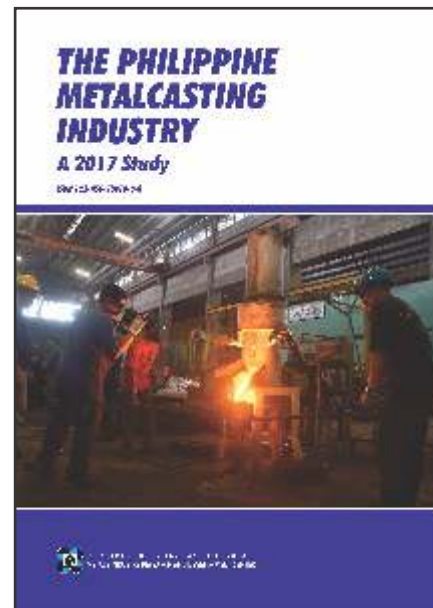
MIRDC Sectoral Studies

The Metals Industry Research and Development Center conducted a focus group discussion to validate the metalcasting survey. The event was conducted on October 19, 2017 at the MIRDC Germanium Conference Room, back to back with the focus group discussion of the Philippine Welding Industry Study.

The Metalcasting Industry Study is now on its way to completion. The survey result shows that 53 percent responded (45 actual respondents) out of the target number of respondents (85). For the heat treatment study, the survey result shows that 27 companies or 43% percent of the total target number of companies (63) were surveyed.

The reason for the low response rate is that there are a lot of potential respondents who declined to participate in the survey. Most of the reasons are: the boss is not available, the boss is busy and there is no one to attend to the survey.

On the conduct of the survey, early last year, the Philippine Statistical Authority approved the conduct of survey by the Metals Industry Research and Development Center (MIRDC) for metalworking companies engaged in metalcasting and heat treatment processes to determine the present condition of the industries. These include the general, market and technical profile, including the problems, issues and concerns of the said sectors and the expectations in the next five years. Through this survey, MIRDC have to come out with the industry studies that would be used by decision makers specifically the policy makers, policy implementers and members of the industry in formulating recommendations for facilities upgrading, personnel development and investment incentives.



DOST-MIRDC Joins #GoforHealthierDOST



The Department of Science and Technology – Metals Industry Research and Development Center (DOST-MIRDC) joined the program #GoforHealthierDOST that was initiated by the Food and Nutrition Research Institute (DOST-FNRI). The #GoforHealthierDOST is a wellness

campaign in support of the Civil Service Commission's (CSC) series of memorandum circulars reiterating the promotion of fitness and health among government personnel.

The wellness campaign was launched on June 13, 2017 at the DOST Grounds wherein several physical activities

were done by DOST employees.

On September 7, 2017, the DOST-FNRI had their presentation on the lifestyle diseases at the Gold Auditorium. A total of 158 DOST-MIRDC employees participated in the initial weigh-in of the #GoforHealthierDOST. The

participants had a total aggregated weight of 4,678.24 lbs. (10, 385.7 kg) and were classified in terms of body mass index (BMI) as either normal, overweight or obese.

The results of the End-Line Anthropometric Assessment, held on December 7, 2017, showed that 56% of the participating employees lost weight. This is an indication that team DOST-MIRDC is really going for better health.



Raw steel production continues to increase

The volume of global raw steel production reached 143 million metric tons worldwide in July this year, according to the World Steel Association.

Global raw steel production in July 2017 increased 1.35% from June and rose 6.25% as compared to June the prior year. The increase indicates the continuing trend of rising raw steel production and counters previous forecasts of weak short-term demand during the period.

The first seven months of the year saw global steel production reach 977 million metric tons, 4.6% higher than during the corresponding period the previous year.

China produced 74 million metric tons of raw steel in July this year, an increase of 1.08% from the previous month and 10.3% more as compared to June 2016. The country's raw steel production from January to July this year increased 5.1% as compared to the same period the past year.

Japan's raw steel production reached 8.58 million metric tons in July this year, 2.1% more than June but 4.3% less in July the past year. The country's output from January to July this year is nearly even (-0.2%)

with the corresponding period the previous year.

The Indian steel industry produced 8.4 million metric tons of raw steel in July this year, 2.94% higher than in June the prior year, and 3.5% more than in July 2016. The country's raw steel production from January to July this year is 5.4% higher as compared to the same period last year.

South Korea produced 6.16 million metric tons of raw steel in July this year, 4.1% more than June 2016 and 2.3% more than July 2016. Raw steel production from January to July this year rose 3.5% as compared to the corresponding period in 2016.

Steel manufacturers in the US produced 7.07 million metric tons in July 2017, an increase of 5.6% than in July 2016. Total raw steel production from January to July in 2017 reached 47.75 million metric tons, increasing 2.1% as compared to the same period the past year.

In the European Union, total raw steel production reached 13.6 million metric tons in July this year. Total raw steel production from January to July in 2017 reached 99.6 million metric tons a rise of 3.9% as

compared to the same period the prior year.

Germany saw 3.5 million metric tons of raw steel produced in July 2017, an increase of 3.85% as compared to June, and rising 3.6% compared to July the past year. From January to July the nation's raw steel production went up 1.9% from the same period of the previous year.

The Italian industry produced 2.12 million metric tons of raw steel in July, a decrease of 3.23% from June 2016 but the figure is 1.7% increase than July 2016. The country's raw steel production from January to July this year totaled 14.5 million metric tons, an improvement of 1.6% from the past year's performance.

The World Steel Association predicts that the market's current recovery will remain modest through 2018.

Source: Asia Pacific Metalworking Equipment News, October 2017, p.28



Global aerospace materials market to hit US\$25.8B

The global aerospace materials market is forecast to grow at a compound annual growth rate of 6.9% from 2017 to 2022 and predicted to reach US\$25.8 billion by 2022, according to market intelligence company Markets and Markets.

The main drivers in the market include increasing application in new generation aircrafts, rising environmental concerns, and growing demand for aerospace materials from aircraft parts manufacturers in Asia Pacific, Europe and North America due to high demand for passenger transportation.

The leading segment in the aerospace materials segment during the forecast period is business and general aviation. On the basis of aerospace materials utilization, this segment is the second-largest, after commercial and military aviation.

On the basis of value, Asia Pacific is predicted to be the fastest growing region in the market during the forecast period. China, Japan, and India are experiencing a tremendous increase in the use of aerospace materials, resulting from the aerospace industry's growth. India and Japan are drawing investors to build production facilities as these nations have raw materials readily available and lower costs of labor.

Asia Pacific's rising air traffic and high number of low cost carriers are predicted to increase the demand for aircraft production in the region during the forecast period.

Source: Asia Pacific Metalworking News, October 2017, p.27



Global industrial machinery to reach US\$1.6 trillion

The global industrial machinery production market is forecast to reach US\$1.6 trillion and is expected to experience growth in the current and short-term period, according to a report by market intelligence company IHS Markit.

Demand for machine tools rose in Europe and the US in the first half of 2017, but a broader market projection indicates that the global demand for this segment still has room for improvement.

The industrial demand for machine tools in North America has improved after two years of slower demand due to weak energy market and political uncertainty in the country. The trend of manufacturers leasing machinery is gaining traction in North America as a strategy to save costs thus, increasing their revenue.

The machine tool market in China which is the largest machine tool market, is forecast to be

segregated by different end-market needs. Operations that depend on heavy industrial customers are predicted to fluctuate, while the automotive, electrical, and light industrial sectors are expected to continue its strong growth momentum.

The vehicle manufacturing segment is projected to have an increasing use of advanced machinery to process newer light metals and composite materials used in newer models of vehicles.

The material handling equipment- conveying and lifting systems- segment is expected to see a 4% growth through 2021, but will face competition through the uptake of automated guided vehicles, as well as automated storage and retrieval systems.

It is predicted that short-term machinery production revenues and unit shipments will increase this year according to the report. The global economy stabilized in the fourth quarter of 2016, and continued to progress on toward February 2017 due to the rise of commodity prices,

especially oil and gas, metals and crops.

The report also highlighted that machinery sales are associated to commodity prices. The revenue for global machinery grew 2.2% in the second quarter of 2017 due to wide ranging improvements undertaken by manufacturers in most industrial sectors worldwide, as well as overall improved performances of the gross domestic product and purchasing managers' index.

Source: Asia Pacific Metalworking Equipment News, October 2107, p.27



Secondary cooling system for sophisticated steel grades

An air-mist cooling system newly developed by SMS group for continuous casters which is pneumatically operated by water control valves and related automation systems form the centerpiece of the HD spray system. It is scalable water distribution and control system which, compares to conventional solutions, requires far less space and pipework. The secondary cooling water is regulated and distributed only just before the cooling nozzles. This does away with

negative influences such as long control lines or pressure losses. What's more, the use of HD spray means a 30% reduction in process air consumption.

At ArcelorMittal Bremen, SMS group's HD spray technology is to be installed as part of the modification of the two-strand vertical bending machine. SMS group's supply scope includes the entire basic and detail engineering, deliver and erection, and supervision of commissioning.

Contact: www.sms-group.com

Source: MPT International 5/2017, p.65



Pneumatically operated water control valves

Passivation fluid solutions

In steel manufacturing, the galvanizing process provides corrosion protection to the steel substrate followed by passivation to protect the zinc surface. Choosing an effective passivate chemistry with an appropriate regulatory consideration is a growing challenge given varying

regional requirements. To meet this demand, Quaker Chemical offers the Primecoat™ line which consists of product options of hexavalent chromium (Cr6+), trivalent chromium (Cr3+) and chromium-free technology to satisfy process needs. The key benefits of the Primecoat™ line of products include

transparent film, good appearance even at higher coating weight and excellent corrosion protection.

Contact: www.quakerchem.com

Source: MPT International 5/2017, p.67

MIRDC Participates in Powertrends 2017

The Metals Industry Research and Development Center (MIRDC) of the Department of Science and Technology (DOST) participated in the Powertrends 2017 held last September 27-29, 2017 at the SMX Convention Center.

The MIRDC featured its technologies on mass transportation, i.e., the Hybrid Electric Road Train (HERT), the Hybrid Electric Train and the Automated Guideway Transit (AGT). Video of the displayed technologies developed for mass transportation system were likewise shown during the exhibit.

The event was organized by the Leverage International (Consultants), Inc. The event is supported by the Department of Energy and relevant industry agencies and industry associations.

Powertrends was launched in 1995 for the Department of Energy and National Power Corporation during the height of the energy crisis in the Philippines, to gather the major international energy players under one roof and introduce them to the Philippine market and the relevant government agencies and private companies.

Since then, Powertrends has been a regular biennial event. But in response to the rising demand of a growing domestic economy, Powertrends went annual starting 2016.

Series of forum called POWERTECH Business Forum usually held in conjunction with Powertrends has contributed significant inputs in developing the Build-Operate-Transfer Program for every development in the country during the height of the energy crisis in 1995. The ASEAN recognized the Philippines for this Program.

MRSP Holds 2017 Annual Convention



Ribbon cutting with DOST Sec. Fortunato T. Dela Peña, MIRDC Dir. Robert O. Dizon, and TESDA Dir. Rosalinda B. Talavera.

The Mechatronics and Robotics Society of the Philippines (MRSP) held its annual convention last November 28-29, 2017 at the MIRDC Titanium Auditorium, with the theme, "Mechatronics and Robotics: Challenges for Industry Innovation."

The convention was attended by MRSP members from different chapters with large delegation from Laguna and Cavite and with large delegation- from Cebu, Vigan and Metro Manila. Other attendees were educators, experts and engineers from related industries and professional fields as well as from the government.

The event was graced by Secretary Fortunato T. Dela Peña of the Department of Science and Technology (DOST), who was the keynote speaker, Dir. Robert O. Dizon of MIRDC, Dir. Rosalinda B. Talavera of TESDA, and Usec. Teodoro C. Pascua of DTI. The welcome and inspirational messages were delivered by the following MRSP Officers: Engr. Augusto T. Soliman, President; Engr. Joel B. Bajador, Chairman; Mr. Gamaliel F. Itao, Adviser; and Engr. Edwin Sta. Maria, Secretary and Convention Chairman.

In his keynote address, Sec. dela Peña highlighted Pres. Duterte's 10-Point Agenda and the ranking of the Philippines among other ASEAN countries with regard to business competitiveness. On the other hand, Dir. Rosalinda B. Talavera delivered Sec. Guiling Mamondiong's message focusing on TESDA's role and programs in terms of manpower training and its partnership with private organizations. On the 2nd day of the event, Dir. Dizon and Usec. Pascua of DTI delivered inspirational messages.

Technical presentations were given by Engr. Sayui Nath of National Instrument; Engr. Nastaran Nazar Zadeh of Mapua University; and Dr. Davood Pour Yousefian Barfeh of Lyceum of the Philippines University-Calamba (LPU-Calamba). Research papers prepared by students from LPU-Calamba and University of Perpetual Help –Molino (UPH-Molino) were presented by Engr. Favis Joseph C. Balinado and Dean Mariciel M. Teoganco, respectively.

Sponsor-companies and member schools exhibited their products and their latest research projects. Other activities include: NC II Mechatronics Servicing Course training, Mechatronics and Robotics skills competitions, and interschool Quiz Bee contest. Also, new passers of MRSP's certified Mechatronics and

Electronics Industry Says 2017 \$30-B Export Target within Reach

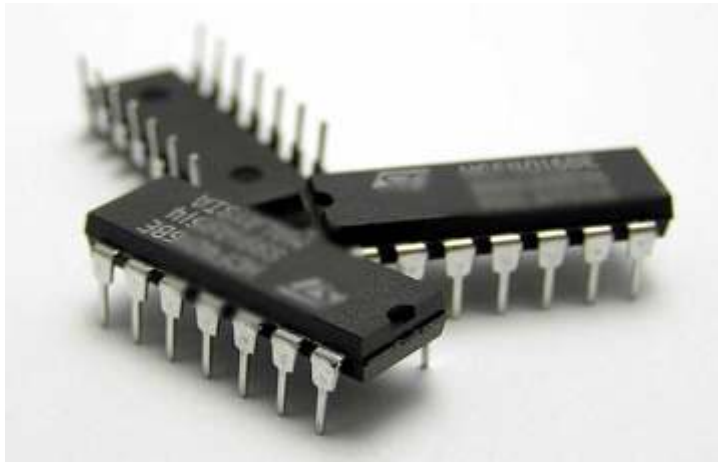
THE electronics industry said its 2017 export target of \$30 billion is within reach based on data recorded as of July, driven by global moves towards greater automation and technology upgrades.

Semiconductor and Electronics Industries in the Philippines Foundation, Inc. (SEIPI) President Danilo C. Lachica said during a CEO forum on Monday at the Sofitel Hotel in Pasay City that electronics continue to drive Philippine exports, with \$19 billion worth of revenue as of July.

"We're a global business so it's a digital economy (now) and a digital economy requires electrical components so it's good for the industry. We expect growth as driven by the requirements of the digitization industry — the industrial revolution 4.0," he added.

The Philippine Statistics Authority estimates electronic equipment and parts to be third among the top exports, growing 71.2% year on year in August.

Electronic products grew 10.8% year on year to P21.19 billion in the first eight months, with



semiconductors accounting for the largest share of exported products.

Semiconductors grew by 10.6% to P15.22 billion.

"At the rate we're going, we're probably going to hit \$30 billion because we projected a 6%-8% growth for 2017 (in export revenue). But we've hit (\$30 billion) twice before in 2007 and 2010 but... we actually went as low as \$22 billion in 2011. We're on the rise this time and we hope to hit the \$30 billion mark," Mr. Lachica added.

Mr. Lachica said that the 2017 revenue total will be released by February, two months later than usual. Likewise, the projected growth for 2018 will be released at around that time as well.

"The way we do it is we talk to our member companies; the big member companies and we talk about their growth projections and actually we take a weighted average and that is how we come up with the range. But the thing is that's not perfect science. Last year we projected a 6%-8% right after the elections since a lot of things happened that we actually ended up flat. But we think that we're recovering this year, hence the 6%-8% growth."

SEIPI Chairperson Virginia Melba A. Cuyahon in her speech said that industry growth will continue until 2020 due to the growing consumer confidence.

Ms. Cuyahon said that the top segments for the electronics industry in the near future are auto electronics, smartphones, and sensors used in phones.

Source: The Philippine Star, October 17, 2017

Automation Engineers, Specialist and Technicians received their certificates and took their oath. Participants also toured the MIRDC facilities, such as the Die and Mold Solution Center and the Gear Making Facility. During the event, the MRSP elected its new set of officers for 2018.

For three consecutive years now, the MRSP convention has been a huge success. MRSP met its objectives, i.e., gave importance and focus on the challenges and opportunities that the country faces on the emerging disruptive technologies amid advancing towards the Industry 4.0. It also provided the leaders and practitioners in industry, government and academe with a venue to exchange



TESDA Dir. Rosalinda B. Talavera delivers the message of TESDA Director General Mamondiong.

information, updates on best practices in industry and new methodologies in education. With knowledge of the latest technology and rewarding opportunities, it is hoped that students



DOST Sec. Fortunato T. Dela Peña poses with MIRDC Dir. R. O. Dizon and MRSP Officers.

had been inspired to dedicate themselves in field of mechatronics and robotics technological careers.

TESDA Honors Outstanding TVIs

The Technical Education and Skills Development Authority (TESDA) gave recognition to outstanding Technical Vocational Institutions (TVIs) which helps the government uplift the quality of Technical Vocational Education and Training (TVET) programs nationwide.

During the 2nd National Quality TVET Forum recently, TESDA cited the TVIs through the STAR rating system based on the program governance and management; curriculum and program delivery; support services and program performance measures.

TESDA Director General, Secretary Guiling “Gene” Mamondiong said that the recognition bestowed upon the TVIs is expected to boost the quality and performance of technical vocational education in the country.

Among 3 STAR awardees were the Southern Isabela College of Arts and Trades (Region 2) for Automotive Servicing NC II and the Jacobo Gonzales Memorial School of Arts and Trades (Region IV-A) for its Mechatronics Servicing NCII.

Other recipients of 2 STAR were the Baguio City School of Arts and Trades (Cookery NC II), Regional Training Center-Baguio (Machining NC II), Bangui Institute of Arts and Trades (Aquaculture NC II), Isabela School of Arts and Trades (Refrigeration and Air-Conditioning Servicing NC II), Concepcion Vocational School (Animal Production-Swine NC II) and Quezon National Agriculture School (Agricultural Crops Production NC II).

Simeon Suan Vocational and Technical School (Shielded Metal Arc Welding NC I), Puerto Princesa School of Arts and Trades (Food and Beverage Services NCII), Sorsogon National Agriculture School (Dressmaking NC II), San Francisco Institute of Fisheries and Technology (Food and Beverage Services NC II), Bulusan Vocational Technical School (Tailoring NC II and Dressmaking NC II) also received 2 STAR.

Also receiving the 2 STAR were Camarines Sur Institute of Fisheries and Marine Sciences (Aquaculture NC

II), Saint Gabriel College, Inc. (Health Care Services NC II), Negros Occidental Language and Information Technology Center (Contact Center Services NC II), Dumalag Vocational Technical School (Cookery NC II), Leon Ganson Polytechnic College (Food Processing NC II) and Regional Training Center-Tacloban (Refrigeration and Air-Conditioning Services NC II).

Calubian National Vocational School (Food and Beverage Services NC II), Saint Therese Educational Foundation of Tacloban (Shielded Metal Arc Welding NC II), Artech National Agricultural School (Bread and Pastry Production NC II), Samar National School of Arts and Trades (Food and Beverage NC II), Balicuatro College of Arts and Trades (Refrigeration and Air-Conditioning Servicing NC II), Camiguin School of Arts and Trades (Shielded Metal Arc Welding NC II), Lupon School of Fisheries (Aquaculture NC II, Bread and Pastry Production NC II and Food and Beverage Services NC II), Davao Regional Training Center-Korea Philippines Vocational Training Center (Cookery NC II, Motorcycle/Small Engine Servicing NC II, Refrigeration and Air-Conditioning Servicing NC II and Rice Machinery Operation NC II), General Santos School of Arts and Trades (Refrigeration and Air-Conditioning Servicing NCII) and Surallah National Agriculture School (Agricultural Crops Productions NCIII).

The 1 Star awardees were Baguio City School of Arts and Trades (Food and Beverage Services NC II), Provincial Training Center-Kalinga (Electrical Installation and Maintenance NC II), Data Center College of the Philippines of Baguio City, Inc. (Food and Beverage Services NC II), Pangasinan School of Arts and Trades (Electrical Installation and Maintenance NC II), Saint Michael's College of Laguna (Bread and Pastry Production NC II), Sorsogon National Agricultural School (Tailoring NC II), Camarines Sur Institute of Fisheries and Marine Sciences (Food and Beverage Services NC II), Verde Grande College, Inc. (Food and

Beverage Services NC II), Passi Trade School (Shielded Metal Arc Welding NC II), Leon Ganson Polytechnic College (Food and Beverage Services NC II), New Lucena Polytechnic College (Trainers Methodology Level 1) and Regional Training Center-Cebu (Machining NC I).

Provincial Training Center-Pilar (Shielded Metal Arc Welding NC II and Electrical Installation and Maintenance NC II), Cabucgayan National School of Arts and Trades (Cookery NC II), Balangiga National Agriculture School (Bartending NC II), Provincial Training Center-Catarman (Shielded Metal Arc Welding NC II), Cagayan de Oro (Bugo) School of Arts and Trades (Automotive Servicing NC II), Carmelo delos Santos Sr. National Trade School (Shielded Metal Arc Welding NC II), Wangan National Agriculture School (Food Processing NC II), Lupon School of Fisheries (Bartending NC II, Beauty Care-Nail Services NC II, Cookery NC II, Driving NC II, Food Processing NC II, Front Office Services NC II, Housekeeping NC II, Massage Therapy NC II and Refrigeration and Air-Conditioning Servicing NC II), Davao Regional Training Center-Korea Philippines Vocational Training Center (Automotive Servicing NCII, Machining NC I, Masonry NC II and Shielded Metal Arc Welding NC II) and Provincial Training Center-Agusan del Norte (Cookery NC II and Shielded Metal Arc Welding NC II).

The Asia Pacific Accreditation and Certification Commission (APACC) Gold Award was given to the Puerto Princesa School of Arts and Trades and the Lupon School of Fisheries; Silver Award for the Kabalasan Institute of Technology, Southern Isabela College of Arts and Trades, Dipolog School of Fisheries, Concepcion Vocational School and the TESDA Women's Center.

Source: TESDA, November 5, 2017

Establishment of a Gear Making and Assembly Facility



Gear Making and Basic Gear Design Training Graduates pose with their instructors, some key officials and facilitators.

A special occasion took place as the MIRDC held the Closing Ceremony of the Gearmaking and Basic Gear Design Training on December 15, 2017, 9:30 a.m. at MIRDC Titanium Auditorium, MWS II Bldg., General Santos Avenue, Bicutan, Taguig City. A total of 21 participants consisting of technical personnel from metalworking companies and academe graduated from the training program.



Dir. Robert O. Dizon welcomes guests and participants during the closing ceremony of the Gear Making and Basic Gear Design Training.



Ms. Inesitas L. Palermo gives her inspirational talk.

The occasion was graced by important personalities from the industry, led by Ms. Inesitas L. Palermo, MIAP National President and Mr. Virgilio P. Lanzuela, Chairman- Committee on Training. Engr. Robert O. Dizon, Executive Director of MIRDC, welcomed the guests and participants and posed a challenge to the graduates. Ms. Palermo gave the inspirational message motivating the graduates to a higher level of performance when the graduates returned to their respective workplaces.

The trainees maximized their stay at MIRDC as they also had the opportunity to a plant visit and cultural tour at MOOG Controls in Baguio City. Only a few had this kind of privilege and the trainees of this project were most fortunate. Engr. Fred P. Liza, Chief of the Prototyping Division, presented the graduates to Engr. Dizon and Ms. Palermo and awarded the certificates to the graduates. The graduates presented also specific learnings from the training program such as how the gears are manufactured using the processes identified. Several of these trainees gave their heartfelt responses to the offering of this course by the Department of Science and Technology through the Metals Industry Research and Development

Center (Prototyping Division). According to them, this training program is one of the most essential training that the government have provided the industry specifically catered to those companies that are into gear making. This will make a mark and if continually pushed for development will create a substantial impact to the metals, engineering and allied industries.

Most of the graduates came from the industry and academe such as Rollmaster, AC-10, RU Foundry, TCU, Silliman University, Sanvil Industrial Supply, MOOG Controls, MBC Machine Shop, SPRCNHS, TUP Visayas, LPU Laguna, San Andres Machine Shop, Rockwell Machine Shop and Abando Machine Shop. The guests from the industry (Technical Working Group) were: Ms. Inesitas L. Palermo, the current President of the Metalworking Industries Association of the Philippines - National, Martin P. Yabut Jr., Mr. Wilfredo N. Estoque (consultant), Hector D. Malonzo and Virgilio P. Lanzuela (Chairperson). The resource speakers and technical assistants who tried their best to train, and actively participated in this project were: Dr. Dominic Guevarra, Engr. Gary Bathen, Engr. Allan John Limson, Engr. Joein Lucas, Engr. Joseph Alfred Garcia, Engr. Jojit Velasco, Engr. Nelson Tumibay, Mr. Rommel Adame, Mr. Arvy Coria, Mr. Noli Alviar, Mr. Francisco Marasigan, Mr. Simplicio Morla, Mr. Tirso Entereso, Mr. Bobby Fronda and Mr. Pascual Lumanta. Mr. and Mrs. Acio of AC-10, graced the occasion as their daughter is one of the graduates.



Participants during their training days on gear making and basic gear design.

DOST-MIRDC Promotes Science, Technology, and Innovation in La Union through the 'MIRDC Goes to the Municipality'



The Opening Ceremonies of the 'MIRDC Goes to the Municipality' held at the DMMMSU-MLUC on October 25, 2017 led by distinguished officials of the DMMMSU and the DOST-MIRDC, represented by Engr. Reynaldo L. Dela Cruz, Jr. (second from left). Faculty members, students, government employees, and the private sector (below) attended the event.

As a sequel to the success of the very first ever 'MIRDC Goes to the Municipality' activity held in Calapan, Oriental Mindoro in March 2017, the Department of Science and Technology-Metals Industry Research and Development Center (DOST-MIRDC) travelled to La Union to hold the same activity.

The second leg of the said initiative was held from 25-27 October 2017. Hosted by the Don Mariano Marcos Memorial State University (DMMMSU) Mid La Union Campus and in cooperation with the DOST Regional Office I, the event was opened on 25 October 2017 with a program entitled, 'S&T Caravan for Metals and Engineering Industry in La Union' and bannered with the theme, 'Strengthening the Metals and Engineering Industry through Excellence in Technological Innovations.'



The Center aims to actively support the metals, engineering, and allied industries in the countryside by bringing to various municipalities its services particularly training, consultancy, information dissemination and technology promotions complemented by a skills

Success Story

competition. As such, the event is composed of technology exhibits; Training on Welding Processes (TIG/MIG/SMAW); Awareness Seminar on ISO 9001:2015; Seminar on Productivity Improvement through 5S Practice; Seminar on Occupational

Safety; Training on Heat Treatment of Steels; Training on Metal Finishing Techniques; Seminar on Significance of Welding Inspection; conduct of consultancy and Technology Needs Assessment (TNA); and Welding Skills Competition. The three-day

event was a remarkable success based not only on the turnout of the number of participants, but also on the impact it created on both the academe and the industry.

The S&T Caravan was made possible with the active involvement of



Major activities of the 'MIRDC Goes to the Municipality' include the Training on Welding Processes by Engr. Rey L. Dela Cruz, Jr. (L), Training on Heat Treatment of Steels by Engr. Edilbert M. Dela Peña (center), and Seminar on Metal Finishing Techniques by Engr. Wilfredo R. Lim.

Date	Title of Activity/ DOST-MIRDC Resource Person	Number of Participants
25 Oct 2017	1. Training on Welding Processes (TIG/MIG/SMAW) Conducted by: Engr. Reynaldo L. Dela Cruz, Jr.	27
	2. Awareness Seminar on ISO 9001:2015 Conducted by: Dr. Concesa T. Cortez	37
	3. Seminar on Productivity Improvement through 5S Practice Conducted by: Ms. Alma C. Dupagan	26
	4. Seminar on Occupational Safety Conducted by: Mr. Leandro B. Olesco	49
	5. Technology Exhibit Conducted by: Technology Information and Promotion Section (TIPS)	120
26 Oct 2017	6. Training on Welding Processes (TIG/MIG/SMAW) Conducted by: Engr. Reynaldo L. Dela Cruz, Jr.	20
	7. Training on Heat Treatment of Steels Conducted by: Engr. Edilbert M. Dela Peña	23
	8. Training on Metal Finishing Techniques Conducted by: Engr. Wilfredo R. Lim	21
	9. Seminar on Significance of Welding Inspection Conducted by: Philippine Welding Society (PWS)	41
	10. Technology and Needs Assessment	3 firms
	11. Technology Exhibit Conducted by: Technology Information and Promotion Section (TIPS)	226
27 Oct 2017	12. Training on Welding Processes (TIG/MIG/SMAW) Conducted by: Engr. Reynaldo L. Dela Cruz, Jr.	14
	13. Training on Heat Treatment of Steels Conducted by: Engr. Edilbert M. Dela Peña	17
	14. Seminar on Metal Finishing Techniques Conducted by: Engr. Wilfredo R. Lim	20
	15. Seminar on Productivity Improvement through 5S Practice (Firm Level) Conducted by: Ms. Alma C. Dupagan	40
	16. Welding Skills Competition Conducted by: PWS	12
	17. Technology Exhibit Conducted by: Technology Information and Promotion Section (TIPS)	180

the DMMMSU's College of Technology (COT). It is the first College in the entire country qualified by the Accrediting Agencies of Chartered Colleges and Universities in the Philippines, Inc. as Level IV. With this distinction, its students are assured of high-quality academic preparation. Dr. Victorio C. Palabay, Dean of the COT, is the man behind the very successful and prestigious college of DMMMSU. Under his direct supervision, the students are required to conduct technological researches. Highly qualified faculty and experts, well-equipped laboratories, and

industrial exposures ensure the success of students in this endeavor. Dr. Palabay is proud of their students' research outputs, some of them even becoming winners in the Regional Invention Contest and Exhibit (RICE) of the DOST. COT students actively participated in the trainings and seminars for the S&T Caravan, all of which helped increase their awareness of industry practices and technology updates.

The Welding Skills Competition was the culminating activity of the three-day event. Awarded the First Place in the contest was Mr. Allan C.

Bacani. He said that it was his Boss who convinced him to join the contest. He was hesitant at first, but gave it his best shot. He has been working as a welder for quite some time but has not secured a welder's certificate. This hindered him from getting more high-paying jobs. He said that with the award, he gained more confidence in his skills. Getting a certification and further enhancing his skills in welding are among his next priorities.



Part of the S&T Caravan is the conduct of the Welding Skills Competition (L), with Mr. Allan C. Bacani (third from left) garnering the First Place from among twelve competition participants (R).

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