

MIRDC Completed 26 R&D Projects in 2008

The Metals Industry Research and Development Center (MIRDC) successfully completed 26 research and development projects in 2008.

Twelve of the projects are classified as contract researches, seven are MIRDC initiated, and seven are DOST funded projects under grants-in-aid, joint R&D and Technological Innovation and Commercialization Program or TECHNICOM. The completed projects include:

Internal Projects

- Coco Husk Decorticator with Replaceable Blade
- Refurbishment of Slivering and Twining Machines
- Insert-Type Mini Decorticating Machine
- Defibering Machine
- Coco Peat Press (Hydraulic)
- Manual Jatropha Desheller
- Development of Portable Apparatus for Selective Metal Finishing

DOST-GIA Funded

- Enhancement of the Production Capacity of the Pilot Coco Coir Processing Center in Aurora Province (Retrofitting of the Decorticating Machine Conveying System)
- Study of the Optimum Operation of the Principle Agribusiness Corp. Coco Coir Processing Center (PACCPC)
- Field Testing of MIRDC developed Coco Coir Processing Equipment in Aurora Province
- Energy Management Conservation, Audit and S&T Support for the Metalcasting Industry

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Enhancement of the Production Capacity of the Pilot Coco Coir Processing Center in Aurora Province - Retrofitting of the Decorticating Machine Conveying System

10 More DOST Agencies Get Certified

The government has a great responsibility towards the public including the business sector, hence, improvement in the quality of their products and services through continual improvement of its operations should be well thought-out. In this pursuit, the Department of Science and Technology (DOST) recently got ten (10) more of its regional offices and agencies certified under ISO 9001:2000 during the second phase (from March 2008 to February 2009) of the DOST GIA Project 3: "Establishment and Implementation of Quality

Management System (QMS) in Accordance with ISO 9001." The certification was conducted by the Certification International Phils., Inc. (CIPI), the certifying body.


The CIPI evaluated the DOST regional offices and agencies according to their documented procedures and work instructions to deliver the services to their customers. Having passed the series of external and internal audits, the 10 DOST regional offices and agencies successfully got ISO certifica-

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Arthur Lucas D. Cruz, CEO IV
Officer-in-Charge

MIRDC participated in exhibits and press releases, conducted series of technical and ISO-related training programs, and visited numerous firms for consultancy this first quarter of 2009. Several technologies were promoted to the academe and private researchers in Manila through exhibitions held at Feati University in February and Eco-Product International Fair at Mall of Asia, Pasay City in March. The brochures and flyers of some research projects completed and conceived by our research specialists were distributed. Some of the technologies have been adopted in different provinces being an income generating venture for many of our kababayan. Local businessmen and farmers got interested with the decorticator and other coco coir processing machines as these will enhance their profits and income. Also, some of our technologies in Abaca, Piña, Mercury Retort, Mechatronics and Machining were some of the favorite research inquiries.

The Center has been conducting the nationwide survey on machine shops since April 2008, which is the basis of the Industry Study on the Philippine Machining Sector. The shops that participated will be included in the 2009 Metal Products Directory which will be out early next year.

MIRDC managers and other key personnel met early January to update and prepare for the surveillance audit conducted by CIPI auditors on February 5 & 6. Further, the MIRDC strategic plan were discussed and made into a series of deployment programmes with concerned divisions/sections personnel. MIRDC employees are being empowered through consultations. Together with the middle managers and supervisors, our top managers listened and discussed with their subordinates to find solutions to their current and potential problems. Our commitment to the metals and engineering industry for its development and progress remains steadfast.

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A Directory of Metal Manufacturers

The MIRDC is currently updating its directory on metal products. The publication, "2009 Philippine Metal Products Directory" is a listing of metal products and services offered by the local companies engaged in metalworking, e.g. machining, casting, electroplating,

welding, tool and die, forging, and other metal-related activities. It contains company address, email, website, telephone and facsimile numbers.

As a promotional leeway, all interested local metal manufacturers were invited to publish/list, free of

charge, their company information. Companies who wish to advertise its products & services can reserve space with corresponding rates. Application/reservation forms are downloadable and can be filled out online through our website www.mirdc.dost.gov.ph.

MIRDC Join Fairs

The MIRDC joined FEATI's annual "Science and Technology Expo" on 5-6 February 2009. The event was held at the University Bridgepoint, Palanca St., Sta. Cruz, Manila. Themed as "Young Minds, New Ideas," the exhibit aimed to draw attention to and raise the level of awareness on the importance of cultivating a culture of research among youth. The MIRDC featured samples of cast products produced by its technology on investment casting as well as non-cyanide gold electroplating process which underscores cyanide-free plating process that eliminates the dangers inherent in using cyanide and cyanide compounds, thus leads to a cleaner and safer working environment. Also presented were biodegradable plastic items made through scrapless plastic injection mold process, an eco-friendly plastic molding technology, where the plastic produced from this process can be broken down into basic

substances with the help of living organisms, and therefore, is unlikely to persist in the environment.

On the other hand, the Center also participated together with other DOST agencies in the "International Environmental Fair in Asia: Eco-Products International Fair 2009" held at the SMX Convention Center, Mall of Asia Complex, Pasay City on 19-22 March 2009. This environmental event in Asia was participated in by local and international companies which showcased the newest and latest eco-friendly products and technologies available in the market like mini electric cars, hybrid/energy-efficient vehicles, and many new inventions. It was hosted by the Philippines and was organized by the Asian Productivity Organization (APO), Development Academy of the Philippines (DAP) and Philippine Business for the Environment (PBE) in collaboration with government and private sectors.



FEATI's Annual "Science and Technology Expo" (upper picture) and the "Eco-Products International Fair 2009" at SMX Convention Center

10 More Agencies...from cover

tion, namely: Philippine Nuclear Research Institute (PNRI), 25 November 2008; DOST Cordillera Autonomous Region (DOST CAR), 6 January 2009; DOST Region I (DOST I), 8 January 2009; DOST National Capital Region (DOST NCR), 10 February 2009; Advanced Science & Technology Institute (ASTI), 11 February 2009; Industrial Technology Development Institute (ITDI), 13

February 2009; Forest Products Research & Development Institute (FPRDI), 20 February 2009; DOST Region II (DOST II), 23 February 2009; DOST Region X (DOST X), 24 February 2009; and Food and Nutrition Research Institute (FNRI), 26 February 2009.

The pursuit of certification was done with the assistance of the DOST-Metals Industry Research and

Development Center (MIRDC), being the first DOST agency that has secured the ISO certification as early as 1998. With this stature, the MIRDC along with other ISO-certified DOST agencies and regional offices can ensure quality products and services to its customers.

Importation of Duty-free Japan Steel Looms

Up to 175,000 tons of Japanese-made steel and tin sheets are expected to enter the Philippines duty-free this year, as the rules to implement that portion of the economic pact between the two countries near completion, it was reported during a public consultation on Friday last week.

A sticking point that emerged in the rules' drafting was whether middlemen that import on behalf of small steel and tin users should be allowed to share the zero tariff privilege.

Under the Japan-Philippines Economic Partnership Agreement, 175,000 metric tons of tin plate, hot rolled and cold rolled steel imported from Japan will be exempt from duties in the first year of implementation.

The quota, which increases over time, was put in place to shield local steel mills from a surge in imports.

But the draft of the rules to implement this provision limits duty-free importation to manufacturers of electrical appliances, motor vehicles and parts, ships, cans for food products, as well as downstream products such as coated roofing sheets.

"We are late already [in drafting the implementing rules] because JPEPA was put into force in December. By April, we should start accrediting steel importers," Board of Investments Executive Director for management services Efren V. Leñaño said at the public consultation, noting that such importers can start bringing in the products as fast as three days after accreditation.

Traders and stockist "who engage in purely buying and selling" steel sheets will not have a share of the duty-free quota, the draft rules stated.

"We want to avoid the situation where the stockist will keep it in his warehouse and sell when the price is high," Mr. Leñaño said.

A representative of Japanese steel products maker Metal One, however, countered that stockist should be allowed to import with zero tariffs as they serve orders made by smaller enterprises.

Local steel manufacturers, for their part, told the government to watch out for smuggling and to ensure that a safeguard provision in the rules favoring locally made steel sheets be implemented.

"Due [preference] should be given to local manufacturers. That will really help in these times of distress," Global Steel Philippines, Inc. corporate communications head Sangram Mohanty said at the consultation.

However, the draft stated, "if the local industry is unable to meet the quantity, quality, price and delivery requirements of the user," the government will allow the duty-free entry of Japanese imports."

Concerned stakeholders looking to comment on the draft are advised to submit position papers to the Board of Investment until this afternoon, Mr. Leñaño said.

Source: Business World, 9 March 2009, p2/S1

MIRDC Completed...from cover

- Prototype Development & Local Fabrication of Jatropa Processing Equipment

Joint R & D

- Development of Coco Coir Processing Technology for Region 2 (Cagayan State University)

TECHNICOM

- Commercialization of Non-Cyanide Electroplating Technology

Contract Researches

- Mini Decorticating Machine
- Manual Baling Machine (Lever Type)
- Mini Decorticating Machine (Replaceable Blade)

- Design revision of hydraulic operated garbage bin
- Failure Analysis of Damaged Hydraulic Cylinder's Upper Belt
- Effects of Heat on the Bending Strength of Reinforced Concrete Beam
- Core Braze Analysis for Aston Condenser
- Metallographic Analysis of Leaf Springs
- Fractographic Analysis of Automotive A/C System Pipes
- Core Braze Analysis of Automotive A/C System Pipes
- Core Braze Analysis of Revised Automotive A/C System Pipes
- Fractographic Analysis of Defective P/M Valve Seat (Exhaust)



Field testing of MIRDC developed coco coir processing equipment in Aurora province

Lower fuel use light car technology

With oil prices at historic high and global concern about vehicle emissions, consumer demand-and the focus in car manufacturing – is shifting to lightweight, low-fuel consumption cars.

CSIROS's Light Metal Flagship recently showcased technologies which offer high-performance, light-weight car components at three US automotive industry conferences.

The technologies use magnesium and aluminum alloys to create strong, light-weight car parts which are cost-competitive with structural components made of steel that perform equally well.

Lighter cars use less fuel because they need less energy to start and stop than heavier cars. Sam Tartaglia from CSIRO's Light Metals Flagship says we can save on fuel costs, simply by bringing lighter, safer vehicles. The use of light metals can take 100 kilograms off the weight of cars and save 53 cents a litre every 100 kilometers.

Internationally, the automotive industry see the use of light metals and light alloys for car and truck

components as a key means of creating more fuel efficient cars, through specific initiatives including the US Freedom CAR project and the NADIA European projects.

In Australia, the home base for CSIRO, the automotive sector is the largest manufacturing export earner, accounting for higher export earnings than traditional products including wine, wheat and wool.

Close to 70,000 people work in the sector, many of them for smaller companies producing components.

Evaluation of the technologies by major manufacturers is also critical to their uptaker. Both CSIRO's heat treatment and ATM technologies have been evaluated by major car component manufacturer, with positive results. Both technologies enable production of high pressure die cast (HPDC) aluminum alloy parts which have increased strength, using reduced amounts of material.

HPDC is an established technology already used in manufacturing vehicle components, so improvements are relatively easy for manufacturers to implement.



An alloy wheel produced using the T-Mag die casting technology, one of the CSIRO technologies for producing light-weight car parts

Source: Metal Casting Technologies, v. 54 no. 3 September 2008, p.8

Magnet rotator from North Shore

Attachments specialist North Shore Manufacturing has released its Builtrite MR360 degrees Magnet Rotator which enables scrap handlers to pick and place their scrap load with precision while using its magnet.

The new device is especially when handling longer objects such as pipes, beams, railroad rails, bales and car bodies.

Key features include 360 degrees continuous rotation on a 20-foot (508 mm) internal tooth slewing rings bearing and dual hydraulic motors; a fabricated head and base assembly with pin lock; a magnet-to-rotator mounting using three sliding T-bars to allow precise contact with the material; and a heavy-duty, two-pass electric swivel manifold for extreme duty cycles. Furthermore, the base



plate of the rotator is made from high-strength steel for durability.

Available to suit all sizes of magnet, the new rotator will be built at the company's expanded facility in Two Harbors which now incorporates a painting facility, a new assembly area

and additional room for CNC machining centers. The company also plans to add robotic welding centers.

Source: Recycling International, January/February 2008, p.17

Herbold's small shredder for big tasks

Plastics recycling equipment manufacturer Herbold Meckesheim has developed the compact, single-shaft HR 102 shredder to treat bulky hollow bodies.

In addition to a conventional horizontal pushing device, it boasts an additional pneumatically-operated pushing device acting from above which affects the material being seized by the rotor.

According to the German manufacturer, possible applications include the processing of barrels of up to 220 liters capacity; purgings, tops

and tails occurring during production; and bulky thermoforming waste, large injection molding parts (such as bumpers) and loose film waste.

According to Herbold, its shredders are characterized by low-noise operation and owing to their low-speed functioning, produce few fines and little dust. The power input of a shredder is small compared to that of a large granulator since the power required by the former is generated by torque and not by centrifugal mass it contends.

Source: [Recycling International, January/February 2009, p.17](#)



Water-based coating for low-pressure and gravity casting

Newcote A129, produced by aluminum and non-ferrous products specialist A. Cesana, is an insulating water-based coating, developed and used on dies of low-pressure machines and gravity casting machines. It contains insulating minerals and resists thermal shocks and abrasion during the production cycles. It is widely used in foundries producing

motorcycle, automobile and truck components as main coating layer. It prevents erosion in critical areas and guarantees optimal solidification behavior of the alloy. Newcote A129 is a product which offers excellent thermal and physical stability, giving a longer working life.

Source: [Casting Plant & Technology, 3/2008, p.78](#)



Industrial tomography

Basello High Tehnology improves radioscopic NDT solutions by the applications of computed tomography CT, giving a third dimension to fluoroscopic analysis. To acquire "n" bi-dimensional images from different angles of view, the casting is rotated through 360 degrees. The received images are then processed to obtain another set of bi-dimensional images representing the 'slices' of the object. Based on these images the software creates a 3D reconstruction of the casting.

Using this model, it is possible to make measurements and identify possible defects. Compared to a classic fluoroscopy, CT offers three important advantages:

- A very 'concrete' data set representation creating a 3D object on the screen which can be manipulated, trimmed, measured, and of course, looked at.
- The information is no longer restricted to two dimensions.
- The geometric model (CAD) can be directly compared with the reconstructed one.

The complete process, that is, image acquisition and 3D model generation, is done in just few minutes.

Source: [Casting Plant & Technology, 3/2008 p.79](#)



New CBI Export Coaching Programmes for the Industrial Sectors Aiming Europe

The Centre for the Promotion of Imports from Developing Countries of the Confederation of British Industry (CBI) offers export coaching programme in the fields of:

- Automotive parts
- Motion control, drives, power transmission, tooling and handling
- Subcontracting; metalworking, rubber and plastic processing and assemblies

If you are eager to expand your export activities to Europe, this programme will be of interest to you. Nowadays companies all over the world are under pressure, sales may have dropped considerably especially in the automotive sector. The European Engineering Industries Association Orgalime reports that the European engineering industry will slow down to a 1.2% in production growth. Some sectors like agricultural machinery and energy are expected to do rather good. More European companies may look for reliable suppliers in emerging markets. Suppliers that stand out have better chances. Invest in your future and join this CBI export coaching programme.

Opportunities

Given the continuous pressure in production costs as well as the trend of sourcing in emerging countries, the European market offers opportunities for companies in these fields. Requirements regarding quality, capabilities and capacity are high. It requires ambition, commitment and proper preparation to get in or to further expand. This is where CBI comes in, provided companies have marketable products, which meet basic requirements.

Coaching

Companies selected from among the applicants for participation will be given intensive, tailored support in acquiring a firm and lasting foothold on the EU market. For five years, you will be coached by a team of sector experts regarding product improvement, production, quality control, management, export marketing and market entry. To help you develop actual business leads, collective trade fair participants at leading trade fairs around Europe will be part of the programme.

Financial Contribution

Participants in an export coaching programme will only pay a non-

refundable participation fee of E 1,000. The fee is collected as soon as the CBI has determined that the company is suitable for enrolment at the end of phase I. Apart from this commitment fee, companies do not need to pay for CBI services.

Successful participants in previous programmes in these fields have turned leads into concrete business and are now expanding their production and setting up new factories. Moreover, many have improved their market knowledge and production methods.

If interested, information and application forms can be downloaded from the following web pages:

- for automotive
www.cbi.eu/automotive
- for subcontracting
www.cbi.eu/subcon
- for motion control
www.cbi.eu/motion

Before applying, also consider the ECP Selection Criteria your company has to meet. You may contact Mr. Cor Dieleman, Programme Manager, through e-mail or tel. +31 (0)102013423.

PDMA Officers Off to FADMA AGM

Messrs. Louie T. Fuster, Jimmy T. Chan, and Philip Ang represented the Philippine Die and Mold Association (PDMA) to the annual general meeting of the Federation of Asian Die and Mould Associations (FADMA) held on 17 March 2009 at the Lotte Hotel, Seoul, Korea. The meeting was participated in by the official representatives of the FADMA country-members, among which are Thailand, Malaysia, Japan, India, China, and Korea. Also attended the

meeting were the officials of the International Standard of Tooling Manufacturers Association (ISTMA) and ISTMA-Asia. Agenda include administrative and general affairs of the Federation. During the meeting, the PDMA also culminated the secretariat function and turned over it to the appointee, Tool and Gauge Manufacturing Association (TAGMA) of India, conformed by its president, Mr. Surendra C. Kalyanpur.

In conjunction with the FADMA AGM, the FADMA official representatives together with other members of each association joined the delegation to the "Intermold Korea 2009" held from 18-22 March 2009 at the Kintex, Seoul, Korea. The event was the 19th Korea international die mold and related equipment exhibition featuring exhibitors' technological competencies in a wide range of manufacturing industry.

ENGR. ROLANDO T. VILORIA

After 38 years of his professional career serving at the Metals Industry Research and Development Center (MIRDC) with duty, honor and unwavering leadership, ENGR. ROLANDO T. VILORIA, 63, retires from being executive director on 04 March 2009.

Engr. Viloría was born in Sampaloc, Manila on 04 March 1946. He earned his bachelor's degree from the University of Santo Tomas in 1967. His distinguished career in public service began in 1969 when he joined the Board of Investments (BOI) as Staff Assistant and transferred to the Metals Industry Research and Development Center (MIRDC) as Assistant Engineer in 1971.

As a member of the pioneering staff, Engr. Viloría has been instrumental in setting up the MIRDC Bicutan complex, from the ground up. He was one of the core technical personnel that underwent extensive education and training on various aspects and fields of metalworking technologies in different countries such as Federal Republic of Germany, Japan, Republic of Korea, Singapore, Thailand, and Malaysia. His technical expertise and managerial competence was among the solid foundation and potent means behind the continued success of MIRDC as it is known today.

Engr. Viloría has steadily grown with the organization, rose from the ranks and became the head of the MIRDC in 1993. He served for 15 years as the 5th executive director of MIRDC, where he earned the reputation as compassionate, conservative yet visionary leader who shape the Center's policies and directions towards developing and maintaining an international work culture based on the principles of good governance, professionalism, personal responsibility, commitment and quality service. His strategic initiatives and directions that continually led the MIRDC to an unprecedented achievement focuses on building organizational excellence through the institutionalization of total quality management, the international accreditation/certification of MIRDC laboratories and workshops, the regionalization of MIRDC operations,

and the extensive upgrading of MIRDC human resources and facilities.

Under an inspired and dedicated leadership, Engr. Viloría has relentlessly pursued the drive to make the MIRDC a catalyst and vital cog in the development of the metals and engineering industry. It was only during his term that the MIRDC, under the aegis of the Department of Science and Technology (DOST), was able to achieve the distinction of being the first government agency with ISO-accredited/certified laboratories, workshops and training section in the country. The MIRDC now maintains a stellar role with its ISO 17025 accredited laboratories and ISO 9001 certified Quality Management Systems (QMS) and a center-wide ISO 14001 aligned Environmental Management System (EMS). By pursuing ISO accreditation and certifications, he has paralleled the successful strategy of world-class organizations.

With a strong commitment to excellence, Engr. Viloría has transformed the MIRDC and fast tracked the expansion of its operations across the regions to fully fulfill its mandate of catalyzing the growth and development of the metals and engineering sector. Apart from the regional common service facilities on metalworking, Engr. Viloría has also embarked on a bold move of establishing MIRDC Extension Offices and Regional Metals Testing Centers. The MIRDC can now boast on the accessibility of its testing and calibration services to the businesses situated in the regions.

Not one to rest on his laurels, Engr. Viloría has doggedly pursued the upgrading of MIRDC laboratories and workshops through the technical assistance of GTZ, UNISTAR of UNIDO, and the technical cooperation programs with JICA and UNDP wherein he was the Deputy Project Director of both foreign-assisted projects. These programs which crystallized the government's commitment to the business sector to provide a dynamic and forward-looking vision in national economic development were the first serious attempt to address the concern for weak capability to produce globally-competitive mold, tool and die



products that hampers the country's industrial development.

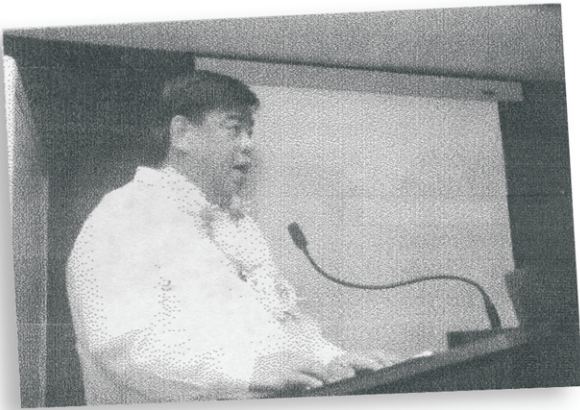
A forthright confirmation of Engr. Viloría as truly exemplifying the excellent qualities of a Filipino worker while in the government and nation's service was the PRESIDENTIAL OR LINGKOD BAYAN AWARD for outstanding work performance conferred to him at the Malacañan in September 1998. This award is the highest national award for public officials and employees given by the Civil Service Commission. Accordingly, his appointment to CEO rank III was confirmed on June 2001 by no less than Her Excellency President Gloria Macapagal Arroyo.

Engr. Viloría married his MIRDC lab-mate, Teresita, and is blessed with daughters Ma. Katherina (with son-in-law, Victor Manuel and grandson, Gabriel Victor) and Nikka and son Roland Benjamin.

MIRDC is indeed very fortunate to have ENGR. ROLANDO T. VILORIA for his excellent leadership, leaving a remarkable legacy that will undoubtedly be left to the memories of MIRDC employees as well as colleagues in the metals and engineering industry.

From all of us at MIRDC, "Boss Rolly, we give you our humble thanks for all your efforts and you are most appreciated!"

“Jolly Boss Rolly”



Research and Development Project: Jatropha

The MIRDC's project on Jatropha in Mindoro started in November 2008 and still on-going. The project is now on its fabrication stage. The filter press and the expeller assembly are both 80% completed. These equipment will be sent to Mindoro for pilot testing. After the test run, the project leader will assess the capacity of the equipment and determine improvement aspects.

The project team designs and fabricates the extraction and dehulling processes. The sizes of the equipment are more compact and durable. The frames of the equipment are solid metal and unnecessary riving will be avoided, since casting process is being used rather than welding.

The Metals Industry Research and Development Center, in cooperation with the Industrial Technology Development Institute (ITDI) and Philippine Council for Industry and Energy Research and Development (PCIERD), is developing this technology for Jatropha. The input material to the equipment is the seed of Jatropha and after passing through

four (4) processing equipment, the yield is the crude oil which can now be utilized as fuel for a low speed diesel engine. The processing will start with deshelling or dehulling, then screw pressing and finally filtering.

The equipment has a capacity of 100kgs seed of Jatropha and will yield 30-40 liters of crude oil. The oil content is about 38%. Compared to other biofuels, Jatropha Methyl Ester is more flammable than Coconut Methyl Ester (coconut) and Palm Oil Methyl Ester (palm oil) in Asia, and also sunflower and rape seed crop in Europe.

The disadvantage is that the cake produced after processing at the oil expeller is toxic. This is why the crude oil is only dedicated for fuel and not as food stuff.

Jatropha curcas is found throughout the Philippines, in Tagalog region is known as tubang-bakod; in Bicol, as tuba; in Visayas and Mindanao regions, as tuba-tuba. It is a drought resistant perennial shrub or small tree that has an economic life of up to 35 years and can live up to 50 years. The

seeds of Jatropha can usually be harvested one year after planting. Seeds for replanting can be gathered when the fruits are already yellow to dark brown.

Related to research and operations, Engr. Julieta Uriarte, a staff engineer in Process Design Development, has just arrived from his foreign training entitled "Manufacturing Technology and Production Management" in Japan from January 26 to March 15, 2009. While Engr. Amado R. Jabrica and Mr. Raymond De Ocampo of Equipment Design Development were also trained in Japan under the Japan International Cooperation Agency Program. They attended Computerized Machine Control for Mechanical Automation – Essentials for Cleaner Production on October 6, 2008 to March 18, 2009 (Engr. Jabrica) and October 15, 2007 to March 19, 2008 (Mr. De Ocampo).

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