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# SENADA GRANTEE PROFILES

GRANTEE PROFILES 01 to 21 (June 2008 – May 2009)

THIS PUBLICATION WAS PRODUCED FOR REVIEW BY THE UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT. IT WAS PREPARED BY **DAI**

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## GRANTEE PROFILE

### SERVITAMA'S CONSULTING SERVICE SHOWS COMPANIES HOW TO SOLVE PROBLEMS, IMPROVE QUALITY AND RAISE PRODUCTIVITY



*Following Servitama's field coaching, a technician executes a machine change-over with greater efficiency.*

The vision of the Indonesian firm Servitama Consulting is to provide world-class consulting services with a local touch, helping its clients to achieve profitable services and holistic business solutions.

When Servitama (whose clients include private and state-owned companies as well as government agencies) was awarded a grant from SENADA's Business Innovation Fund, the company used the funds to develop and pilot a market driven, results-oriented training and technical consulting service for SMEs that is typically only available to large, wealthy companies.

The SENADA grant, entitled *"Increasing SMEs' Competitiveness through Problem-Solving Capabilities Improvement,"* provided Servitama with Rp 224,100,000 from November 2007 to April 2008. The grant was designed to create an advanced management consulting service suited to the needs of Indonesian SMEs.

The service will help tackle loss of competitiveness by smaller firms, who increasingly find that their products are higher priced, relative to product quality, than products made by their competitors in places such as China and Vietnam.

In order to regain their competitiveness, Indonesian SMEs must learn to think critically about their production processes from start to finish, identifying problems and developing solutions.

The newly developed service uses a combination of classroom training and field coaching to assist SMEs to analyze and upgrade their operating processes. Before hitting the market, the service was pilot-tested with five firms:

- PT Cipta Kreasi Muda, which manufactures mirrors for automobiles and motorcycles
- PT Nusantara Buana Sakti, a producer of LPG tubes
- PT Mutichem Indojasa Artaprima, an automobile pedal brake manufacturer
- PT Tepat Guna Utama, which manufactures cartons
- PT Meta Presindo Utama, a stamping plant and plastic manufacturer. ▶▶

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*(continued from other side)*

***In only three months,  
one firm cut its reject  
rate in half, dropping it  
from 19.6 percent to 9.8  
percent.***

After three months of technical support, all five firms were able to make tangible improvements to their manufacturing processes after Servitama's coaching, which included brainstorming sessions in which dozens of managers and over 750 line staff were shown how to develop innovative solutions to their problems. For example, one firm reduced machine change-over time from an average of 61 to 55 minutes. Another firm cut its reject rate in half, dropping it from 19.6 percent to 9.8 percent.

As one General Manager participating in the training sessions observed, "This is what we need – a practical coaching developed specifically for small firms that helps us develop our mindset and creativity in exploring day-to-day problem-solving needed to improve productivity and quality."

The training that Servitama offered each company included three 8-hour workshops supplemented with day-long site visits once a week for three months. The curriculum introduced "5S" concepts (sort, set in order, shine, standardize, sustain), a set of rules designed for lean manufacturing; and *kaizen* (a Japanese term for continuous improvement).

The goal of the consulting is not only to show companies how to apply problem-solving strategies to current problems in order to produce immediate results, but to leave them better prepared to apply problem-solving techniques in the future as well.

Servitama's consulting service is fully operational and is currently taking new clients. For more information contact their Management and Organization Development Service Division at [servitama@dnet.net.id](mailto:servitama@dnet.net.id).

The Business Innovation Fund (BIF) is an initiative launched in June, 2007 by SENADA. BIF offers short-term, high impact grants for the development of innovative products for the value chains where SENADA focuses. Details can be found at [www.senada.or.id/innovation](http://www.senada.or.id/innovation).

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## GRANTEE PROFILE

### IATO PROVIDES AUTO INDUSTRY WITH ITS FIRST COMPREHENSIVE BAHASA INDONESIA ENGINEERING STANDARDS E-LIBRARY



*IATO, USAID and Ministry of Industry (MOI) senior staff at the official public launching of the IATO e-library on 2 April, 2008.*

The Indonesian Automotive Engineers Association (IATO) is a non-profit organization of more than 400 automotive engineers. Its mission is to develop science and technology related to automotive and power systems, components, parts and equipment, with a view to creating sustainable transportation and prosperity.

With a grant award from SENADA's Business Innovation Fund, IATO acted on its mission by launching the first Indonesian language automotive component engineering standards e-library.

The grant, titled "E-Library for Automotive Standards," provided Rp. 201,850,000 for six months, from November 2007 to April 2008. IATO used the funds to develop an e-library for use by all stakeholders in the auto parts industry as well as the general public.

It contains literature on standards set by international certification bodies, including JIS (Japanese Industrial Standards), JASO (Japanese Automotive Standards Organization), and SAE (Society of Automotive Engineers). Material in the library illuminates the need for and technical purpose of each of the recognized automotive standards – essential information for automotive manufacturers that wish to remain competitive.

Established within the official IATO website, the e-library can be viewed at [www.iato-indonesia.com/elibrary](http://www.iato-indonesia.com/elibrary). It already contains approximately 200 documents and 5,000 pages of information. IATO made an in-kind contribution to the grant activities by providing UN Economic Commission for Europe (ECE) and International Standards Organization standards.

At the official launching, Ir. Hasiholan Sidabutar, the General Chairman of IATO, described the value of the library to business, stating, "Through the e-Library, IATO has successfully amassed the product information that small and medium enterprises need to know to comply with international standards." ►►

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***“Without the vital information provided by IATO’s e-library, we would not be able to access information on the necessary international standards for QSEAL.”***

***— Adirizal Nizar,  
President SOI***

*(continued from other side)*

Why is IATO’s e-library important to the industry? First, although information on international standards is publically available through the primary international standards-setting bodies, it is very expensive.

These costs are prohibitive to all but the largest component manufacturers and limit the extent to which standards are understood and implemented by the smaller second and third tier manufacturers in the industry.

Secondly, IATO’s broad membership — which includes small component manufacturers and technical engineers from many of Indonesia’s top universities and testing houses — gives it a unique opportunity to promote a culture of awareness about the importance of international engineering standards at all levels of the industry. As standardization is understood and starts to occur, competitiveness improves.

The industry is already putting the e-library to good use. Soon after launch, IATO reported that its e-library was serving as a critical knowledge resource for the Society of Automotive Indonesia’s (SOI) QSEAL national automotive component seal of quality certification program.

Pak Adirizal Nizar, President of SOI explained that, “The goal of QSEAL is to establish minimal product and process standards for Indonesia’s top produced components. Without the vital information provided by IATO’s e-library, we would not be able to access information on the necessary international standards for QSEAL.”

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## GRANTEE PROFILE

### DIPONOGORO UNIVERSITY TURNS ITS RESEARCH INTO PRACTICAL PROCEDURES TO HELP SMALL AND MEDIUM BRAKE DRUM PRODUCERS



*Experts from industry and government ask critical question and review standard operating procedure manuals at UNDIP's March 2008 event introducing the new procedures to SME brake drum producers.*

Diponegoro University (UNDIP) is one of Indonesia's premier state universities. Its Research Institute is at the forefront of research and development activities in science and technology that will contribute to Indonesia's future. These characteristics helped it to win a grant from SENADA's Business Innovation Fund to develop new production opportunities for Indonesian SMEs that manufacture heavy duty brake drums for trucks and buses.

The SENADA grant was entitled "The Preparation of Standard Operating Procedures, Quality Control and Certification for Brake Drums." It provided UNDIP's Research Institute with Rp 161,500,000 from November 2007 to April 2008. The grant was designed specifically to help iron-casting SMEs improve and standardize their production processes to help them restore lost competitiveness in a once-productive component industry.

Indonesian SMEs were strong producers of heavy-duty brake drums in the 1990s until a combination of the economic crisis and increased costs of iron inputs reduced market demand. As demand fell and stronger firms stopped producing brake drums in 2000, smaller SMEs started producing brake drum products of low and inconsistent quality, to the point where consumer trust was lost and orders were no longer being placed.

The grant capitalized on six years of research already completed by the Research Institute, which had invented a new material composite formula that improved tension capacity and fatigue strength of brake drums by 17 to 20 percent. The grant provided the resources needed to take that research and turn it into a set of Standard Operating Procedures (SOP) that SMEs can use to guarantee improved and consistent quality when mass-manufacturing brake drums.

The Research Institute produced a 90-page SOP manual, along with a 34-page Workshop Manual explaining technical specifications and a Product Quality Control Manual of 24 pages. ▶▶

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*(continued from other side)*

*The grant provided the resources needed to turn the research into a set of Standard Operating Procedures that SMEs can use to guarantee improved and consistent quality when mass manufacturing brake drums.*

SOPs are important to competitiveness because they provide SMEs a detailed plan of the processes and phases through which the product is produced from the management of raw materials and manufacturing process to quality control, packaging and delivery.

To market this SOP throughout the industry, UNDIP held a workshop on 17–18 March 2008 on iron casting that was attended by SMEs, government and other auto industry stakeholders. The workshop introduced the composite formula and how to follow the standard operating procedures in order to use it.

The head of the Transportation Business Owners Association, Klaten Chapter, was among the workshop attendees. According to him, “We believe this SOP will definitely improve the quality of brake drums produced by iron-casting SMEs, while we still get the benefit of relatively low prices compared to imported and OEM [original equipment manufacturer] products.”

SMEs confirmed that this was an exciting opportunity to restore a once competitive industry. With improved quality, domestic producers can restore their market share and effectively compete with cheap, imported parts. Driven by this success, UNDIP is examining the possibilities for follow-up, privately funded activities to test the new composite in the field, working with the iron casting industry and the transportation industry.

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The SENADA Business Innovation Fund Grantee Profile:

## **WORKER RIGHTS IMPROVED AS INTERNATIONALLY ACCEPTED OCCUPATIONAL HEALTH AND SAFETY STANDARDS BECOME LAW**



*Candidates for certification as Occupational Safety and Health Specialists participate in a training workshop.*

Manufacturers in Indonesia wishing to enhance their competitiveness face pressures from all sides. On the one hand, it is vital to increase labor productivity on the factory floor. On the other, it is essential to comply with international safety standards. Only by addressing both productivity and safety issues can firms expect to hold their own internationally and to protect the welfare of their workers.

However, uninformed attempts to speed production have the potential to lead to a higher risk of workplace accidents. The solution is to undertake such efforts within a framework of internationally accepted workplace safety standards. The difficulty that firms face is in understanding what these standards are and how to meet them. Firms need competent in-house Occupational Safety and Health (OSH) specialists who can educate management about safety standards and verify that these standards are being met.

To address this need for qualified specialists, SENADA's Business Innovation Fund awarded a grant to the Institute for Certification of Competency of Occupational Safety and Health (ICCOSH), entitled "Certification of Competencies on Occupational Safety and Health." The grant provided ICCOSH with Rp 143,150,000 over a six-month period from December 2007 to June 2008.

Grant funds were used to draft competency standards in two areas, Occupational Safety and Industrial Hygiene, that trainees will be required to meet in order to be certified as OSH Specialists. The standards were prepared internally at ICCOSH and then reviewed by external experts from a variety of industries, with the goal of institutionalizing them as official regulations of the Ministry of Manpower.

The Occupational Safety standards became law on 11 March, 2008 when the Minister of Manpower signed Decree No. KEP. 42/ MEN/ III /2008. The standards for industrial hygiene are now in process and are expected to be similarly authorized. ►►

To learn more about SENADA, visit <http://www.senada.or.id>.

“After long years of waiting, these urgently needed and officially sanctioned competency standards will enable manufacturers to improve safety standards and the working environment.”

— Bapak Suprpto  
General Secretary of the Society for  
Occupational Health and Safety  
(A2K3)

Fourteen specialists were selected and approved by ICCOSH to be trained, tested and certified as professional assessors using the competency standards. These assessors will work at four assessment centers under the auspices of institutions selected, approved, and guided by ICCOSH. The assessors will train and test future OSH Specialists sent by manufacturing firms so that they can return to their companies and implement safety standards on site.

ICCOSH is a non-profit organization established in 2002 to advocate for the implementation of occupation health and safety standards in Indonesia. Its vision is to become the first professional certification institute officially recognized by Badan Nasional Sertifikasi Profesi (Indonesia’s national agency for professional certifications) in the field of occupational health and safety.

ICCOSH conducts activities related to the preparation and implementation of examination materials to test for competencies, including: training trainers, maintaining examination sites and monitoring performance. ICCOSH also researches the needs for competency standards in industries, assessing and updating existing standards, and presenting new and revised competencies to appropriate associations and government bodies for review and approval.

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### **NEW SIGMA TRAINING CENTER STRENGTHENS COMPETENCY IN ADVANCED MOTORCYCLE FUEL INJECTION PRODUCTION AND MAINTENANCE**



*The opening of the third STC training session at PGRI Elementary Vocational School in Gresik, East Java, June 2008.*

As technology grows increasingly sophisticated, the people who build, maintain and repair the goods that utilize such technology must be better and better trained. This is the case with motorcycles, which increasingly are being manufactured with complex transmission systems and fuel injection systems that vary in design from manufacturer to manufacturer. Without strong technical expertise in these new product lines, Indonesia could lose access to important domestic and international markets.

Ideally, technical and service staff at small manufacturers and service stations maintain knowledge on the latest technology and know how to build, diagnose and fix any motorcycle component. But in reality, finding the means to keep workers trained is difficult. Sole agents can rely on materials provided by the brands they represent, but such workshops are the minority in Indonesia, where most small part manufacturers and service stations attempt to provide services across a range of manufacturers.

Additionally, the majority of training programs currently offered in the market rely heavily on book-focused, trial-and-error based training methods — a poor strategy when technology is constantly evolving and the number of motorcycles in Indonesia is growing. The result is training that does not meet the needs of an increasingly technologically advanced market.

Sigma Training Center (STC), a training institution specializing in the advanced production and maintenance of motorcycles, was working to provide high quality training but only had the resources to offer sporadic, in-house training on demand. STC recognized that the BIF grant opportunity would give it the capacity to address an important knowledge gap, leading to increased customer satisfaction and safety, new job opportunities and an overall strengthened auto parts industry in East Java.

STC applied for and obtained a Business Innovation Fund grant from SENADA entitled “Education and Training Program for Automatic Transmission (CVT) and Fuel Injection (FI) Using the Competency-Based Training Approach.” The grant provided STC with Rp 166,700,000 over a six-month period from January to July 2008. ►►

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***Six STC classes totaling 107 participants were trained from Surabaya, Jombang, Sidoarjo and Gresik.***

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STC used the grant funds to launch East Java's first publically accessible advanced technologies motorcycle training center in Surabaya. The center offers two advanced training packages — one on continuous variable transmissions and one on fuel injection — on a regular basis.

STC's two current training sessions are highly innovative, using a *competency based training* (CBT) methodology that allows students to train directly on one of STC's five newly purchased training motorcycles. To date, six rounds of training have been offered for 107 participants from Surabaya, Jombang, Sidoarjo and Gresik.

STC also developed a partnership with LSP Teknisi Otomotif, East Java's private sector professional certification body (LSP) for automotive component maintenance. LSP Teknisi Otomotif moved into the STC training center and now offers the competency certification for motorcycle and automotive technicians. To date, 20 STC graduates have been assessed for certification.

Sigma Training Center was founded in 2006 and specializes in technical assistance for motorcycle production, repair and maintenance. More information on upcoming STC trainings is available by contacting [agus.susilo@fuboru.biz](mailto:agus.susilo@fuboru.biz) or through [www.fuboru.biz](http://www.fuboru.biz).

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## GRANTEE PROFILE

### NEW WEB PORTAL OFFERS TEXTILE INDUSTRY A COMPETITIVE EDGE THROUGH FASTER INFORMATION AND NEW INSIGHTS



*Chairman of the Indonesian Textile Association Mr. Benny Soetrisno speaks at the official launching ceremony of the new website on 13 June, 2008.*

The speed with which information is available in the age of the Internet has raised expectations for everyone. Businesses that are slow to obtain and react to information will lose out to their swifter competitors. Therefore, a key service that industry associations can provide to members is a web portal that allows members to quickly access critical new information.

In Indonesia's textile industry, manufacturers need data on daily fluctuations in global cotton prices and developments with respect to dumping issues, domestic energy prices, customs and more. But as of early 2008, the Indonesian Textile Association (API) had no means to provide electronic information to its members.

To obtain the resources needed to correct this serious gap, API turned to SENADA's Business Innovation Fund. API secured a grant to create a professionally designed, comprehensive website and information exchange portal that will provide essential information to members, educate the public, and strengthen the image of Indonesia's textile industry as a global player. The grant, for Rp 122,643,415, operated for six months, from January to July, 2008.

The website (found at <http://indonesiatextile.com/>) offers members immediate access to insights on technological innovations, regulatory developments, labor issues, and market opportunities and has essential features that include:

- A complete database of Association members (presently including 694 companies representing six regional chapters) and their production capacity.
- Discussion forums where members can confer with fellow industry players on topics ranging from raw materials to production concerns to finishing processes.
- A series of downloadable files covering crucial industry information and technical resources. ►►

To learn more about SENADA, visit <http://www.senada.or.id>.

“This website is a critical tool for the Association to communicate with the global textile industry, and its creation demonstrates the ongoing relationship between API and USAID.”

— Mr. Benny Soetrisno  
Chairman,  
Indonesian Textile Association

*(continued from other side)*

- Information on upcoming events, including trade shows, buyer presentations or training opportunities.
- Daily news updates and interactive polls.

API is the voice of the textile and textile product industry in Indonesia. It was established in Jakarta in 1974 by industry leaders who recognized the need to share information and experiences and work together on initiatives of mutual concern. It is an independent, nonprofit organization committed to developing Indonesia's textile industry through the participation of small, medium and large firms, and the strengthening of cooperation among stakeholders such as entrepreneurs, government, unions, academia, and the media.

Its membership encompasses companies that perform a wide range of upstream and downstream activities, including fiber and filament making, texturizing, spinning, weaving, knitting, embroidery, dyeing, printing, finishing, batik, and other garment production.

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### LOCAL METAL INDUSTRY ASSOCIATION MAKES TRACTOR TIRE MANUFACTURING MORE EFFICIENT BY APPLYING NEW TECHNOLOGY



*“This new equipment demonstrates that the right machinery appropriately used can improve the efficiency of our production processes many times over.”*

*– Director Mr. Miftakhul Ulum, PT. Atak Otomotif*

Innovative technology is a boon to manufacturing companies that seek to stay ahead of the competition: with specialized equipment that incorporates the latest advances, firms can produce higher quality products more quickly at a lower marginal cost. On the flip side, old-fashioned manufacturing methods may be worse than just inefficient – these methods may be incapable of producing parts with the tight tolerances that modern goods require.

This situation is a real constraint for Indonesian SMEs, who often do not have the capital to upgrade to the new, expensive technology they need to stay competitive. Recognizing the problem, ASPILOW (an association of metal industry firms in Sidoarjo, East Java that is affiliated with the Metal Industries Center of Ngingas–Waru), approached SENADA’s Business Innovation Fund with a proposal to help local tractor tire producers gain access to better technology for making tractor tire frames.

Most SMEs in Ngingas have been using manual tools to produce tractor tire frames, resulting in uneven quality, slow production that consumes a large amount of manpower (it takes four operators to make 80 frames/day manually, compared to a demand base of almost 400 frames/day), and difficulty in achieving the necessary degree of precision for dimensions and smoothness.

ASPILOW members proposed to use BIF resources to construct a roll machine that would allow the frames to be made with greater quality control and economies of scale. The purpose of the roll machine is to roll metal rods into the circular frames used to produce tractor tires. The grant awarded to ASPILOW provided Rp 82,150,000 over a six-month period from February 2008 to August 2008. ►►

*(continued from other side)*

***In tests conducted after the machinery was constructed, one operator was able to produce 200 frames per day, a ten-fold increase in productivity.***

ASPILOW completed construction of the machinery as planned, testing and adjusting the design during the process to ensure that it functions according to local requirements. In tests conducted after it was constructed, one operator was able to produce 200 frames per day, a ten-fold increase in productivity.

ASPILOW (originally established under the name KOWPLOW) was founded in September 2002 with the goal of advancing the local metal industry and assisting members to conduct business transactions with large customers and develop business-enhancing relationships with other firms and the government. The organization, which has grown to about 10 members, has several business units that provide member services, such as workshops for iron plate cutting and die-making.

These units generate income that ASPILOW uses to advance its goals. The new rolling machine will become one of ASPILOW's business units, and the association will also offer engineering support services to local entrepreneurs who want to replicate the machinery at their own sites.

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# GRANTEE PROFILE

## ENGINEERING CONSULTING FIRM CREATES A SOFTWARE AND SERVICES PACKAGE THAT ENABLES SMALL FIRMS TO ACHIEVE ISO 9000 CERTIFICATION



*“The software and the training provided by PT QDE helped us achieve the right mind-set and implement the necessary technical steps that readied us for an official ISO audit.”*

*– Mr. Syahwir Danur,  
Director, PT Thasima Daya  
Sentosa*

Companies that expect to be taken seriously in world markets must prove their compliance with recognized international quality management standards. ISO 9000 offers a series of related standards for certification of quality control and assurance, covering all aspects of business processes. Achieving ISO 9000 certification may not only lead to improved efficiency and quality, it is also an important marketing tool that proves to potential clients, partners and customers that a company is a reliable business associate. Certification of compliance with ISO standards is so ubiquitous in international trade that companies in certain industries such as garments, footwear and automotive components who lack it find it difficult to compete successfully.

However, achieving ISO 9000 certification is usually a costly process. The actual audit is only a small part of the picture. First, companies need to learn about ISO 9000 in detail, figure out how to apply it successfully to their operations, and complete a substantial amount of pre-audit documentation. Hiring a consultant to walk through each step in this process is beyond the means of many SMEs.

Recognizing a potential win-win business opportunity, the consulting firm PT Quantum Design Engineering (QDE) made a successful proposal to SENADA's Business Innovation Fund to develop and pilot-test a package of software and services for small businesses that would make achieving ISO 9000 financially feasible. The grant awarded to QDE provided Rp 180,100,000 over a six-month period from February 2007 to August 2008.

QDE used the funds to design a complete package of services, including software, seminars, consulting, and an external audit, that is designed to culminate in obtaining ISO 9000 certification at approximately half the cost of hiring a consultant.

The QDE software uses tutorials to take companies step-by-step through the learning, implementation, and documentation process required before an ISO 9000 audit can be completed. This computer-based instruction is supplemented by six seminars that introduce the ISO 9000 concept and teach companies how to use the software effectively. Also included in the package are three days of individualized ►►



*QDE used the funds to design a complete package of services that is designed to culminate in obtaining ISO 9000 certification at approximately half the usual cost.*

*(continued from other side)*

consulting services and two audits: an ISO audit by QDE for compliance followed by an external internationally certified auditor who gives a second opinion.

QDE is now pilot-testing the package with three firms, two of which work with the automobile industry through the assembly of machine parts, and one of which makes dies and stamps for the automotive and other industries. Following the QDE training services, these firms will each spend approximately three months modifying their operations and preparing documentation so that they are fully prepared for an official ISO audit and certification by the official ISO Certification body. Meanwhile, QDE has copyrighted and replicated its software. QDE expects the software package and consulting services to be available at Gunung Agung and Gramedia bookstores by December 2008.

PT Quantum Design Engineering provides consulting services in product development and quality management systems. Its team has solid experience in design, product engineering and achieving ISO standards, and has built sound networks with other engineering companies, institutions and related associations, such as Ikatan Ahli Teknik Otomotif (SAE Indonesia), Sentra Otomotif Indonesia (SOI), Bandung Institute of Technology (ITB), National Research Council (Dewan Riset Nasional or DRN) and Sucofindo (which is an ISO certifying body).

The vision of QDE is to be the partner that helps industries to translate their research and development activities into production, by providing them with the essential documentation and support that ensures production will meet international quality standards and current best practices for quality, cost, and delivery.

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## GRANTEE PROFILE

### NEW BAMBOO TREATMENT FACILITY INCREASES HOME FURNISHINGS PRODUCERS ABILITY TO MEET LOCAL AND EXPORT DEMAND



*“The key successfully marketing Indonesian bamboo lies in innovation, quality treatment and sustainable production. This plant brings us closer to achieving that ideal.”*

— Pak Tengku Lukmanul Hakim,  
CV Sahabat Bambu

At first glance, it is hard to imagine why Indonesia’s bamboo industry would not automatically thrive: the country boasts more than 60 indigenous and introduced bamboo species suitable for a range of uses. Global demand for bamboo is growing thanks to its well-deserved reputation as a sustainable resource; it is the fastest growing woody plant in the world.

However, Indonesia lags behind countries such as China and Vietnam in the production of quality bamboo products at affordable prices. Those countries have been faster to implement technologies to address the disadvantages inherent to use of bamboo in the construction of home furnishings and other products: untreated, bamboo dries out and cracks quickly, and most significantly it is prone to infestation by the Powderpost Beetle, which infests not only living bamboo stalks but also bamboo products. Without proper treatment, the life of most bamboo products is rarely more than three years. However, most large-scale curing and fumigation efforts are not only environmentally unsound, but impractical given the small and rural nature of bamboo farming done in Indonesia.

The solution to this problem lies with a technology called Vertical Soak Diffusion (VSD), which uses borates of low toxicity to cure bamboo and prevent infestation. Although this is a highly effective treatment, in its most basic form it is time-consuming, with three weeks required for the treatment and drying of each batch of bamboo poles.

To upgrade their approach to VSD, the Indonesian non-governmental organization MAPI, which works with small bamboo producers, applied for and was awarded a grant of approximately \$25,000 to establish a pressure treatment facility, train staff to operate it and teach farmers the necessary bamboo clump management and harvesting practices. ►►

*With the new technology, the treatment capacity has increased ten-fold, allowing local farmers to better meet both local demand and export requirements.*

*(continued from other side)*

The grant was entitled “Efficient and Effective Bamboo Preservation for Increased Application and Value in the Export Sector of Java’s Home Furnishing Industry,” and its activities took place from February through August 2008.

The new facility was established in Yogyakarta and is now being operated by the private firm CV Sahabat Bambu, an associate company of MAPI. The treatment plant consists of a large tank and supporting equipment such as a vacuum machine, pressure machine, and fluid tank.

With the new technology, the treatment capacity has increased ten-fold. Now bamboo can be treated in a few hours and dried in one to two days. The plant’s capacity has expanded from 2,000 medium to large poles/month to 6,000, and an additional 10,000 small diameter poles/month can also be processed. This allows local farmers to better meet both local demand (which is primarily for the larger poles) and export requirements (70 percent of the bamboo bought by exporters is the smaller size).

MAPI is the Indonesian affiliate of the Mangrove Action Project, which is based in Trang, Thailand and the State of Washington in the United States. MAPI operates community-based coastal resource management programs in Riau, North Sumatera, Aceh, North and South Sulawesi and Central Java. CV Sahabat Bambu, a registered independent business, was formed as an outgrowth of MAPI’s work to explore the viability of bamboo as a sustainable building resource.

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# GRANTEE PROFILE

## FURNITURE STAKEHOLDERS STANDARDIZE AND CERTIFY HUMAN RESOURCE COMPETENCIES THAT LEAD TO BETTER QUALITY AND SAFETY



*“Indonesia’s natural riches alone are not enough to guarantee our success in international markets.*

*Professionalizing our production through the use of standardized competencies is essential.”*

*–Bernadus Arwin,  
owner CV Vina Arya and  
Chairman of CEFED*

The outlook for Indonesia’s home furnishings industry holds promise. Exports grew in value from US\$ 1.4 billion in 2002 to approximately US\$ 1.8 billion in 2006. Indonesia has abundant and diverse forestry resources, and leaders of the home furnishings industry are developing greater sophistication regarding the need to ethically source and certify Indonesian wood products, at the same time they are creating designs and marketing campaigns with stronger consumer appeal.

But these efforts will be not be enough to ensure industry growth unless manufacturing and quality improvements are also made. Indonesia has fallen behind its global competitors in the use of modern technology and in the skill levels and productivity of its human resources. Because of this, the goods produced in Indonesia do not always offer the quality and value available elsewhere, and the image of the Indonesian furniture industry as a whole is suffering.

An essential strategy for combating this problem at the source is to develop and enforce universally accepted standards for human resources in the industry. In recognition of this, industry stakeholders founded a Professional Certification Institution of Furniture and Processed Timber (LSP FOK) in Semarang, Central Java in October 2006. The vision behind the creation of LSP FOK was to empower Indonesia’s furniture and processed timber sectors by promoting and certifying labor competence, in keeping with Indonesia’s national standards (SKKNI). LSP FOK assessors themselves must demonstrate their knowledge and competence according to Indonesia’s National Professionalism Certification Body (BNSP).

Fulfillment of LSP FOK’s mission is dependent on the development of a set of relevant competencies, as well as the training and certification of assessors who will work with Indonesia’s manufacturers to develop skilled human resources.

To move LSP FOK forward from vision to functioning organization, the Center for Furniture Design and Development (CEFED) applied for a Business Innovation Fund grant, seeking the resources needed to develop complete sets of competency standards and train qualified assessors who will help industry adopt these standards. BIF awarded ►►



*Ten sets of standards were defined and 12 assessors were trained so that companies can correct identified weaknesses and improve the quality of their output.*

*(continued from other side)*

Rp 169,300,000 in grant funds (about US\$ 18,800) for a grant entitled “Functioning Furniture and Processed Woods Professional Certification Institute (LSP-FOK)” which operated from February through August 2008.

CEFED utilized grant funds to cover consulting costs associated with developing 10 sets of standards defined for various activities related to furniture production (saw mill operation, wood treatment, kiln drying, finishing, and packaging and loading), with each set containing from 5 to 40 individual competency units. A total of 12 assessors were also trained, eight in the areas of professional competencies, two in licensing, and two in equipment certification. Once trained, assessors become registered consultants that can be hired by furniture companies independently to build and certify human resource competencies.

The competency exams also allow factory workers in the furniture production and processed timber industries to take exams administered by LSP-FOK to certify their competency levels, so that employers can increase their productivity by hiring and utilizing workers who have demonstrated their attainment of relevant skills.

CEFED was established in Semarang in 2003 as a joint effort by the Investment Board of Central Java, business representatives in the wood furniture and processed timber industries, the Center for Industrial Pollution Prevention Technology (BBTPPI) at the Ministry of Industry, and the University of Diponegoro. In cooperation with international partners such as *Centro Ricerche-Sviluppo Laboratorio di prove Settore Legno-arredo*, CEFED initiates programs to improve human resources, undertake research and development, and further product design, certification, and quality.

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## GRANTEE PROFILE

### **PT SENTRA SOLUSI COMBINES TECHNICAL AND BUSINESS KNOW-HOW TO DESIGN INNOVATIVE, HAND-HELD TOOL FOR MOBILE INVENTORY MANAGEMENT**



*“This mobile application for inventory management has enabled us to monitor production processes more thoroughly and accurately. It feeds us precise information both for internal management purposes and so we can fulfill buyers’ requests.”*

*– Agus Darmawan  
Assistance Manager for  
Production Planning &  
Inventory Control  
PT Samick Indonesia*

As technology changes, so do expectations. Ten years ago, slower response times were the norm as goods and materials moved through the value chain. Today, a company that cannot track inventory just-in-time is a company that will have trouble managing suppliers and meeting customer expectations; world-class companies can now update their inventory data not just day-by-day, but minute-by-minute. This level of knowledge is required in order to accurately predict future need for raw materials and to plan and meet delivery schedules to customers. However, until recently no locally produced inventory management software had been tailored to the needs of small and medium Indonesian manufacturers or had taken advantage of the latest advances in wi-fi and radio frequency identification (RFID) technology.

The Indonesian consulting firm PT Sentra Solusi Integrasi realized that its combination of expertise – in business consulting, project management, bar-coding and RFID – gave it a unique capacity to fill this gap. The company submitted a proposal to iMULAI (a special national software innovation competition under SENADA’s Business Innovation Fund that is operated in partnership with Microsoft Indonesia) to develop a mobile application for inventory management. The firm was one of three iMULAI winners, and received a grant for Rp 220,000,000 between June and December 2008 to create an application that uses mobile devices to perform inventory management utilizing barcodes and RFID technology.

PT Sentra Solusi used the award to develop a new tool that allows users to take inventories of raw materials, work in progress, finished goods and spare parts by scanning items using hand-held devices. The data is transmitted back to a computer to provide managers with up-to-date reports they can use for operating their businesses. ▶▶



*The application has been successfully field-tested and as a result two companies are expected to install the application's modules in a comprehensive system by mid 2009.*

*(continued from other side)*

The application has been successfully field-tested in two companies, PT Samick Indonesia (a piano manufacturer) and PT Narumi Indonesia (a maker of exclusive kitchen ceramics). As a result of the field tests, PT Samick Indonesia has implemented the work-in-progress and finished-goods modules, while PT Narumi has installed the finished-goods module. Both companies are expected to install the application's other modules in a comprehensive system by mid-2009.

PT Sentra Solusi Integrasi's mobile inventory management application is now commercially available in the market. For more information, potential vendors can go to [www.sentrasolusi.co.id](http://www.sentrasolusi.co.id).

PT Sentra Solusi Integrasi was established in 1999, and offers business consulting, hardware and consumables (printers, encoders, and readers), software (middleware and Enterprise Resource Planning integration), and project management services. The company believes that IT is a major enabler of business success, and its goal is to become the preferred partner in Information Technology and Management, particularly with respect to the utilization of Barcode and RFID Technology. Among its clients are industry leaders such as Sanyo Electronics, Dai Nippon Printing, Osram Indonesia and PT Telkom.

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## GRANTEE PROFILE

### LOCALLY PRODUCED INNOVATIVE SOFTWARE HAS POTENTIAL TO REVOLUTIONIZE PORT MANAGEMENT IN INDONESIA



*“The Port Management Portal developed by PT Dycode has proven its technical superiority in field testing. It enables the Port Authority office to better manage and monitor activities in all of our largest ports.”*

*– Heri Kafianto  
Head of the Commercial Unit,  
Batam Port Authority*

One important barrier to improving the competitiveness of Indonesia’s industry has been the inefficient operation of the nation’s ports, which have fallen behind the systems used in other countries to ensure transparent, rapid and reasonably priced movement of goods. While leaders such as Singapore, Hong Kong and others have instituted integrated information systems that utilize modern technology, Indonesia has continued to rely on outdated and largely manual systems that are slow, expensive, and make it difficult to prevent or detect fraud and corruption.

This is particularly troublesome in light of Indonesia’s exceptional need for good port management, as a nation consisting of many scattered islands. Early attempts by the Batam Port Authority to address this problem were unsuccessful when the software they tested did not enable port activities to be aligned with international best practices in port administration and management.

Confident that it possessed the technical know-how to address this problem, the firm PT Dycode Cominfotech Development submitted a proposal to iMULAI (a special national software innovation competition under SENADA’s Business Innovation Fund that is operated in partnership with Microsoft Indonesia) to develop web-based software capable of bringing Indonesian port activities up to international standards. The firm was one of three iMULAI winners, and received a grant for Rp 225,000,000 between June and December 2008 to create a specialized port management portal.

PT Dycode’s new software, dubbed PortMAP, is designed to manage a wide variety of Indonesian port activities, including docking schedules, cargo loading, berthing times and departure dates. Local engineers and developers created a system that allows effective management of activities at a detailed level in both the Port Authority office and in the field at each port. ►►

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*(continued from other side)*

***PortMAP has proved an immediate success, performing effectively in Indonesia's six largest ports.***

PortMAP is also designed to integrate information on the movement of goods in a manner that permits the Authority to do comprehensive surveillance and monitoring.

Launched publicly on November 26, 2008, PortMAP has proved an immediate success, performing effectively in Indonesia's six largest ports. Following the testing, Port Authority officials requested additional customization of the software so that it can be implemented not only in the biggest ports but also in over 100 additional, smaller ports under the Batam Port Authority.

The PortMAP software is now available for sale in the market by contacting [www.dycode.com](http://www.dycode.com).

The "Dycode" in the company name "PT Dycode Cominfotech Development" is a combination of the words *dynamic* and *code*. The name was chosen to reflect the dynamic nature of the company's objectives, using code as the tool to accomplish them. The company was founded by six young IT practitioners in April of 2007, and has already grown to a staff of 42 technical and support staff. Its mission is to deliver dynamic, mature and requirement-compliant IT solutions that optimize clients' business value.

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# GRANTEE PROFILE

## NEW SUPPLY CHAIN MANAGEMENT SOFTWARE ASSISTS SHIPPING COMPANIES TO TACKLE THE COMPLEXITIES OF SMALL BUSINESS SHIPMENT CONSOLIDATION



*“Through this grant my team and I truly learned ‘technopreneurship’ within the software development business. This award prepared us to meet our next challenge, namely marketing our new ConsLoad software and developing additional software to addresses transportation and distribution logistics for industry.”*

– Dr. Eng. Ahmad Rusdiansyah,  
M. Eng.  
Industrial Faculty, ITS

When it comes to shipping their products, SMEs are at a serious disadvantage compared to larger firms. For example, the most efficient way to send goods by truck is to completely fill a large vehicle. But small producers may not have adequate volume to do this. They are forced to send partly empty containers, use smaller vehicles, or stockpile inventory until a full load is achieved — all methods that add to the cost of doing business.

A potential solution is to provide shipping and logistic companies with technology that allows them to consolidate shipments from SMEs in an optimal manner, ensuring containers are filled to capacity without sacrificing speedy and efficient operations. This is an especially promising idea when applied to industry clusters, where core industries, suppliers, and supporting institutions are co-located.

However, the logistics of sharing transport are complex. Since the goal is to minimize costs, a range of factors must be considered: what weight and volume of different goods can be consolidated into one shipment, and how should the container be loaded? What route will the truck take? How will costs be divided fairly among different businesses?

Such questions are too mathematically involved to answer without the use of sophisticated equations. The field of operations research has identified methodologies that can be applied, but only through the development of appropriate software can these methodologies be put to use.

The Laboratory of Logistics and Supply Chain Management in the Department of Industrial Engineering at ITS (Institut Teknologi Sepuluh Nopember) has recently made extensive study of the operational issues surrounding product shipping consolidation by SMEs in industry clusters. Thus, ITS was well prepared to develop a proposal for iMULAI (a special national software innovation competition under SENADA’s Business Innovation Fund that is operated in partnership with Microsoft Indonesia) to help logistic service providers solve problems related to shipment consolidation, resulting in cost savings that can be passed on to their customers.

The ITS grant entitled “Development of Software Application on Optimizing Product Shipment Consolidation for Cluster of Industries” was one of three iMULAI winners, and received a grant for Rp 225,000,000 between June and December 2008. ►►

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*The new software, called Consload, allows shipping and logistics companies to better work with SMEs to select goods for consolidation and decide how to pack them, determine routes to follow, and calculate how costs should be shared.*

*(continued from other side)*

ITS used the funds for step-by-step software development, including a literature review, problem identification surveys with both producers and transport providers. This was followed by software modeling, design, and coding, and finally start-up marketing activities.

The new software, called Consload, allows shipping and logistics companies to better work with SMEs to select goods for consolidation and decide how to pack them, determine routes to follow, and calculate how costs should be shared. Consload was commercially launched on 17 December, 2008. Mr. Dr. Eng. Ahmad Rusdiansyah, M.Eng. of ITS conducted a half day workshop as part of the launch, which was attended by various business institutions such as the Forwarding Association, the Export/Import Association, the Indonesian Logistics Association, and multinational industries such as Philips Ralin, Trac Astra, and Sosro.

The Consload software is now available for sale in the market by contacting [www.consload.com](http://www.consload.com).

ITS is a state-owned institute of higher education in East Java. The ITS Laboratory of Logistics and Supply Chain Management was established in 2006. This lab is the first in Indonesia to concentrate on logistics and supply chain management, a field of study that attempts to determine how goods can flow efficiently from upstream to downstream, supported by information, coordination, and collaboration among business actors from raw material suppliers to end users. The lab is an outgrowth of the Center for Supply Chain Management, which was established in 2001 to promote the understanding of and application of supply chain management principles in Indonesia.

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## GRANTEE PROFILE

### INNOVATIVE TOOLS TO VULCANIZE RUBBER PROMISE TO BENEFIT AUTOMOTIVE, FOOTWEAR AND GARMENT INDUSTRIES



*“Thanks to these innovative new tools, Hitachi has listed CV Rafindo Raya in its world-wide Global Quality and Procurement Activity Program. Rafindo is a model for other SMEs that can join Hitachi’s global suppliers by replicating and utilizing the new tools.”*

*– Brusley Estrada  
Procurement Officer  
PT Hitachi Construction  
Machinery Indonesia*

To enhance the competitiveness of any industry, it pays to look not only to the downstream end of the value chain, where the focus is on access and service to markets, but upstream as well, to raw materials suppliers whose inputs can affect cost, quality and reliability. Another benefit of upstream improvements is their potential for stimulating not one, but several downstream industries at once.

This is the case with Indonesia’s rubber components suppliers. Upgrading the output of this upstream industry can have a positive impact on a variety of downstream producers that require rubber products, including auto parts makers who use gaskets; footwear manufacturers who require outsoles for shoes; and textile equipment producers who use rubber pads in their manufacturing machinery.

The SMES that produce rubber components for Indonesian manufacturers have long relied on inefficient means of production. To press rubber, the industry depends on manually operated, kerosene-powered vulcanizing tools with no means to control pressure, time and temperature. These tools are inefficient, slow, and produce output of low and uneven quality. Increases in the price of kerosene have further restricted the ability of this industry to supply downstream firms with rubber components at an acceptable level of price and quality.

As an automotive and footwear component producer, the company CV Rafindo Raya understands the technical difficulties involved, and has insight into strategies that can help. Rafindo therefore applied for a Business Innovation Fund (BIF) grant from SENADA to develop prototype vulcanization tools that replace kerosene with LPG or lubricating oil; allow pressure, time, and temperature levels to be controlled; and are simple enough to be affordable by Indonesian SMEs.

The grant awarded to Rafindo provided Rp 193,564,767 over a six-month period from August 2008 to February 2009. Rafindo used the grant to design two machines that combine a simple and inexpensive but effective manual

*The new tools produce higher quality results with lower defect levels and enable producers to fill larger orders more quickly at a better price.*

*(continued from other side)*

clamping toggle system with automatic controls for time, pressure, and temperature. The new tools produce higher quality results with lower defect levels and enable producers to fill larger orders more quickly at a better price.

To disseminate these innovations in the targeted industries, Rafindo implemented two strategic plans. First, they are marketing the prototypes to Indonesian SMEs that supply Hitachi under the Hitachi Global Quality and Procurement Activity Program. Second, they are selling the blueprints for the tool, along with the associated formula for rubber composition, to other machine workshops that service rubber component customers. Paid consulting support from Rafindo in prototype production and servicing are also available. One firm that attended the launching of the prototypes has already expressed interest in developing similar tools through purchasing Rafindo's design and formula.

CV Rafindo Raya specializes in component production for footwear and automotive companies, producing items such as gaskets, cushions, grommets, seals, caps, insulators, O-rings, mats, and footwear outsoles. Established in 2001, its vision is to be the leading rubber component manufacturer for the auto part and footwear industries. Customers include PT Restindo, PT Komatsu Indonesia, PT Hitachi Indonesia, PT Boogie Advindo, CV Amanha, Mahameru and Raft. Rafindo has created long-term partnerships with key industry stakeholders dedicated to advancing standards for technology and production, such as the Rubber Technology Research Institute, and works with these partners on training, consultation, and lab testing activities.

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# GRANTEE PROFILE

## SMALL BUSINESSES NOW ABLE TO ACCESS LEADING APPLICATION FOR HUMAN RESOURCE MANAGEMENT



*“This Sunfish SBE software is truly needed by our consulting company and by our clients as well. A simplified system that doesn’t leave out critical features, launched as open-source software, is right for SMEs to adopt and utilize.”*

*–M. Syahriansyah  
Consultant  
PT Ferrier Hodgson*

In an era where sophisticated management software is the norm, any company that does not avail itself of modern information systems will not be highly regarded by clients and customers. A firm that uses outmoded manual systems may lose out to competitors who have more efficient ways of doing business. It is also more difficult for a business to expand its operations when functions such as human resources are not managed using information technology.

Even so, it isn’t necessarily easy for Indonesia’s small and medium businesses to automate. Many core business applications such as accounting, human resource management and enterprise resource planning (ERP) are designed with only large enterprises in mind. The cost alone can prevent SMEs from using them, as can the complexity.

Spotting a win-win business opportunity in this situation, the ICT company PT IndoDev Niaga Internet came up with a plan to develop a Small Business Edition of Sunfish, a highly regarded HRIS (Human Resources Information System) for large multinationals. IndoDev applied to SENADA’s Business Innovation Fund with a proposal entitled “Sunfish: Small Business Affordable HRIS for Indonesian SMEs.” The grant awarded to IndoDev provided Rp 175,551,660 over a six-month period from May to November 2008.

IndoDev used the grant to modify the Sunfish HRIS. Extraneous features were removed from the large-enterprise-oriented platform, and an open-source Small Business Edition (SBE) was created. The SBE includes the functions deemed necessary for competitive SMEs, such as employee record-keeping, time management, payroll calculation and processing, tax management, and reporting and analysis. Because it is open-source, the SBE can be freely downloaded from the Internet and the source code is available for ►►



*Because it is open-source, the SBE can be freely downloaded from the Internet and the source code is available for examination and modification, making it very simple for SMEs to upgrade and add new features as they grow.*

*(continued from other side)*

examination and modification, making it very simple for SMEs to upgrade and add new features as they grow.

The effort will pay off for IndoDev with the sales of consulting services to support the installation and use of the free Sunfish SBE. The software also opens an entirely new SME market for IndoDev, who prior to this only focused on large business clients. Immediately following the creation of the software package, complete with user manual and installation guide, IndoDev began marketing its services and obtained its first potential client, which decided to install Sunfish SBE in November 2008.

PT IndoDev Niaga Internet was founded in Jakarta, Indonesia in February 2000 as a partner of DataOn, one of Asia's most successful eBusiness solution providers. DataOn was created in 1999 to target the development of Application Service Providers operating through Internet portal applications. As DataOn's Indonesian arm, IndoDev's vision is to be the leading provider of customized eBusiness solutions by delivering individualized services that meet specific organizational needs. IndoDev currently employs nearly 100 IT professionals and is continuing to grow.

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## GRANTEE PROFILE

### COMMUNITY FOREST CERTIFICATION PROJECT TAKES FIRST STEPS BUT MORE WORK IS NEEDED



*“Sustainable community forestry is vital if home furnishing companies are going to be able to access domestically produced sustainable wood inputs in the future.”*

*- Dini Rahim, SENADA*

Illegal logging is a serious problem in Indonesia that threatens eco-systems, deprives governments of revenue, undermines respect for the rule of law, and limits the competitiveness of Indonesia’s home furnishings industries. In response, concerned stakeholders have developed strategies to combat illegal logging such as community forest certification. Community forestry stresses promoting the socio-economic well-being of local communities that control forest resources. Community forest certification, offered by organizations such as the Forest Stewardship Council (FSC), takes this approach a step farther by offering accreditation to forest communities that provide ecologically sensitive management of their resources, enabling their timber products to access markets that demand legally harvested wood. Ideally this results in improvements to both economic and environmental conditions.

As the largest mass organization in Indonesia, with millions of members who principally live in rural areas, the independent Islamic association Nahdlatul Ulama (NU) offers access to many of the citizens who could benefit through engaging in community forest certification activities. Thus, it seemed like a promising fit when GNKL-PBNU (the National Movement for the Environment, an arm of NU) applied to the Business Innovation Fund (BIF) for funds to develop mechanisms to support community forest certification. GNKL received Rp 224,995,000 (about US\$ 25,000) for a BIF grant entitled “Establishment of an Education Mechanism for FSC Standard Certification for Community Forest Management.”

The goal of the grant was to create a model of community forest management tailored to the NU framework, develop trading networks, initiate training activities, and ultimately increase the supply of wood from community certified forests. The grant proposed to use funds to provide both training and equipment needed to help communities pursue certification. Planned activities included creating a training center, conducting “train the trainer” (TOT) sessions to build a cadre of competent instructors who could teach farmers the necessary steps for achieving certification over the long ▶▶

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*The goal of the grant was to create a model of community forest management tailored to the NU framework, develop trading networks, initiate training activities, and ultimately increase the supply of wood from community certified forests.*

*(continued from other side)*

term, and preparing accompanying training collateral. The grant was in operation from July 2008 to January 2009.

Unfortunately the grant failed to achieve any substantial results during the grant period. TOT activities were conducted with a focus on pedagogical strategies, but there was no significant training on forestry and certification issues. The grant proposal set a goal of creating and distributing 10,000 CDs with new information on forestry management, but only about 1,000 copies were made and these were based on pre-existing materials and did not specifically address community forest management.

Additionally, a new forestry center was to be established in Sukabumi, West Java and supplied with staff, equipment, and training materials. While an existing facility was identified to serve as a location for the new center, no new activities were initiated there.

This BIF grant offers an opportunity to examine how project parameters could be modified to increase success. Reaching farmers in order to promote the achievement of certified forests remains a worthy goal even though this grant had very limited impact.

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# GRANTEE PROFILE

## MISSED OPPORTUNITIES FOR INDONESIAN SHOE MANUFACTURERS TO MODERNIZE PATTERN MAKING



*“Providing CAD/CAM at a reasonable cost is a valuable service for SMEs, who face standardization problems from poor pattern grading.”*

*— Rini Darwin  
Chair, Forum Paku  
(Bandung SME Footwear Forum)*

Properly manufacturing the same shoe designs in different sizes requires a careful approach. After the original pattern is manually created, it must be replicated to create products identical to the original, but slightly larger or smaller. Throughout the world, industry leaders use expertly trained employees to craft the first pattern by hand, and CAD/CAM (computer-assisted design and computer-assisted manufacturing) to create the technical drawings that allow the shoe to be reproduced in varying sizes.

Indonesia’s smaller shoe factories have fallen behind their global competitors in their ability to make and reproduce patterns accurately. Due to the expense of CAD/CAM, they typically do every step in the process manually. When large export orders are shared, this leads to variances in the result, lowering productivity and increasing the time needed to fill orders with goods that meet quality standards.

Indonesia’s shoe producers need both training on pattern cutting and access to technology in order to compete more effectively. Therefore, the West Java chapter of the Indonesian Footwear Association (APRISINDO) applied to SENADA’s Business Innovation Fund (BIF) for funds to address these needs. The grant, entitled “Developing Capacity of APRISINDO West Java in Guiding the Industry through Correct Manual Pattern-Making and CAD/CAM Technology,” provided the West Java chapter of APRISINDO with Rp 224,587,500 from August 2008 to February 2009. The intent was to make West Java APRISINDO a resource for members to receive both training and access to technology.

Overall grant achievements unfortunately did not meet initial expectations. The main purpose of the grant was the purchase of two packages of CAD/CAM equipment that uses computer-guided cutting of patterns, with the intent of making it available to APRISINDO members and other small footwear producers on a rental basis. Since the technology is too expensive for one member to purchase individually, having access to these two versions would have greatly increased access to CAD/CAM technology in West Java and served as an important revenue stream for APRISINDO to provide better quality services to its members.

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*A module on how to manually create patterns was produced and distributed to 20 SMEs in West Java.*

*(continued from other side)*

At the time the grant closed, however, the equipment was still in port and APRISINDO had yet to take possession of it.

Although external factors played a role, the delay was at least in part due to the absence of aggressive action on APRISINDO's part. APRISINDO did have a clear and detailed schedule with explicit and realistic milestones to achieve throughout the grant period, but the grantee was usually late in executing each step.

Despite the official end of the grant period, SENADA remains confident the CAD/CAM technology will become available for the industry sometime in the near future, although exactly when this will occur is unclear. SENADA will continue to monitor the progress closely to ensure some level of success is accomplished.

Despite failure to achieve the main deliverable of the grant, some modest successes were achieved. APRISINDO was able to develop a basic training module on how to manually create patterns, which was produced and distributed to a limited number of SMEs in West Java. A small training workshop on the module was also held, although broad dissemination of training materials on CAD/CAM design trends did not occur. A workshop was also held on CAD/CAM in one factory, using borrowed equipment. Two operators received training from an expert brought in from Taiwan. They then successfully reproduced two patterns in all sizes.

APRISINDO was formed in 1988 in Jakarta, and the West Java chapter was started in 2007 as a result of SENADA's activities with the footwear industrial value chain. The vision of APRISINDO West Java is to develop the local footwear industry to enhance its competitiveness in both domestic and overseas markets. The association is building ties with a number of partners, including Maranatha Christian University's Shoe Design Department in the School of Fine Arts and Design; and the Italian Trade Commission.

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# GRANTEE PROFILE

## ANTIBACTERIAL GARMENTS DEVELOPED BY COLLABORATING RESEARCHERS AND PRIVATE SECTOR WILL ENHANCE INDONESIAN COMPETITIVENESS



*"We can compete in the market for only so long with a 'me-too' strategy. The BIF grant gave us a way to create something different that can survive in the market."*

*Bimo Santoso  
Director  
CV Sinerga*

Even before the current global economic downturn, competition in the international textile and garment industry was fierce. Countries such as China and Vietnam have established formidable production capabilities. Developments in technology make it easier for firms to change their production specifications at a moment's notice, so buyers have the freedom to shop around the world for the best price for any good they need.

In this environment, Indonesia's advantage has traditionally been its large supply of inexpensive labor. This is less than ideal as a basis for building Indonesia's competitiveness, as other countries can find their own means of successfully competing on price. A more promising strategy would be to find innovative production processes, especially suited to the Indonesian environment, that allow Indonesian products to stay at the forefront of the latest international trends in garments.

Researchers at the University of Diponegoro (UNDIP) had an idea for pursuing this strategy: Indonesia has an abundant supply of waste shells from crustaceans such as crab and shrimp, discarded by seafood processing factories. These shells are composed of chitin, which when deacetylated (i.e., when certain acidic compounds are removed) make chitosan. Chitosan is a polysaccharide, a complex carbohydrate molecule with a number of industrial applications. Because chitosan is hypoallergenic and has anti-bacterial properties, UNDIP's Research Institute envisioned using chitosan in the manufacture of anti-bacterial garments. There is a large, global market for such clothing in the health care industry, and increasingly in other situations where anti-bacterial properties are especially welcome, such as socks and sportswear. As an added benefit, the dyes in cloth impregnated with chitosan stay fast longer, meaning colors will fade more slowly from repeated washing.

UNDIP teamed with a commercial partner, CV Sinerga, to study the best means for turning this idea into a commercially viable process. Research was needed to determine the most efficient means to extract chitosan, measure the antibacterial properties of chitosan produced under differing conditions, and develop a treatment process to fix the chitosan to fabric in such a way that it will withstand repeated washings without losing its antibacterial effect. ►►

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*Their work culminated in a pilot test of the feasibility of mass garment production, when they arranged the manufacture of a series of anti-bacterial t-shirts that demonstrated the effectiveness of their new processes.*

*(continued from other side)*

To fund this research, UNDIP and Sinerga turned to SENADA's Business Innovation Fund (BIF), applying for Rp 220,150,000 (\$24,461) to carry out a grant entitled "Development and Application of Chitosan as an Antibacterial Agent on Fabric and Garments." Grant activities were conducted over a six-month period from August 2008 to February 2009.

UNDIP and Sinerga collaborated to discover optimal chitosan extraction and application methods. Their work culminated in a pilot test of the feasibility of mass garment production, when they arranged the manufacture of a series of anti-bacterial t-shirts that demonstrated the effectiveness of their new processes.

The grantees have found suitable means for producing about three tons of chitosan per month and have begun disseminating information to the garment industry in central and west Java, also making presentations to the medical industry, international buyers, and the media. CV Sinerga is beginning to market the chitosan and offer treatment to permanently fix it to fabric for garment manufacturers.

UNDIP is a state-owned institution of higher learning in Semarang. Its Research Institute was founded in 1982 to coordinate all university research activities in areas such as technology development, natural products and marine fisheries. CV Sinerga Indonesia is a Semarang-based SME founded in 2000. It has divisions focusing on waste and water treatment (which supply waste and water treatment chemicals to large companies in the food, wood, and garment industries), industrial laundry (which serve garment factories throughout Semarang), and aquamarine activities (which produce chitosan for use as an antibacterial agent in aquaculture).

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# GRANTEE PROFILE

## INNOVATIVE PROCESS FOR PRODUCING “FANCY” PAPER BENEFITS BOTH THE ENVIRONMENT AND INDUSTRY



*“This is an excellent case study for stakeholders on how to develop economic growth projects through simple but commercially viable innovation. It uses creativity and inventiveness to meet a challenge and help SMEs produce goods of the highest possible value. In a time of economic crisis this is a critical breakthrough.”*

— Edy Putra Irawady  
Deputy Coordinating Minister of  
Economy for Industry and Trade

Many craftsmen in Indonesia use waste materials to produce “fancy paper” — a catch-all term for the decorative papers used in such products as paper lanterns, gift wrap, and jewel boxes. Pineapple and banana stalks are the most commonly used, but these have the drawback of seasonal availability. In addition, the creative design process has stagnated somewhat as the best ways to use these fruit stalks have already been explored.

At the same time, a vibrant industry, centered in Tasikmalaya, uses *mendong*, a local grass, to create woven products such as mats, tote bags, and table runners. Ironically, this use of natural materials creates substantial waste — as much as three tons per day of discarded *mendong* that for years has been dumped and burned.

Researchers at the University of Langlangbuana (UNLA), posed the question of whether the waste *mendong* could be used to produce fancy paper. This would result in benefits to the environment as a result of increased recycling and benefits to the fancy paper industry by giving them a new and inexpensive source material.

Equipment to cut the long *mendong* blades to manageable size and turn them into paper pulp is essential to transforming *mendong* waste into useable paper. To develop the needed technology, UNLA applied for and received a Business Innovation Fund (BIF) grant from SENADA. The grant, for Rp 225,000,000, operated between August 2008 and February 2009. UNLA used the funds to develop chemical processes and to design two sets of prototype machines for cutting and refining, along with equipment for manual screening.

UNLA succeeded in creating a distinctive paper using the new technology. It has been produced in varying degrees of thickness, since different fancy paper products require paper of differing fiber content, resilience, and appearance. ►

To make the process technically feasible,, UNLA is partnering with PT Metrika Tehnik, a firm that produces

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*On the creative side, UNLA is cooperating with PT Shuhuf, a company that has for years worked with banana-stalk-based fancy paper, to develop market samples that showcase the novel and varied paper designs that can be produced with the mendong paper.*

*(continued from other side)*

machinery for workshops. Metrika Teknik is replicating and marketing the cutting, pulping and screening equipment.

On the creative and marketing side, UNLA is cooperating with PT Suhuf, a company that has for years worked with banana-stalk-based fancy paper, to develop market samples that showcase the novel and varied paper designs that can be produced with the mendong paper. PT Suhuf is actively marketing mendong-based fancy paper to its customers, such as the national bookstore / office supply chains Gramedia and Gunung Agung and various gift stores in Greater Jakarta area and West Java. They have already added unique mendong-based products to the items they offer these customers, and in addition they are in the process of creating a catalogue devoted entirely to showcasing the new goods.

The University of Langlangbuana was founded in 1982 under the auspices of Tri Bakti Educational Foundation (YPTB) in Bandung, West Java. Its mission is to produce graduates whose knowledge and competitive skills will help to develop the nation of Indonesia. UNLA's Industrial Technology Department within its Engineering Faculty has maintained a long involvement in researching solutions to environmental ills, notably by addressing problems in the leather tanning industry.

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# GRANTEE PROFILE

## NEW ADVANCES IN WOOD DRYING TECHNOLOGY PROMISE INCREASED COST EFFICIENCY AND DECREASED ENVIRONMENTAL WASTE



*“This innovation can reduce environmental waste, lower costs and ensure even quality of woodworking products.”*

*– Jojon Suberman*

*Head of the Development Team*

*VEDC Malang*

The quality of finished wood products is highly dependent on the moisture content of the wood at time of manufacture. Wood with too much moisture is difficult to work with even using automated processes, so the pieces produced may be of uneven size. Moist wood materials used in construction are prone to fungal contamination. Furniture made with inadequately dried wood that is transferred to a dryer climate dries out later, causing warping and cracking.

Achieving the optimum level of moisture content in wood to be used in construction or furniture products is a calculated process dependent on the type of wood, surrounding temperature and humidity, and circulation within the drying chamber. When these characteristics are properly controlled, wood can be brought to an equilibrium moisture content that is dry enough for crafting and which will remain stable over time.

Many of Indonesia’s small furniture producers purchase wood that has already been dried in order to maintain the quality of their output. However, this is a costly alternative that adds significantly to the price of goods produced and thus reduces the competitiveness of manufacturers. Some manufacturers do have their own wood drying kilns that operate on gas, kerosene, or electric power, but the energy costs are high.

These furniture producers are also creating significant wood waste during the manufacture process; research suggests that 8-13 percent of the volume of raw wood used is lost as sawdust, shavings, and small pieces.

Putting these two situations together, the Vocational Education Development Center (VEDC) realized that Indonesian woodworking firms could lower their costs by developing their own wood-drying facilities fueled with wood waste. VEDC therefore applied for and obtained a Business Innovation Fund (BIF) grant from SENADA for Rp 217,000,000. The grant, entitled “Engineering Wood Drying Ovens Using Wood Waste as an Energy Source” ►►

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*VEDC successfully built a kiln and supporting equipment, and demonstrated the technology to woodworking SMEs and instructors from vocational schools around Java.*

*(continued from other side)*

proposed developing a kiln fueled with wood waste along with accompanying technology to make fuel briquettes, offering wood-drying services to SMEs in Malang, and disseminating the process to relevant stakeholders. The grant operated from September 2008 to March, 2009.

With the grant, VEDC successfully built a prototype kiln and supporting equipment (a briquette paste mixer, mold and press) and is now taking purchase orders from firms that wish to purchase their own kilns. VEDC also held a seminar to demonstrate the technology to woodworking SMEs and instructors from vocational schools around Java. As a result, a number of SMEs in Malang have placed orders with VEDC to complete their wood drying.

VEDC was founded in 1984 under a government-to-government agreement between Indonesia and Switzerland for the purpose of educating vocational school instructors. Since the expiration of the original agreement VEDC has expanded its scope and international funding sources. VEDC focuses on developing Indonesia's industrial skills, and most of its instructors have been trained in Switzerland or Germany. It has executed a number of design and construction projects ranging from a ginger treatment container in Malang to a water sanitation facility in Madura. For more information about VEDC, see [www.vedcmalang.com](http://www.vedcmalang.com) and [www.vedcitgo.id](http://www.vedcitgo.id).

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# GRANTEE PROFILE

## INNOVATIVE LEATHER-TANNING TECHNOLOGY PROMISES ENHANCED COMPETITIVENESS IN LIGHT MANUFACTURING INDUSTRIES



*"I am very pleased to see this innovative solar dryer prototype for leather tanneries, especially considering our current economic crisis. It is an example of how we should be motivated to transform technology to give us new momentum."*

*– Dr. Ir. Utama H. Padmadinata  
Deputy Chairman for  
Technology Policy Assessment  
Agency for the Assessment and  
Application of Technology (BPPT)*

Until recently, small and medium leather tanning operations in Indonesia have had only two options for drying leather: direct drying in the sun, or using drying chambers fueled by steam boilers. Both methods have significant disadvantages. Sporadic and unpredictable sunlight and high humidity levels make sun-drying a slow and uneven process, with mold a persistent problem. Traditionally fueled dryers, on the other hand, are effective yet expensive to operate.

Researchers at Darma Persada University (UNSADA) in Jakarta came up with a possible solution: combine the best features of each method – the low expense and environmental soundness of solar drying with the speed and reliability of a technology-based dryer – to create a product that would help Indonesia's small tanning enterprises to increase their productive capacity and quality of their output. Leather tanning is an upstream industry that supplies Indonesia's garment, home furnishings, and footwear industries. Therefore, improvements that allow these downstream firms to source more heavily from local suppliers have the potential to enhance Indonesian competitiveness throughout the value chain.

UNSADA's idea was an excellent fit with the goals of SENADA's Business Innovation Fund (BIF), so the university applied for and was awarded a grant entitled "Hybrid GHE Solar Dryer for Tanned Leather." The grant provided UNSADA with Rp 225,000,000 over a six-month period from October 2008 to April 2009.

UNSADA used the funds to develop a prototype "greenhouse effect" (GHE) dryer that utilizes sunlight but, for rainy days or overloaded production schedules, is also equipped with a stove combustor and steam heater that use biomass fuel. The heat transfer system designed at UNSADA ensures that only clean, dry hot air enters the leather drying chamber. Temperature and humidity controls allow perfect drying.

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*The heat transfer system designed at UNSADA ensures that only clean, dry hot air enters the leather drying chamber.*

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To move from prototype development to commercial viability, UNSADA partnered with PT Sumber Piranti, a mechanical engineering company experienced in machine design, development, and fabrication, so that the new dryer can be commercially produced and sold.

UNSADA also teamed up with the Indonesian Tanneries Association (APKI) to promote the new technology to its member companies. The Garut Chapter of APKI contributed materials, supplies and construction during the field testing of the prototype, and has been given the dryer to make it commercially available to small members through a rental scheme. APKI-Garut also assists by providing demonstrations and information, in cooperation with UNSADA, to tanneries and other APKI chapters that are potential purchasers of the new technology.

Darma Persada University was established in 1986 under the auspices of the Melati Sakura Foundation. Its research center focuses on theoretical and applied research on renewable energy, and has designed and developed dryers for products such as coffee and cocoa beans, corn, seaweed, and fish, utilizing funding from government and Corporate Social Responsibility projects in the private sector.

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