



MITR PHOL
GROUP

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Sustainability Report 2013

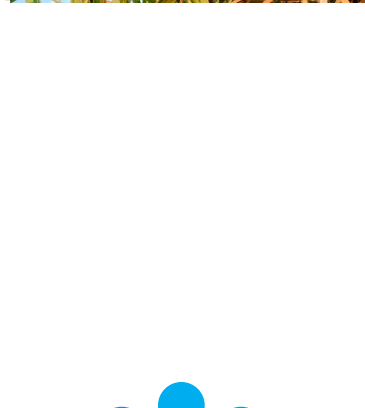
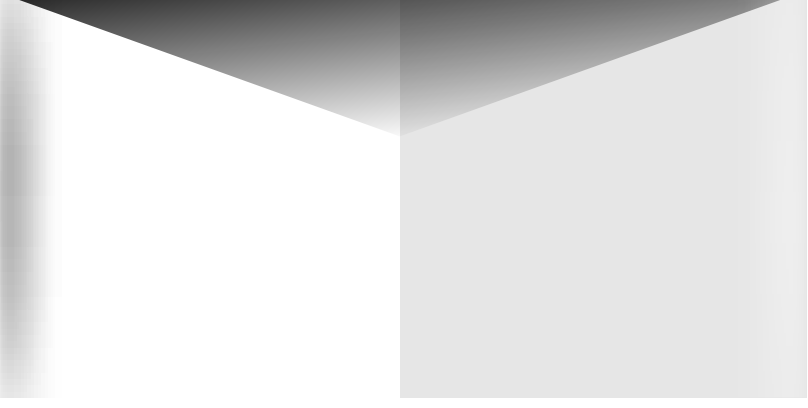
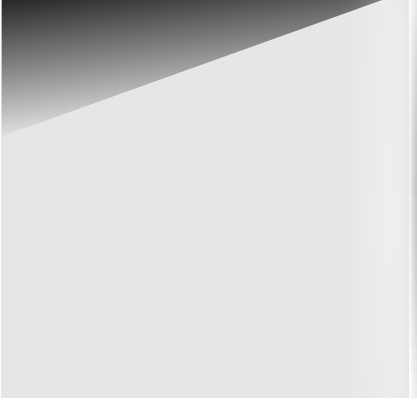
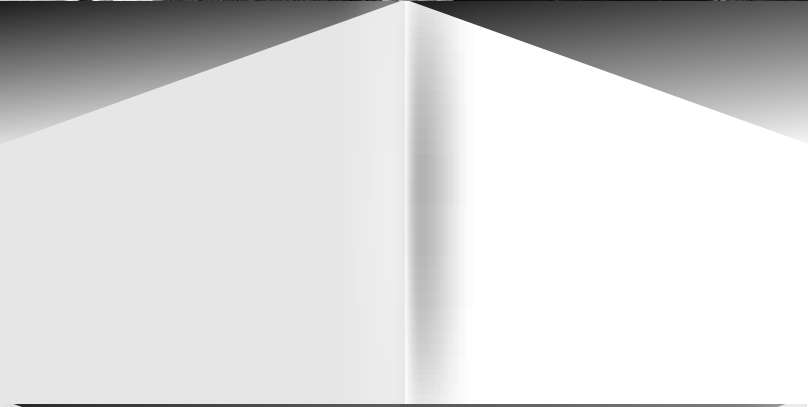
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Sustainability Report 2013

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Sustainable Ways Forward





Message from Chief Executive Officer and President

This Sustainability Report is the first of our 57 years since Mitr Phol was established. Mitr Phol has been conducting business on the basis of social responsibility without any economic circumstance. This report is not to promote the goodness of our organization, but it is a communication tool to introduce to all stakeholders the progress and Mitr Phol business path towards sustainable development.

Over 5 decades, Mitr Phol has been adhering firmly on the “**Grow Together**” concept. We have found this concept to be contemporary practices for all of us up until now, except people today call this practice Corporate Social Responsibility (CSR).

Mitr Phol Group started from an ordinary small cane farmer family, with hardworking and endurance the family becomes extraordinary living legend. There are stories passing from generation to generation, especially the truth and reality Mitr Phol group given to trade partners and communities. These are the foundation for Mitr Phol’s CSR activities to the world (inside out). It has started since the day we were a syrup producer up until we are sugar producer. It has started since the day we were an honor and sincere cane farmer family until today when Mitr Phol successfully expands its agricultural business and related businesses.

Sugar business depends on raw materials from farmer communities, these apply to our other related businesses – clean energy such as ethanol, cogeneration and particle board. We work and live with communities on the basis of sustainability.

We give priority and sound investment in sugarcane research and development which benefits communities substantially. The works start from soil preparation, cane varieties development, cane growing techniques, irrigation system, ratoon caring and harvesting. These are based on our belief “**Strong Community, Strengthens Mitr Phol**”.

Apart from quality raw materials, Mitr Phol also focuses on innovation and modern technology investment. We have brought international standard modern quality management and environmental protection practices to our operations to ensure high quality, clean, safe and value products to customers. All Mitr Phol’s business operations is pollutionfree as we have studied and invested in this pollution management system for better resource utilization, which leads to sustainable business development



Apart from organization system and management, Mitr Phol has adopted the sustainable concept to our operation. We encourage staffs to participate in community development in the name of **Mitr Phol Volunteer**. These staffs are rotated out to work with communities in several activities – education, sport, art, culture and local tradition. Volunteer works also include environmental and resource management, health, public safety and career development.

We believe our business success has to come in parallel with social and environmental development because “**participation**” is regarded as the heart of business and social development. Mitr Phol has initiated organization policy for all line of works consistency with the concept “**Grow Together**”. All frameworks on social responsibility were systematically designed and “**Social Responsibility and Sustainability Unit**” was established accordingly.

To this date, we have more friends, more allies including staffs, trade partners, cane growers and more market shares. We are ready to move forward in both good and hard time. Mitr Phol group are ready for “**Creating Value for Better Life**” for the Thai society, for this notion to be rooted in our organization culture as a mean for sustainable development.



(Krisda Monthienvichienchai)
CEO & President

Sustainable Ways Forward...

ก้าวอย่างที่มีนคง...สู่หนทางที่ยั่งยืน



นโยบายในการดำเนินธุรกิจที่รับผิดชอบต่อสังคม (Corporate Social Responsibility Policy)

ด้วยความมุ่งมั่นในการพัฒนาสังคมสู่ความยั่งยืนบนพื้นฐานของการดำเนินธุรกิจที่รับผิดชอบต่อสังคม กลุ่มมิตรผลจึงได้กำหนดแนวทางเพื่อให้ผู้บริหารและพนักงานของกลุ่มฯ ยึดถือเป็นหลักในการปฏิบัติงาน ดังนี้

- สร้างสรรค์วิธีการดำเนินงานที่เป็นต้นแบบของการพัฒนาธุรกิจภายใต้กรอบปรัชญาและจรรยาบรรณทางธุรกิจขององค์กร รวมทั้งมีความสอดคล้องต่อกฎข้อบังคับของกฎหมาย
- ส่งเสริมและสนับสนุนการวิจัยเพื่อพัฒนาเทคโนโลยี รวมทั้งกระบวนการจัดการเพื่อผลิตจำหน่ายสินค้าและบริการที่มีคุณภาพ ปลอดภัยและเป็นมิตรต่อสิ่งแวดล้อม
- สร้างโอกาสในการพัฒนาอาชีพและยกระดับคุณภาพชีวิตของประชาชนในชุมชนผ่านกิจกรรมที่มุ่งเน้นการมีส่วนร่วมในการพัฒนาอย่างเหมาะสม
- เคารพในสิทธิส่วนบุคคลของปัจเจกบุคคลและปฏิบัติต่อพนักงาน ลูกค้า รวมทั้งผู้มีส่วนได้ส่วนเสีย บนพื้นฐานของความชอบธรรมและเท่าเทียมกัน
- มุ่งมั่นพัฒนาบุคลากรให้เป็นผู้มีความรู้และความสามารถในการปฏิบัติงาน รวมทั้งเป็นผู้ที่ใส่ใจในการพัฒนาชุมชน สังคมและสิ่งแวดล้อมอย่างยั่งยืน

ทั้งนี้ ให้มีผลบังคับใช้ตั้งแต่วันที่ 28 ธันวาคม 2550 เป็นต้นไป

(นายกฤษฎา มนเทียรวิเชียรฉาย)
กรรมการผู้จัดการใหญ่



Introduction

This 2013 Sustainability Report consists of Mitr Phol's business activities based on corporate social responsibility (CSR) to sustainable society. The objective is to systematically lay framework on social responsibility to achieve the role model organization status on the concept of "Grow Together".

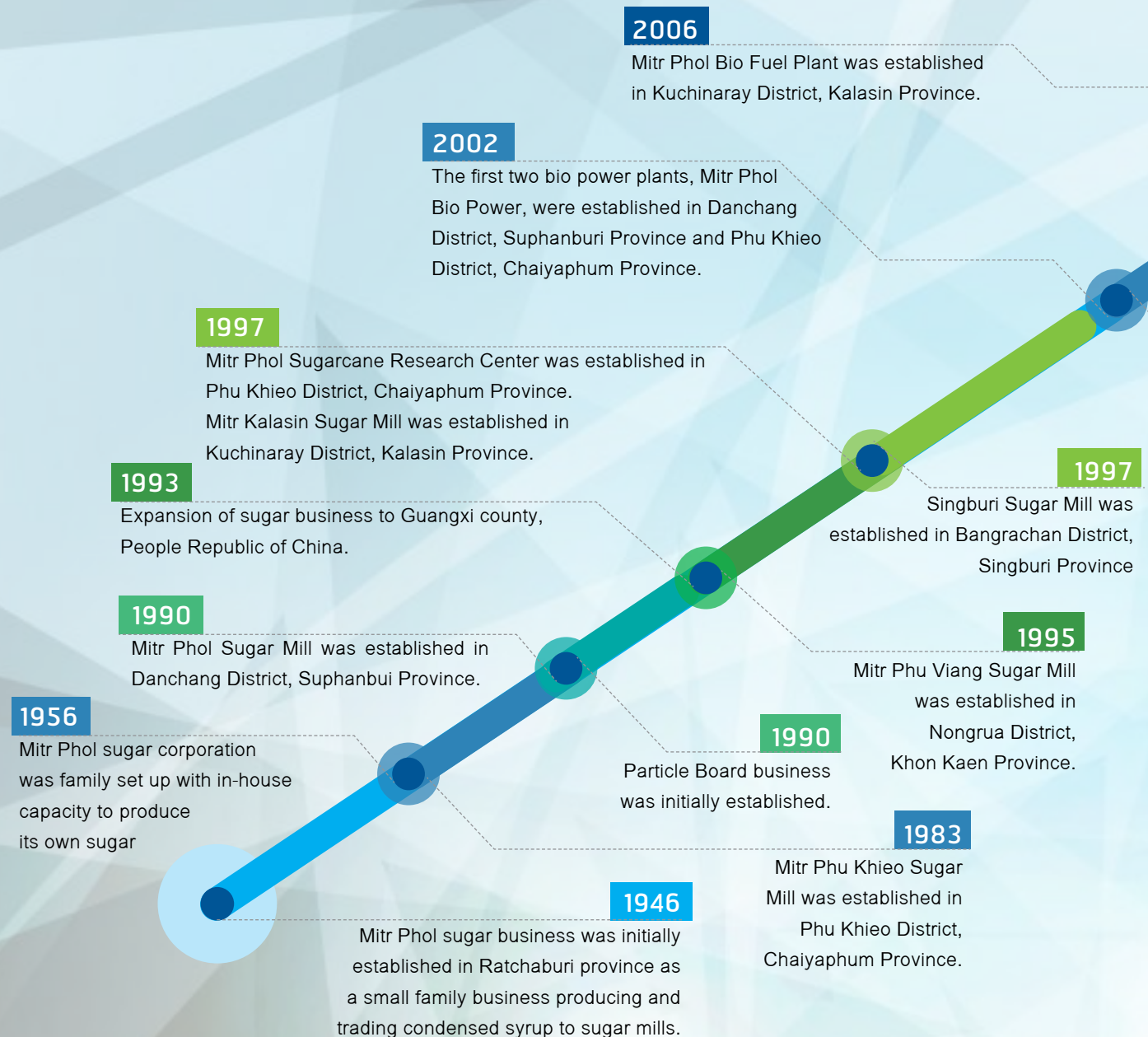
The social responsibility framework covers good governance and business ethics, human rights, labor practices, environmental management, consumer care and community sustainable management program. This framework makes our organization's image clearly covers all stakeholders. This report also includes reliable fact that can be traced from sources within and outside our group, especially from our Audit Department and International Standard Agencies – ISO, GMP, HACCP, etc. These agencies are well known and respected for their enforcement of strict rules and regulations, as well as reputable auditing practices. As a result, Mitr Phol business practices are transparent and traceable.

The contents of this report also reflect our policy and works. Report pattern is based on the fact related to our group's stakeholders. Besides, this report is crucial for providing better understanding of overall Mitr Phol's working pictures to all employees. They can learn and integrate CSR to their works and introduce to the outside world.



Mitr Phol Group's History

Mitr Phol Group has dedicated to develop business with value-adding products to cane industry's related businesses for over half a century with acclaimed international standard practices. Our products range from sugar, particle board to renewable energy. It can be said that these products are not just environmentally-friendly but also helps stimulus communities and national economies.





2011

Mitr Phol Bio Power Plant was established in Kuchinaray District, Kalasin Province.

2011

The first bio power plant was established in the Lao People's Democratic Republic, recognized as Laos' first bio power plant from sugarcane bagasse.

2009

Mitr Phol Bio Fuel Plant was established in Danchang District, Suphanburi Province.

2012

Mitr Phu Luang Sugar Mill was established in Wang Sapung District, Loey Province.
Mitr Phol Bio Power Plant was established in Wang Sapung District, Loey Province.
Mitr Phol expanded sugar business to Queensland State, Australia.

2010

The First bio power plant was established in Funan, People Republic of China, recognized as China's first bio power plant from sugarcane bagasse.

2007

Mae Sod Clean Energy Ethanol Plant, a joint venture project with Padaeng Industry Public Company Limited and Thai Oil Public Company Limited was set up in Mae Sod District, Tak Province.

2006

Mitr Phol Sugar was expanded into Savannakhet Province, Lao People's Democratic Republic.

2005

The first ethanol plant, Mitr Phol Bio Fuel, was established in Phu Khieo District, Chaiyaphum Province.



Vision

To become the most widely known company in the sugar and bio-technology industries by applying innovative technologies and enhancing our management talent.

Philosophy

Over half a century, Mitr Phol group has been conducting cane and sugar business along with Thai's way of life under the following working philosophy...

...Strive for Leadership

At Mitr Phol, we aim to produce and offer high quality products for our consumers with the best of our efforts in every process we do.

...Believe in the Value of Human Dignity

At Mitr Phol, we have a firm conviction that human resources are the most valuable assets of the organization. We take pride in encouraging every team member to gain knowledge and skills in what they do. It is our commitment to enhance the performance of Mitr Phol Group by combining the individual talents of our human resources.

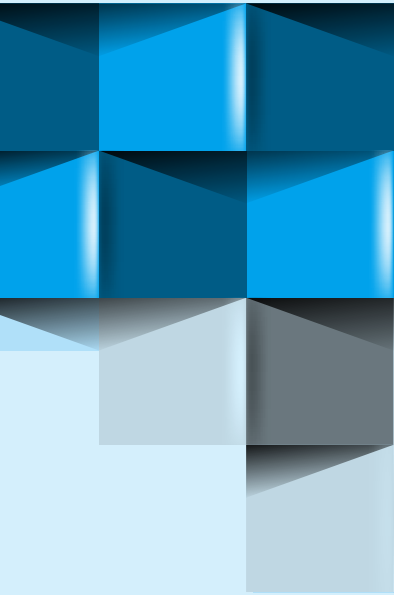
...Stand Tall in Fairness

At Mitr Phol, we conduct our business with utmost integrity and are fair in dealing with our stakeholders, especially our employees, farmers, buyers, suppliers and consumers.

...Responsible for Society

At Mitr Phol, we are committed to operate our business under the respected principle of "Grow Together" that emphasizes on social and environmental development no less than business development.





For customers and consumers, Mitr Phol adheres to fair business practices that give customers and consumers the most benefits. These practices appear in our [marketing policy](#). As we emphasize on food safety and quality, we initiate policy on quality and food safety (ISO 9001, ISO 22000, GMP and HACCP). These policies cover production supply chain, distribution and international standard services. Furthermore, we focus on the strict management system on pollution control with product monitoring and analysis system (ISO/IEC 17025). It can be said that this monitoring system ensures customers the high quality and safety of our products. Mitr Phol set up Customer Hotline (02 656 8501 during working hours) to provide a communication channel for customers to voice opinions on our products.

On the work with trade partners and creditors, Mitr Phol dedicates to developing and ensuring smooth relationship with them by pursuing policy on fair treatment and equality. Our goods and services procurement follow standard as stated in [Purchasing Policy](#). For example, we arrange for fair bidding based on equal information with specific rules on assessment and trade partners selection. We provide standard contract with management and monitoring system to ensure each side follows and meets conditions in the contract as well as to prevent any wrong doing throughout the process. We also ensure that payment is made on time according to the contract.

Mitr Phol has amended “Purchasing Policy” and anti–corruption procedures with stakeholders. This refers to “trade partners” with the intention to make our procurement transparent and fair. It is also a procedure as stated in our Code of Conduct and a persuasion to our partners (sales or contractors) to have the same practices. Our purchasing people also request partners to submit “Intention Letter” to work according to our Purchasing Policy. With this, it shows our responsibility throughout business supply chain.

We ensure the data of Mitr Phol and subsidiary company’s computer system are safe and being treated according to the Act on Computer Crime B.E. 2550 (2007) and other related laws. The move is to make our practices consistent with Code of Conduct. Our Information Technology Committee also initiated policy and standard guidance on Mitr Phol and subsidiaries’ information technology for staffs to follow. Our IT department is responsible for recording all staffs’ IT uses as stated in the Act on Computer Crime B.E. 2550 to audit inappropriate uses.

Amid changing business environment, Mitr Phol Group has established Risk Management Committee to systematically analyze and assess the risk facing organizations in every dimension. We also set up Business Continuous Management Committee to ensure the continuity of business in time of crisis whether political instability or natural disaster.





Human Rights and Labor Practices

| The Legal-Abiding

Throughout Mitr Phol 57 years' operation, business ethical-conscious, stakeholders consideration and fairness's standing position have always been in our heart and soul. Position ourselves on morality means that we do not offend the law, do not abuse or exploit others. For example, we do not abuse our staffs, we are sincere to our customers. We do not exploit our partners or shareholders, nor pollute the environment or harm neighboring communities with waste. Our transparent and ethical works are our proud path towards "Grow Together" concept.

Working by abiding to the law and company's regulations is a policy for all staffs to follow. Staffs are guided by policy to avoid illegal activities. We praise moral people. Our practical ethical policies are:

1.1 Strict legal and regulation abiding on employment, wage, working hour and employment conditions such as no child labor, no illegal labor and no labor abuse, etc.

1.2 Holidays and vacation leave are set according to law. Fringe benefits are also provided by company regulations.

1.3 Working overtime or on holiday has to be agreed upon by both management and staffs. Overtime payment is paid according to labor law plus other company benefits.

1.4 Staffs have the rights to take a leave – sickness, maternity leave, conscription, ordination, sterilization, training, etc., according to labor law.

1.5 It is a company responsibility to provide appropriate and safe working environment to staffs. Risk areas are closely monitored by professional

safety supervisor. Necessary protective equipments are also provided for staffs.

1.6 Company is responsible to arrange suitable services to staffs, e.g. electricity, toilet, food hall and accommodation, etc.

1.7 In case of disputes or behavioral complaints, the company has set punishment rules and complaint procedures. Fact Finding Committee is also set up to investigate with fairness.

1.8 If a person found guilty or is being fired, the company has a compensation policy as set by labor law for fairness.

All staff is to be abided by law, regulations, rule, order, work manual as well as practices announced by the company. Bending the law by claiming benefits to the company or to preserve company's interest is unacceptable.

Mitr Phol conducts business with integrity. We don't make profit from legal loophole.

Staff Welfare and Safety

At Mitr Phol, we all believe that “people” are the organization most valuable resource. We there fore support our staff for a better living standard. We encourage staffs to be knowledgeable in their job. Staffs should have the ability to bring to the jobs different knowledge, experiences and expertise, and integrate them as one to create the strength for the organization. Knowing the staffs are the cogwheel behind all success, their dedication is highly appreciated. Mitr Phol provides benefits beyond just salary to staff.

Fringe benefits come in various forms covering not only staffs but also their families, such as health, funeral (these two benefits are extended to staffs, their parents and children). We

provide gift basket to staffs who are admitted at hospital for any illness and for those who give birth. Besides, we also provide other benefits include wedding, home allowance, uniform, life and accident insurance, travel perdium (domestic and international), housing, meals (during work day), allowance, provident fund, annual health check, children scholarship, staffs scholarship, bonus (per year end performance), Chinese New Year presents, sports day and family day party, staffs thank you party, etc.

Those who retired are never forgotten. Mitr Phol initiated caring program for retired staffs including health and life insurance. This is to ensure the well-being of their families.

¹ Under specific condition

Safety

As stated in the Social Welfare and Labor Industry's regulations, business entities are required to set up Safety, Health and Working Environment Committee, Mitr Phol has therefore; set up such committee in every operational area, with specific responsibilities:

1. Formulate work and offwork safety policy to prevent accidents, danger, illness or annoying working affects.
2. Report and propose measures or improving condition to coincide with Labor Law on work safety and standard. This move is to ensure safety for staffs, contractors and others who come to work or come to uses Mitr Phol services.
3. Promote and support safety activities within our premises.
4. Consider regulations and working manual for factories and head office as well as set up safety standard and propose for management approval.

5. Survey work safety practices and accident statistics at least once a month.

6. Consider or initiate safety training programs as well as safety project on safety role and responsibility for staffs and management, then propose for management approval.

7. Set up system on harmful working conditions for staffs to follow.

8. Prepare annual report on problems and suggestions to Committee.

9. Evaluate risk at workplace and designate Personal Preventive Equipment (PPE) as well as working manual for factories and office areas.

10. Conduct operation appraisal on safety at workplace.

11. Work on safety, health and working environment as stated by executive.

Succession Plan

To prepare for business expansion (MTP) in the future, Mitr Phol has set up selective measures and Successor Development Group according to the following framework:

Set Strategic Position

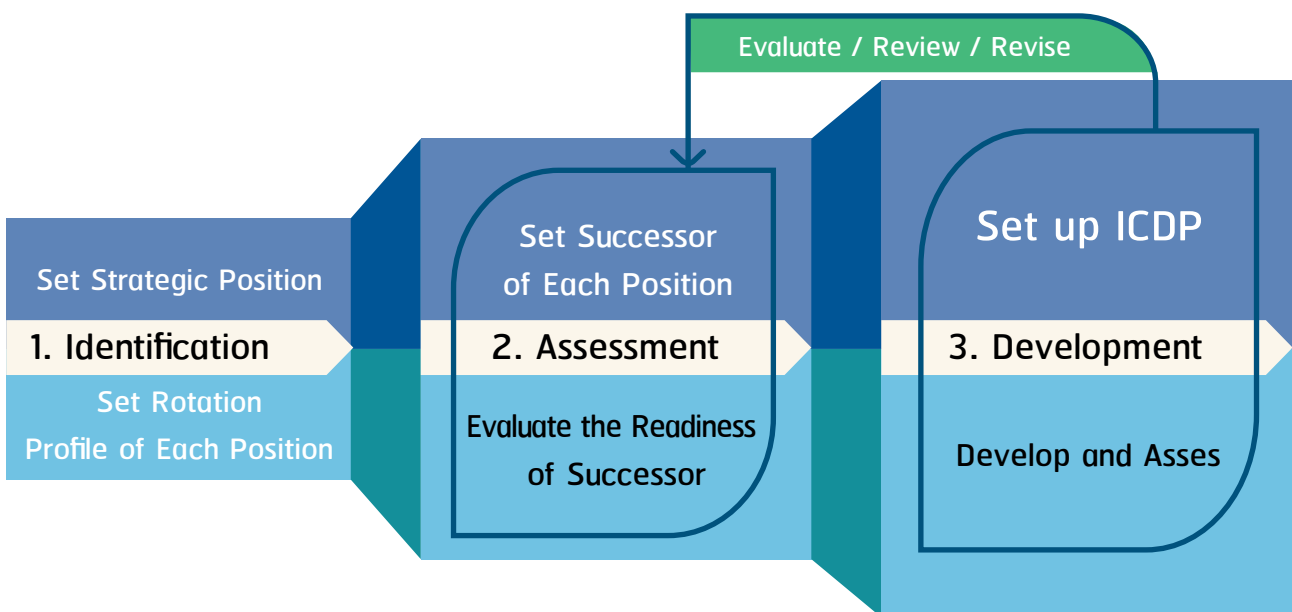
1. If the position is "vacant", it pauses business operations and creates damage to business.

2. If the position is strategically important for business and crucial for business success.

3. If the position is crucial for short and long term business expansion.

4. If the position is in high demand in labor market as it requires specific experiences, knowledge and expertise.

Succession Planning Framework



Arrange for Rotation Profile of each position

To enhance staffs' knowledge and skills for future business expansion, Mitr Phol has a position rotation policy. Once each person has assumed Strategic Position, the career path of this person is to be planned in Ladder Position format:

1. Position title in career path through target position
2. Key Result Area (KRAs) of each position
3. Key Performance Indicators (KPIs) of each position
4. Knowledge, skill and behavioral indicators of each position
5. Length of position holding in career path

Successor Arrangement of Each Position

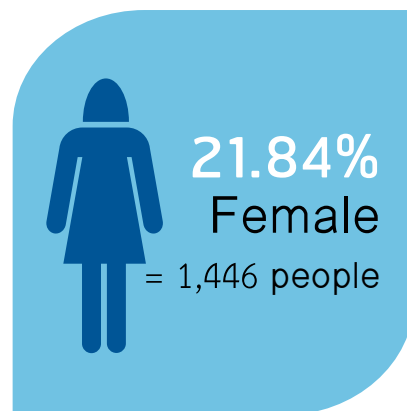
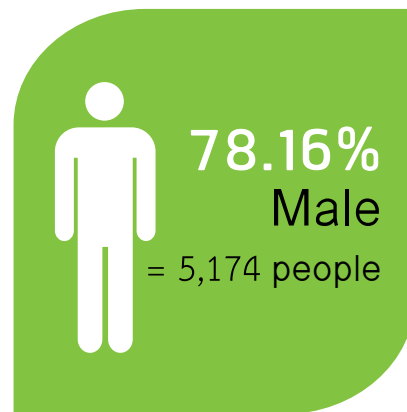
Successor for strategic position is planned, as follow:

- Every position higher than Level 12
- Level 10 especially for strategic position group, there are now 136 positions to be assessed their readiness for successor status.

Equality on the Differences

Mitr Phol group has no bias policy towards sex, religious, class, language and race as stated in our philosophy "Believe in Human Value". We believe man born equal, he/she is entitled to gain equal opportunity. Therefore, from our selecting of new staffs, providing fringe benefits to giving reasonable career path, determining criteria is based on each individual knowledge, attitude and job description without any double standard at all.

Our 6,620 workforce (as of January 1, 2014) both full time and part time staffs can be divided into :



As Mitr Phol's business characteristic is a heavy agricultural industry, the percentage of male is higher than female naturally. The ratio of work force demand in professionals – electrician, mechanical, electronic, technique, engineer and agriculture – are higher than back office professionals, such as accountant, marketing, administration. Therefore, the ratio of male staffs is higher than female.

As far as human rights issue is concerned, Mitr Phol group treats labor issues according to Labor Law and the Thai Labour Standard 8001 (TLS 8001). We have bio-safety management system and 18001 Occupational Health and Safety (OHSAS 18001) in every factory. We set procedure for working with contract farmers and contractors to prevent the use of child labors and any forms of forced labors in both factory and cane field.

Since Thailand has been classified as Tier 2 Watch List in the US Department of State's Trafficking in Person (TIP) Report for 5 product categories – shrimp, fish, clothing, pornography and sugarcane, realizing the importance and seriousness of this issue, Mitr Phol Group has raised its priority to tackle this problem. The policy on "Do not promote and support the use of child labors and forced labor in both factory and sugarcane field' was announced. Plan and working procedures were also announced to prevent and monitor the situation.



Besides, Mitr Phol Group has mechanized its farming practices to alleviate labor shortage problem, cut cost and enhance efficiency. However, Mitr Phol is committed to moving sugarcane from Tier 2 Watch List to Tier 1 and finally off the list. We are committed to improve Thai cane and sugar industry image in the international eyes.



Environmental Preservation

Today, several areas on earth have been affected by natural disaster, for example, global climate changing which causes drought and unusual weather pattern.

It can be seen that public and private agencies have recently joined hands to solve this increasingly serious global environment problem to ease the effects on people. Industrial sector, on one hand, is important for every country economy. On the other hand, it is the sector that pollutes the earth the most. Despite the fact that it is difficult for manufacturing producers to completely avoid

releasing waste, however, we can help reduce the amount of released wastes by applying better management system.

As one of industrial producer, Mitr Phol Group realizes the importance of preserving environment in sustainable term according to our 58 years philosophy “Grow Together”. We have also laid the ground work on environmental management under ISO 14001 which is recognized internationally to ensure our works are environmentally friendly.

On environmental issue, Mitr Phol Group working procedure starts from formulating clear environmental management policy. We then make a practical operation plan, implement the plan, monitor work progress, review and keep continually improving our practices. We organize environmental management system, review meeting at least once a year to follow up works progress and share some new ideas among our team to improve our system. The meeting quorum consists of Committee on Environmental Management System – executives, factory directors and environmental officials. Discussion topics include

- Environmental manual and policy review
- Work progress reporting
- Report on environmental management monitoring system
- Report on external communications and environmental complaints
- Report on environmental monitoring plan
- Report on monitoring and legal evaluation
- Report on target achievement
- Report on preventive measures
- Discussion of legal and other related regulations changes
- Discussion on improvement measures
- Report on environmental training

Structure of Environmental Management System Committee

1. Group Vice President – Factory
2. Chairman of Committee on Factory Environmental Management System and factory director
3. Representative of executives
4. Assistant to representative of executives
5. Factory Committee on Environmental Management System

Mitr Phol's environmental policy is announced for all staffs acknowledgement and the public. Scope of policy includes

- Control, Preventive, Remedy Measures for Waste Water System in the Factory
- Control, Preventive, Remedy Measures for Air Pollution
- Control, Preventive, Remedy Measures for Noise Pollution
- Control, Preventive, Remedy Measures for Cane Transportation and Traffic Management
- Control, Preventive, Remedy Measures for Soil Contamination
- Proper Energy and Natural Resources Uses



Control, Preventive, Remedy Measures for Waste Water System in the Factory

Mitr Phol conducts business on eco-industrial basis which emphasizes on proper use of resources, preserve natural water resources. Our sugar mills apply systemically measures for water resources preservation and waste water treatment, as follow:

1. Separate waste water into 3 categories

Low dirty water water from staffs' accommodation

High dirty water waste water from production process or septic ponds

Specific treatment water salt water from resin washing

2. Waste water is transferred to treatment system for reuse by

Low dirty water is treated at Constructed Wetland, then transferred back to pond for gardening use and the pond can be a habitat for water animal and birds

High dirty water is treated at Stabilization Pond. Waste water is transferred to vacuum pond, semi-vacuum pond, air pond, water clarifier pond and final treatment pond. Processed water can be used in cane field or sprayed on bagasses or cane truck queueing at parking lot to minimize dust.

Specific treatment water is treated by Brine Recovery System which is a salt separation technique. Salt can be reused later.

Water Treatment and Rotation for Future Uses

Factories	Condensate (cu.m.)	Waste water from machine cleaning / production process (cu.m.)
MP	500,000	720,000
MPK	540,000	600,000
MKS	500,000	500,000
SB	38,400	-
MPV	467,429	516,876
MPL	300,000	120,000
Total	1,540,000	1,836,876

For reuse in the factory

For agricultural purpose

Apart from the above systematic water treatment, we found the efficient way to use water, for example:

- **Water from Cycle Cleaning System for Filter Refining** water used in filter refining cleaning, which is one of refined sugar production processes, is silted before transferring to clarifier pond before use again in raw sugar melting process. This system reduces factory water use by 25% and waste water by 25%.

- **Increase Water Reserve Project** hot water received from sugar production process is treated in the clarification pond to adjust pH to a normal level before sending to the pond, the water is to be rotated for general use in the factory. This project reduces the use of natural water and increases water reserve by 25%.

Following the regulation, dirty water is limited to 20 milligram/liter. Mitr Phol's factories forbid the release of waste water (Zero Discharge) by using it in the factories' cane field.

Investment on Water and Smell Treatment

Factories	Item	Budget (M baht)
MPK	4 air pumps	1.60
	COD Measurement	0.06
	Cleaned pond and increased depth level in the vacuum pond (Pond 1)	1.815
MKS	Installed water pump and electrical system at normal pond and waste water pond	2.18
	4 air pumps in waste water treatment pond	1.60
	Replaced broken salt water pipe	2.42
	Cleaned the sediments at treatment pond 1	0.6
MPV	Installed CloseSystem Treatment (UASB)	68
	Cleaned vacuum pond 1	2,03
	Designed and improved wet land system	0.4
	Transformed 80 rai pond into clarification pond	0.090
MPL	Sum pond at bagasses pile	0.42
	Dig salt water pond and pipe	0.62
	3 water pumps	1.50
	Dig 32,000 m3 flowing pond	1.12
	Constructed concrete water drainage furrow at phase 1/3	1.09
MP	Adjusted the factory's water rotating system and cane field water connecting system	25.87
SB	Installed water pump (to enhance waste water treatment pond)	0.3
	Installed water wheel at the pond in front of the factory (landscape improvement)	0.03
	Installed 8"x4 meter pumping pipe (for pumping water from furrow)	0.0045
	Landscape improvement + installed 30 meters condensed pond edge to prevent erosion	0.4
Total		109.7

Control, Preventive, Remedy Measures for Air Pollution

Dust from bagasse is another environmental problem that needs proper management. Mitr Phol's sugar mills have measures to contain dust from bagasses pile. Actually, bagasse is the main fuel for bio electricity generation. Our measures include :

Control of Emission from chimney

- Installed 3 dirt filtering devices – Multi Cyclone, Wet Scrubber and Mikrovane – to filtering dirt before releasing to the air.
- Enhanced the filtering system regularly and use Zeal Maintenance program to assist the system.

The dirt filtering systems installed are high capacity. Emission from the chimneys has 50 – 70% less total suspended particles as stated by law (Standard total suspended particles for cogeneration plant is not over 120 mg/m3).

Dirt Filtering System

Factories	Item	Dirt Filtering System
MPK	Stack Boiler 31 & 33	Multicyclone + Wet Scrubber
	Stack Boiler 32 & 34	Multicyclone + Wet Scrubber
	Stack Boiler 11	Venturi Wet Scrubber
	Stack Boiler 12	Venturi Wet Scrubber
MKS	Stack Boiler 1, 36	Mikro vane
	Stack Boiler 7	ESP
MP	Stack Boiler 37	Wet Scrubber
SB	Stack Boiler 1, 2, 3	Wet Scrubber
MPV	Stack Boiler 1 and 2	ESP
	Stack Boiler 3, 4, 5 and 6	Wet Scrubber
MPL	Stack Boiler 1, 2, 3	Wet Scrubber

Investment and Maintenance of Dirt Filtering System (Bagasse and Air Released)

Factories	Item	Budget (m Baht)
MPK	Canvas to cover bagasses pile	2.0
	Dirt filtering for bagasses transfer	6.0
MKS	Installed net around bagasses pile	8.0
	Installed 1 set of Mikro Vane	16.0
MP	1 water spray truck	0.65
	Installed 3 sets of Wear Plate (Liner Plate) in Wet	1.605
	Scrubber Boiler 37	
SB	Dirt Measurement Machine	0.070
	Improved bagasses net	0.315
	Improved canvas for bagasses pile cover	0.043
	Improved net around spray pond	1.220
MPV	Improved ESP dirt filtering system	8.0
	Improved bagasses' dirt filtering system	155.06
MPL	Installed net around bagasses pile	2.60
	Installed water spray at bagasses pile	2.10
Total		201.105

Bagasses Pile Dirt Management

- Multi Cyclone, Wet Planted high trees as wind barrier to prevent dirt spilling around
- Installed net to prevent dirt's emanation
- Installed water spraying system to spray water on bagasses pile
- Installed canvas to cover bagasses pile

Since we had started these measures in 2006, the dirt measurement result has been better than standard set by law (reduced to 0.04 – 0.02 mg/m³ level while the environmental law limits the Total Suspended Particulate to not over 0.33 mg/m³)

Control, Preventive, Remedy Measures for Noise Pollution

Noise pollution is another problem facing most industries especially manufacturing section. Without proper preventive measures, noise pollution can deteriorate health for both factory's staffs and people in neighboring communities.

Realizing the effect of noise pollution, Mitr Phol Group has issued several measures to cope with this problem. Preventive process begins from the assessment of noise origin, then measures are designed as follow:

- Applied sound insulate on machine
- Equipped the machine with sound preventive gear
- Grown trees to absorb sound and improved factory's landscape
- Reduced noise pollution by plan for appropriate machine running

After these measures have been implemented, noise level was constantly measured every 6 month and 1 year in nearby communities to improve our works and to ensure noise pollution is not causing harmful effect to people.

Statistic shows that noise level of factory's generator has gradually decreased since 2002 from 94.5 dB to 90.3 dB in 2006.

Investment on Noise Prevention

Factories	Item	Budget (m Baht)
MPK	Hearing Conservation Project	50,000
MKS	PPE equipment	20,000
MP	-	-
SB	-	-
MPV	-	-
MPL	Installed Silencer	500,000
Total		570,000

| Cane Transportation and Traffic Management

Measures to prevent dirt caused by cane trucks

1. Assign in-charge persons and clear communication channel for coordination on allocating spray truck to work on areas with dirt problem around factory.

2. Sign contract with cane trucks and provide punishing details in case the driver drives carelessly and speedily when passing communities. If people inform factory the license plate number of the truck, assigned person will inform the truck owner to solve problem and the owner may get fined from their deposit at the end of crushing season.

3. If there are dirt on cane transferring areas, assigned person will arrange for truck to spray water.

Preventive Measures on Falling Cane while Transporting

1. Put label or poster informing our Call Center as communication channel to solve this problem

2. Campaign on how to arrange and carry cane on the truck to truck contractors and cane growers via brochure and local radio stations.

3. Divide areas of responsibility based on cane promotion areas to head of each area for budget allocation.





Investment on Cane Transportation and Traffic Management

Factories	Item	Budget (THB)
MPK	Collect falling cane	50,000
	Driver fee	72,000
MKS	Water spraying truck	100,000
	Collect falling cane	60,000
MP	Campaigning safety program on 40,000 red cloth on cane trucks	247,000
SB	Perdium for Police officers and collect falling cane	350,000
MPV	Hire cane collecting truck	250,000
	Support Municipal office on cane falling management	48,000
MP	Cane collecting management	270,000
	Accident preventive program	120,000
Total		1,567,000

Control, Preventive, Remedy Measures for Soil Contamination

As Mitr Phol is an agricultural industry business, preserving soil resource is another conscious topic we care and has over the years developed special program. For instance :

Project on using filter cake for soil improvement we arranged cane grower meetings and used PR label on cane truck to introduce the knowledge on the benefits of using filter cake on soil improvement. Filter cake applied to soil is not only increasing cane yield but also reducing the use of chemical fertilizer.



Project on Soil Improvement by Growing Fertilizer Crop. We arranged meetings with cane growers who participate in the project by distributing them the seeds of fertilizer crop. We also worked with local Land Development Office on organizing mobile bio-based soil improvement exhibition.

It can be said that introducing farmers on bio-based soil improvement techniques helps reduce chemical fertilizers use significantly as shown in our database. Besides, farmers are inclined to notion and conscious on growing quality cane and preserving natural resources.

Proper Energy and Natural Resources Uses

Mitr Phol realizes the effective utilization of resources, we then explore ways to reuse waste and byproducts, as follows:

1. **Bagasse** left over from sugar production is transferred to use as fuel in boiler to produce steam and power the generator to produce electricity.

Producing bio-electricity of our group is run by Mitr Phol Bio Power (Dan Chang) Co., Ltd. and Mitr Phol Bio Power (Phu Khieo). Electricity produced is sent to sugar production process. The rest is sold to Electricity Generating Authority of Thailand (EGAT).

2. **Filter Cake** is the residue of crushed cane and filtering process. Filter cake is distributed to cane grower for soil improvement. This is a cycle "From Field...To Field".

3. **Molasses** is separated during centrifuging process. Molasses is a raw material for ethanol production. Ethanol is blended with gasoline to produce gasohol, another clean renewable energy.

Investing in the extended business of cane and sugar does not only creates a "Zero Waste" production cycle, but also supports the Ministry of Energy's renewable policy.

Mitr Phol Group's Works to Cope with Climate Change

Global warming is a problem that the society gives priority and tries to find way to solve in both regional and country levels. Mitr Phol is another organization that takes part in this fight against global climate changing. We initiated several projects, as follows:

1. Campaigning for Fresh Cane Cutting

When the crushing season starts, cane burning seems a usual phenomenon, especially in the central region. Cane burning emits Carbon Dioxide and green house gas to earth atmosphere. Cane growers usually burns cane out of the local labor shortage problem. They can't manage to send cane to the mill on time. Migrated labors don't like to cut fresh cane as it is a time consuming work and they get paid by weight. Besides, cutting fresh cane is costlier. Cane harvester is not yet widely used due to its high cost and its inability to cut in the small cane field. Though these are acceptable reasons, leaving the situation goes out of control might shorten Thai cane growing career. Cane burning

destroys cane field ecosystem and community. Burning cane kills organic ingredients in soil which has nutrients necessary for living plants. It also dries the soil and cuts necessary insects life cycle.

Mitr Phol realizes the effect of cane burning, we then, encourage cane growers to refrain from burning cane by providing more income for fresh cane. We together with other government agencies took over 10 years to campaign for cane growers to abandon cane burning habits.





Among our measures are:

- Provide comparative education lesson on plowing cane leaves on the field to increase organic ingredients instead of using chemical fertilizer. Leaving cane leaves on the field helps keep soil moisture and prevents weeds from growing.
- Provide money and special rewards for growers who send fresh/ beautiful cane to the factory. Fresh cane receives 70 Baht extra per ton according to the Resolution on Burn Cane Deduction issued by the Cane and Sugar Board. Money left from this purpose is to be used for cane growers' welfare fund.
- Burn cane is deducted 20 Baht per ton.
- Promote cane harvester use by charging service fee of 150 Baht per ton.
- Divide field into small parts for fire barrier purpose. (minimize damage)
- The mill supports fire truck in case there is cane burning in the communities.

These measures reduce green house gas emission and Carbon Dioxide, it also reduce growers' production cost, especially fertilizer and pest control chemical. Importantly, it preserves ecosystem for sustainable agriculture which is one of Thailand most important careers.

Apart from the above measures, Mitr Phol Bio Power (Dan Chang) Co., Ltd., our bio-mass power producer, has plan to purchase cane's top and leaves from growers who are not intending to dismantling cane stumps, rainfed and waterfed canes. The top and leaves are to be used as fuel for electricity producing. This method helps lessen cane burning and cane growers will get around 600 Baht per ton for top and leaves. In 2013, the company bought 18,000 tons of this unused cane.

According to Thailand's cane field survey statistic, last year Mitr Phol Sugar Mill at Dan Chang had the highest ratio of fresh cane among mills in our group.

(from 2012/13 Sugar Production Report of Office of Cane and Sugar Board)



2. Campaign on Energy Saving

From the short supply of world's natural resources which poses serious affect on human being and environment, Mitr Phol has reviewed energy saving measures as we are industrial manufacturer. Many initiatives originate from our own people. They are working on program to enhance energy saving techniques and efficient use for head office, production line and works with communities and growers.

1
ปิดไฟ
ในช่วงเวลาพักเที่ยง
และปิดไฟดวงที่ไม่ใช้งานแล้ว
(ปิดไฟที่ไม่ใช้งานบนชุดดาว ช่วงเวลาพักเที่ยง
ซึ่งมีหลาย ที่เราสามารถช่วยกันได้)

2
คอมพิวเตอร์
COMPUTERS
ปิดเครื่องคอมพิวเตอร์
หลังเลิกงาน
ปิดจอภาพ
ในเวลาพักเที่ยง
หรือขณะที่ไม่ใช้งาน
เกินกว่า 15 นาที

3 Printer
ตรวจทาน
ความถูกต้อง
ก่อนพิมพ์
✓ ปิดเครื่องพิมพ์ผลเมื่อไม่ใช้งาน
✓ ใช้กระดาษใช้แล้ว 1 หน้า
(Reused Paper)
✓ ใช้การส่ง E-Mail
โดยไม่จำเป็นต้องพิมพ์
ออกมาเป็นเอกสาร

4 เครื่องโทรสาร
Facsimile Machine
ใช้การส่ง E-Mail
แทนการพิมพ์
ออกมาเป็นเอกสาร
✓ ปิดเครื่องโทรสารทุกครั้ง
ก่อนนำกระดาษใช้แล้ว 1 หน้า
(Reused Paper) มาใช้เพื่อลด
ปริมาณการใช้กระดาษ
✓ ใช้ E-Mail ซึ่งสามารถส่งข้อมูล
ในรูปแบบไฟล์ที่ขจัด Word Processing
ชนิด Spread Sheet และ แบบ
Graphic แทนการพิมพ์ออกมา
เป็นเอกสาร

2.1 Head Office and Factory Office Energy Saving Measures

- Paper for Tree Project**

There was a public relations campaign for staff to use both sides of paper, then donated the paper to Paper for Tree Foundation for recycle.

- Use Natural Light and Switch Off Project**

There was a campaign for staff to use natural light during work by opening curtain, switch off light in some deserted areas and turn off monitor screen during lunch break.

- Installing Energy Saving Switch Project**

Light can be turned on in specific area rather than using one main board switch for all working area.

- No More Paper Project**

There is a campaign to scan document and store in computers instead of photo-copying.

2.2 Energy Saving Program with Cane Growers

- Replace Backhoe Engine**

Replaced engine from fuel-based to electricity-based

- Improve Cane Transportation Process**

Campaigned for cane growers to grow cane around Cane Transferring Station to reduce small scale growers transportation time and reduce fuel uses.

- Field Survey**

At Mitr Lao in Lao PDR, horse is used instead of motor vehicle for field survey. It is 100% saving of fuel.



Electricity Saving Project

Factories	Item	Budget (M Baht)	Saving (M Baht)
MPK	Improve Power Factor in MCC Electric System	0.16	0.138
	Reduce Loss in Transformer	0.25	0.648
	Reduce light in warehouse by using LED	1.9	0.163
MKS	Reduce electricity use by Inverter	1.2	1.353
	Insulate 7 boilers	1.6	-
MP	Improve electric system in 3 centrifugaling (change wire and use Inverter)	6	-
	Change 2 Planetary Gear	5	-
SB	Energy Saving for the Country Activities	-	-
MPV	Energy Saving Project		11.01
MPL	Transfer PEA electricity using to factory's own electricity	-	4.3
	Use energy saving bulb (T5)	-	0.415
Total		16.11	18.027

3. Production Process Improvement for Energy Saving Project

Several energy and resources saving projects are initiated by our staff, for example:

- **Using biomass for electricity generating for factory use**

Bagasses left over from sugar production are used as fuel to generate electricity for sale to EGAT and internal uses.

- **Improve boiler system**

Installed Pan Automation system in boiler helped save boiling time and reduced water used in the process.

- **Install agitator in crystallization**

Installed agitators in two crystallizations to enhance sugar turning efficiency reduced water use and boiling time. It saved steam and bagasses.

- **Rotating stream use in production process**

Hot stream from sugar production process was cooled down and reused at 7,150 ton/year, reducing fuel use significantly.

- **Improve sugar storage in the factory**

Moving melting process line to warehouse reduced sugar transportation cost by truck.

- **Insulated boiler, improve electricity system and machineries**

Production process improvement in our factories as well as the management practices under ISO 14001 system led to our sugar products – Natural Mineral Sugar, Refined Sugar, Super Refined Sugar and Rock Sugar – being awarded “Carbon Label” on Production Process Category in 2009 by Thailand Environment Institute and Thailand Greenhouse Gas Management Organization. Both have evaluated our greenhouse gas emission reduction of more than 10% from 2005 to 2009. Lately in 2012, our new product Mitr Phol Syrup also received Carbon Label. These are examples of our dedication to environmental preservation.



4. Participation in Natural Resources Restoration

Mitr Phol Group has campaigned for staff to create natural restoration programs, for example :

4.1 Velvet Tamarind Planting Project

We realize the importance role of big tree as it has high ability to absorb water and moisturize soil surface which leads to sustainable existence ecosystem. The project was therefore initiated by starting from campaigning cane growers in the factory's 100 km radius to grow Velvet Tamarind in the empty areas. Factory was responsible for distributing the plant sprouts and introducing proper caring advices.

Not only the planting project increased communities green areas, it also helped ensure the richness of ecosystem. It helped add extra incomes for growers as our biomass plant was buying the plant to use as fuel.

4.2 Increase Greenery Zone

We campaigned for planting perennial plants, flowers and greenery plants – Teak, Pine, Indian Cork, Acacia Mangium Wild, etc. around the factory and nearby communities to absorb pollution and create beautiful landscape. Our target from 2007 to 2012 was 31,000 plants.

4.3 Improve Sugarcane Field with Bio-Techniques

Mitr Phol group campaigned for cane growers to manage their fields by bio-techniques to ensure the richness of ecosystem which ultimately led to sustainable agriculture. Our examples include:

- **Campaign for Fresh Cane Cutting**

As cane burning emits Carbon Dioxide and green house gas to earth atmosphere, Mitr Phol Group has campaigned to reduce cane burning as it destroys cane field ecosystem and community well-being. Burning cane is killing organic ingredients on the soil which is rich in nutrients necessary for



living plants. It dries the soil and cuts necessary in sects live cycle.

- **Campaign for Covering Soil with Cane Leaves**

We stimulated growers to leave cane leaves in the fields as it increases soil nutrients, preserve moisture and prevents weeds growth. This could also reduce chemical fertilizer use and reduce cost of growing cane.

- **Campaign on Disease and Pest Control by Bio-Method**

Our R&D people released Trichogramma Confusum, Cotesia Flavipes and Bracon Hebetor insects to cane fields. These two insects will destroy sugarcane Borers' eggs and stop its life cycle. Our R&D team also developed way to use green fungus to eliminate StemBoring Brup which has caused substantial damages to sugarcane in most parts of Thailand.

Apart from saving our field cost – fertilizer and chemical pesticides, these bio-control methods helps ensure the richness of ecosystem.





Consumer Issues

In today's world where customers' demand and taste keep changing, Mitr Phol Group has constantly researched and developed new products to serve their needs. We emphasize on product diversity to give more choices to all group of customers. We classify our products by their qualification, as follows:

1. **Sugar for food and beverage** – refined sugar and syrup
2. **Sugar for professional consumers** – rock sugar, brown sugar and paste sugar
3. **Scented sugar** – Mitr Phol Gold sugar, coffee sugar, Mitte Syrup (Caramel, Vanilla and Hazelnut scents)
4. **Ready to use sugar** – Mitr Phol Stick Sugar, Bottled and Packed Syrup
5. **Healthy sugar** – Mitr Phol Calorie

Our product development procedure starts from concept forming for new product. We consider different customers demands in both usage and packaging. We then develop marketing strategy

to match product's characteristics and analyze business strength and weakness before producing product prototype. We test the market reaction and trend of the product, package and concept. Every aspect of the product has to be completely satisfied, then we launch the product in the market both domestic and international.

Mitr Phol Group gives particular care to every production step to ensure the product under "Mitr Phol" brand is up to international standard and quality. For this reason, Mitr Phol Group becomes the world's leading sugar producer and exporter. Our products are well accepted among leading Food and Beverage industries and consumers.

Mitr Phol Low Carbon Sugar: Consumers' Green Alternative

To satisfy customers and to conduct business ethically, Mitr Phol has developed code of conduct for “Marketing Policy” which stresses on high quality services and delivery of good products to customers. Lately, we have strived to move to “Low Carbon Society”, we have designed path to reduce greenhouse gas emission, especially in our sugar production process. We have joined “Carbon Label” and “Carbon Footprint” projects of Thailand Environment Institute and Greenhouse Gas Management Organization. So far, six Mitr Phol products have been awarded Low Carbon and Greenhouse Gas Reduction. The six products are refined sugar and super refined sugar, Mitr Phol Gold mineral sugar, natural cane sugar, brown sugar, rock sugar and syrup products. Mitr Phol Gold is the first Thai sugar to be awarded Carbon Label, it implies that our mineral sugar’s production



process passed greenhouse gas evaluation at less than 10% for the past 5 years. Moreover, Mitr Phol Gold is also the first Thai sugar product that received Carbon Footprint Certification with the recorded greenhouse gas emission of 261 gram per product unit. This shows Mitr Phol’s will to take responsible towards society by extend the less carbon emission program throughout our products’ life cycle, starting from raw material sourcing, producing, packaging, transporting and waste management. Yet, Mitr Phol continuously carries this mission to have all products awarded Carbon Footprint Label.

Mitr Phol is another green choice for consumers to consider when choosing environmentally friendly products. Apart from reducing greenhouse gas emission to ease global climate problem and preserve environment indirectly, Mitr Phol group firmly walks this path to be “The Leading Sugar Company with Low Carbon Emission”.

น้ำตาลมิตรพล เราให้คุณมากกว่า

น้ำตาลรายแรกของไทยที่ได้รับฉลากลดคาร์บอน*
 สัญลักษณ์ลดการปล่อยก๊าซเรือนกระจก
 จากกระบวนการผลิต เพื่อช่วยลดภาวะโลกร้อน

*ฉลากลดคาร์บอน ประเภทพิจารณากระบวนการผลิต
 รับรองโดยองค์การบริหารจัดการก๊าซเรือนกระจก-สถาบันสิ่งแวดล้อมไทย

**อีกหนึ่งความมุ่งมั่นในการดูแลสิ่งแวดล้อม
 เพื่อโลกของเราทุกคน**



Sustainable Community Development



Since our business directly affects cane growers and neighboring communities, so called the actual stakeholders of the business, we have been working our path on “[Grow Together](#)” concept with growers and communities for the past 58 years. Our organization has adjusted business vision from leader of cane and sugar industry to “[World’s Leading Sugar and Bio Energy Company](#)”, and inevitably become more related to communities.

Creating stable and sustainable career for cane growers and people in the nearby communities is what we have been working on since the establishment in 1956. We sent cane promoting officers to introduce cane growing career to people, we provided production factors, yield increasing technology and fund. Besides, we organized workshop for practical cane growing lesson including agricultural machinery operation to create expertise for them.

In 1997, Mitr Phol group has established [Mitr Phol Cane and Sugar Research Co., Ltd.](#) to drive organization forward sustainably. The decision was like an important gearwheel for cane field management developments with varieties in development such as soil quality improvement, efficient watering techniques, disease and pest research, suitable cane growing technology and harvesting. From this path and the dedicated works of our Cane Working Group, our cane field management is among the most efficient and worth the investment. In 2002, Mitr Phol group initiated “[Mitr Phol’s Yield Increasing Villages](#)” with the cooperation of Local Cane SubCommittee. Share-learning technique was applied for participants both growers and related people to encourage the realization of actual problems facing cane growing of growers in different areas. Concluded problems were later analyzed to find joint-resolutions as well as select appropriate cane production technology

that was suitable for the problem. As a result, cane growers were able to increase cane yield per rai from 7 – 8 ton to 10 – 15 ton, their profit margin increased more than 3,000 – 5,000 baht per rai. Nowadays, there are over 376 villages joining the project in 6 Mitr Phol sugar factories' cane promotion zone of over 200,000 rais.

Since Mitr Phol Cane and Sugar Research Co., Ltd. was established, our group has developed several beneficial projects for Thai cane growers, especially growers potential enhancing that focused on knowledge and expertise development. Technology and innovation were introduced to cane growers to increase yield, reduce cost and increase their profit.

One of Mitr Phol R&D outstanding agriculture innovations is a device for white leaf disease prevention “[White Leaf Disease Checking Kit](#)”. It was a co–project with National Center for Genetic Engineering and BioTechnology (BIOTEC). The kit is user–friendly, checking White Leaf Disease on cane buds is easy. This disease's characteristics are rather unique. The symptom is slowly appearing, cane growers usually ignore this. Controlling the widespread is also difficult because carrier is an insect. There is no disease–resistant cane variety so far. The contagious situation is usually serious and in a wide areas, causing big damage. However, with this wonderful kit, growers can check for the disease before planting cane buds. It is a good way to prevent disease contagious. In 2008, Mir Phol R&D has registered White Leaf Disease Checking Kit for a copyright patent together with BIOTEC. Cane growers so far have used over 70,000 kit for disease checking.

In 2008, Mitr Phol R&D has developed effective and comfortable tools for cane growers out of the inspiration from Cane Cutters Ways of Life research which stated that 60% of them were women and 95% of their tools were cane cutting knives with bicycle's wheel innertube wrapped around knives hilt. Mitr Phol R&D and Mahidol

University has then developed synthetic rubber for hilt, the new product helped preserve hands, reduced weary, resisted to sweat and had long working life. Besides, Mitr Phol R&D and National Science and Technology Development Agency (NSTDA) have joined hands to produce “Phuvieng Knife” with flexible metal, sharp and durable. The knife was so popular among cane cutters. In 2008, the order for Phuvieng Knife reached 50,000 pieces. However, since the price of steel has increased during the past years, producers ceased to produce due to the rising cost.

The Sugarcane Information Management System (SIMS) is the information technology produced by Mitr Phol R&D with the integration of three technologies – high resolution satellite pictures, Geographic Information System (GIS) and Global Position System (GPS). SIMS is used to collect cane fields information which saved field surveying time. SIMS has ability to process big database with less time and precise result. The system collects important information from cane growers one by one ranges from cane varieties, soil quality, fertilizer use, water management, harvesting, transporting and factory production performance. All databases are useful for yield increasing analysis. We call this “Yield Gap Analysis”. With SIMS capacity, Cane Work Group could analyze complex information effectively. Each area's grower names are divided by size of cane field, field characteristics, irrigation system, time of growing, etc. Data is later processed to compare key success factor, usually profit margin growers receive. With in–depth information, Mitr Phol's cane staff could analyze the source and factors of yield result indicative factors of each particular area, especially in the areas where cane yield and sucrose are high. Data could be used to determine the suitable area for drip irrigation system. Record shows that drip irrigation system helps increase cane yield by 5 tons per rai, comparing with rainfed areas.



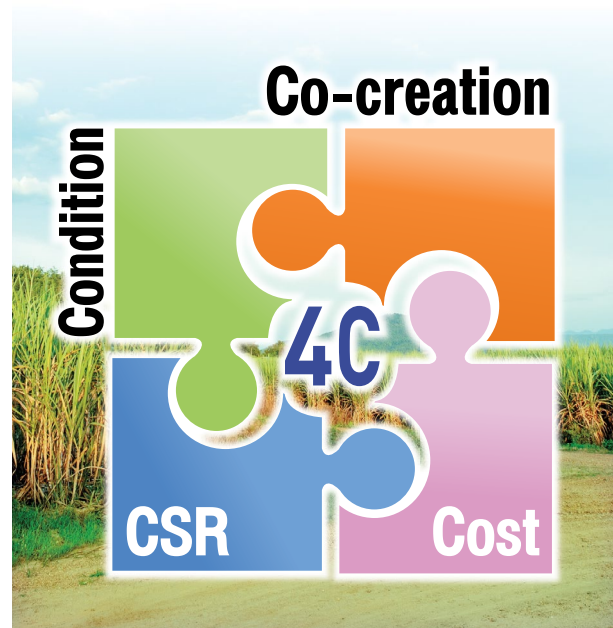


Since agriculture depends on water, it is undeniable that water is the most important resource for agriculture. However, nature is unpredictable. Drought caused by changing weather pattern is rising at alarm rate. Farmers have to have water management options. Since 2006, Mitr Phol has initiated irrigation promotion and construction project in cane areas, with the cooperation of Local Cane Sub-Committee, Bank for Agricultural and Agricultural Cooperatives (BAAC) and Office of Cane and Sugar Board (OCSB). The project aims to increase water reserves for agriculture in 60% of cane promotion areas. The areas are to be transformed to irrigation zone with the support of water user group in the community.

To promote and educate agricultural communities, there are two main factors. The first is to provide enough water reserves – pond, underwater well, connected pipe to fields, etc. The second is the efficient use of water, such as drip irrigation under or above ground. The project on connecting pipe from the village’s electricity pumping station at Ban Boriboon, Chaiyapum province, is one of the Mitr Phol’s Bringing Water to Cane Projects. Pipe is connected from the water reserve of 3 million sq.m. of water and year-round water supply for agricultural purpose. Electric pump station and high pressure pipe network of 3.500 meters long are constructed covering contracted farming areas of 1.500 rai in the first phase.

After the community has water reserve for cane growing, Mitr Phol Group has promoted and introduced effective water using techniques, particularly drip irrigation technique to growers. Mitr Phol Dan Chang sugar mill’s drip irrigation project sets target on drip irrigation promotion to 13,680 rai with 1,368 sets of drip irrigation equipments were installed. As a result, cane yield per rai reached 15 tons.

Though some areas are irrigated, the lack of knowledge in water management is another reason



for low cane yield. In 2006, Mitr Phol initiated “Mitr Phol Model Project”, a sustainable cane yield increasing development model, in Ban Lad, Phukieo, Chaiyapum province as we found that cane growers were unable to increase yield per rai though irrigation pipe had been completely constructed. Phukieo cane staff decided to survey the areas and jointly worked with cane growers to find the cause of low cane yield. They found that growers had several discouraging production factors, such as lack of knowledge on water management, unhealthy soil, inappropriate cane varieties and poor farm management. Therefore, Mitr Phol Model Project was born out of these factors. Four pillars of “Mitr Phol Model” are 1) to enhance cane yield, **proper management standards are needed** – rich soil, enough water supply, quality cane varieties, suitable harvesting time and effective pest and disease preventive measures 2) works are to be done by “Think To gether, Do It Together” basis between cane growers, Mitr Phol people and government agencies 3) **Effective Cost Management** on planning, monitoring and bidding to minimize production cost – soil improvement, soil preparation, growing, caring and harvesting 4) environmental and social responsibility have to be included in cane field management practices – chemical reduction, fresh cane cutting and less cane burning. There was 29 growers participated in



Mitr Phol Model pilot project, the areas were 265 rai, yield increased from 8 ton/rai to 17.88 ton/rai by average, cane amount increased from 2,115 tons to 4,726 tons and cane growers had additional 5 million Baht income.

Mitr Phol Model is our core cane promotion policy. The model aims to support cane growing communities with big irrigation system. [Mitr Phol Model](#), nowadays, expands to every cane promotion zones. There are now 13 communities covering 18,456 rais joining the project, namely, Ban Nong Bua Prom, Tambon Kon Thai, Phukiao District, Chaiyapum; Ban Nonjod, Tambon Nonkun, Konsan District, Chaiyapum; Ban Lad, Tambon Bankaeng, Phukiao District, Chaiyapum; Ban Don Ta Lek, Tambon Ban Kang, Phukiao District, Chaiyapum; Bannapuksian, Tambon Donklang, Konsan District, Chaiyapum; Banpakam, Tambon Boribun, Si Chompu District, Khon Kaen; Ban Nong Pai, Ban Kok Klang, Tambon Kudkwang, Nongrua District, Khon Kaen; Bankudkan–Phumulbao, Tambon Nontong, Nongrua District, Khon Kaen; Ban Klang, Tambon Lao Hi Ngam, Kuchin Narai District, Kalasin; Ban KM. 5 – 10, Tambon Nong Ma Ka Mong, Dan Chang District, Supanburi; Ban Dong Uthong, Tambon Nong Makamong, Dan Chang District, Suphanburi; and Ban Nong Tao Tong, Tambon Nong Rachawat, Ban Bunlang, Nong Yasai, Nong Yasai District, Suphanburi.



Cane growers efficiency enhancement with knowledge, skills and expertise won't happen without the cooperation from "Local Wisdom Man" and "Role Model Cane grower". Both are playing crucial role in transferring local cane growing know-how to other cane growers. Therefore, the leadership skill and social status enhancement for local wisdom man is another way of promoting cane growers potential.

[Sompong Wanwinai](#) is one of the example in Mitr Phol cane promoting zone in Phukieo District, Chaiyapum. Under the concept "High Yield, Low Cost, Big Profit", Sompong, self-learner, has studied and started management innovation. He is a self-improving man. Sompong has succeeded the yield level of 25 tons/rai. Besides, he could keep ratoon for 8 crops cycle. Sompong is an acceptable cane growing leader. He finally won "[The Second place for 2008 National Outstanding Farmer: Farming Category](#)".

In 2009, Mitr Phol Group has extended its technology transfer project to growers in different cane promotion areas, especially in the North East under the name “[MixTechnology Transfer Project](#)” with the aim to increase cane yield. The project principally is designed to bring new technology to cane growing areas, build cane growing village and create exceptional farmer. It also aims to build confidence and academic example for cane growers. The company hopes cane growers could adapt new technology to their farming practices to increase cane yield. The project was warmly welcomed from cane promotion section and Mitr Phol R&D as well as cane growers and local authorities. The project is intensively conducted, we usually invited experts from each field to be a speaker. Topics range from varieties selection (soil and weather matching), soil improvement (leaving the leaves to cover soil surface), agricultural machineries (plowing, harvesting, watering, irrigation system, disease and pest control and cane field business management). Cane growers, in the end, could know how to save cost and maximize profits.

The success index of “[MixTechnology Transfer Project](#)” is measured by degree of acceptance of technology and knowledge on the farming practices as well as cane yield per rai. Under the project, cane growers are divided into 3 groups:

1) [Model Growers](#): Adapting knowledge from different fields and agricultural technology on their farming in an intensive level. The target for cane yield is 30 tons/rai for new growing crop and 15 tons/rai for ratoon crop.

2) [Network Growers](#): The target for new growing crop is 20 tons/rai and 12 tons/rai for ratoon crop.

3) [Expanding Growers](#): 15 tons/rai for new growing crop and 10 tons/rais for ratoon crop.

The latter 2 groups have lower degree of knowledge and technology adapting. The project length is around 3 years and it is a model project for other Mitr Phol’s mills in the center part of the country to follow.

To enhance cane growers and cane grower communities’ potential, Mitr Phol Group has establish “[Cane Transfer Sub-Station](#)” in the communities to build opportunity for small-scale growers to earn more incomes. They are encouraged to use family labor to save labor cost. They could use their small vehicles for cane transportation to our Sub-Station. Since the small-scale growers send cane directly to Mitr Phol’s Sub-Station, they will receive fair cane price. Sub-Station is a way to facilitate cane transfer for small-scale cane growers as small vehicles have more mobility than big trucks. Besides, it is comfortable for them and it reduces the chance of accident. In 2008, 50 Sub-Stations were established in all our cane contracting areas. [From cost comparison analysis, it is found that small-scale growers who sent cane via Sub-Station could save around 175 Baht/ton compared to sending directly to mill.](#)

Mitr Phol Group hopes to enhance community’s potential by raising living standard of cane growers by supporting yield and quality increasing practices as well as cost reduction for them. Our growers earn more profit as stated in our 5 decades concept “[Grow Together](#)”. Our cane grower friends have multiplied in number year by year.



Mitr Phol's Brave Youth Project

Mitr Phol Group has the determination to develop cane growing career as the sustainable occupation for the communities and the nation. We believe cane can turn the country's economy as it is a raw material for energy and it is a starting substance for bio-plastic production. More importantly, it is an environmentally-friendly industry (reduce greenhouse gas emission). Therefore, choosing cane growing career as a main occupation for family and community gives Mitr Phol opportunity to develop sugar and other extended businesses. However, cane growers' attitude, particularly the youth, has changed over the years. Most of the new generations tend to choose working in the industrial and service sectors rather than agricultural sector. It is our concern on the continuation of cane growing career. This could lead to the falling of competitive advantage of Thai cane, sugar and bio-energy industries and the nation's economy in the end.

Mitr Phol's initiative of the Brave Youth Project is merely a foundation building for cane and sugar industry development. Under the project, we provide knowledge and lesson for cane growing, it also includes education lessons for local youth from age 13 – 15 years who are growers' children, factory staffs' children on related industries development. We organized a camp and factories visit. Our staffs play the role of big brothers and give the youth information on production process and environmental management in the factories. Besides, useful knowledge on environment preservation, good consumption practices and scientific thinking are added to our program.

The Brave Youth Project has kicked off since 2006 with total participants of 1,500 kids. Apart from lesson on sustainable cane growing career and related businesses development, we have

changed the kids' attitude on cane growing. They started to accept that this career created sizable income for the family. There is no need to leave their homeland to find works in other areas. More importantly, they felt thankful for their parent's dedication to cane growing career.

In 2008, Mitr Phol Group has initiated one of our proudest projects "Path to Cane Millionaire". The beginning of this project came from the fact that average age of cane growers nowadays is 50 – 60 years old. It is clear that within 10 – 20 years, without the new generation cane growers, the number of them will shrink significantly. It is fair to say that value believed by many parents on providing higher education for their children for better working future rather than having to work hard in the field like them is still prevalent. However, some growers are quite successful at their careers and quite wealthy. This group of successful growers realized this trend, they then started consult with Mitr Phol on how to solve the possible shortage of growers problem. Therefore, the Path to Cane Millionaire was born.

Under this program, we select growers' children who are still high school and university students to join. We open their world and adjust their attitude and advise them on study and career selection. We focus on educating them on the value and dignity of their parent's cane growing career. Cane growing is definitely a sustainable job and generating sizable money. The program curriculum includes the miracle of sugarcane, revenue sharing system of cane and sugar industry, future of Thai cane and sugar industry, sugar production process, bio-energy, modern cane field management with machineries and science and technology for yield improvement. From our experience, students

tended to pay attention to agricultural machineries as they believed it is the solution to the future labor shortage problem. Other topic of interest among the participants was the story of professional cane growers who made 10 million Baht per annum.

Besides, students had the opportunity to exchange ideas and attitudes with graduate and postgraduate students who came back to cane growing career and finally became millionaire cane growers. So far, Mitr Phol has trained 5 classes of Path to Cane Millionaire students, with a total of 222 students. From our feedback survey, 37 of them come back to cane growing careers, 6 are working on their own businesses and 179 of them are still studying. During holidays or school break, the students come back to help their parents with farm works which never happened before. Response from parents was good so far. They appreciated Mitr Phol works. They are now happy to see their kids doing farm works. It is such an inspiration.

Besides, Mitr Phol took part in the support for sustainable community development, especially [the education's support and promotion](#). Our contribution to this endeavor included giving scholarships, building community libraries, handing necessary school and sport stuffs, refurbishing children playground, providing knowledge for youth and handing funds for community activities (on a request basis).

In 2010, [Mitr Phu Viang Sugar Mill](#) initiated a knowledge-sharing program with 100,000 Baht budget. The activities included making biological fermentation and training on information and communication technology to 180 community leaders. The factory executive also handed 150,000 Baht worth scholarships to neighboring communities.

[Mitr Phol Singburi Sugar Mill](#) organized a Computer for Brother project. The factory held computer training class for 60 students from nearby communities. They also donated education equipments to 11 schools in Singburi and Lopburi provinces. The project on primary school's communication room was formed to help 22 schools in Singburi and Lopburi provinces. They formed children and youth parliament to created new youth leader. The overall budget for these projects was 25,080,000 Baht and there were 100 participated students.

[Mitr Phu Kieo Sugar Mill](#), opened for education institutes to come and learn Mitr Phol's businesses. Factory visit program on sugar and energy businesses was opened for 500 interested students. The factory handed scholarship worth 30,000 Baht to unfortunate students.

[Mitr Phu Luang Sugar Mill](#) initiated cane growing learning center with 31,000 Baht budget at Selai Withayakom school, a secondary school near the factory.

[Mitr Phol Dan Chang Sugar Mill](#) organized back yard gardening project to educate youth living in nearby communities on how to grow clean vegetables and fruits. 40 students participated in this 30,000 Baht budget project.

[Economy and Career Promotion for Community Project](#) was initiated by the cooperation between Mitr Phu Viang and nearby communities. The project focused on bio-fertilizer development and self-sufficient micro community enterprise to reduce expense and generate more income for families. The project drew around 50 participants with operating budget of 50,000 Baht.

[Mitr Phol Singburi Sugar Mill](#) organized biological alkaline water. There were over 150 people joining. The operation budget was 5,000 Baht.





Mitr Kalasin Sugar Mill held Mushroom Cultivation House Project to generate incomes to communities. 150 people joined this project with 60,000 Baht budget to run.

Mitr Phu Luang organized crop transferring project by turning unsuitable rice paddy into cane field. Over 150 farmers joined this 50,000 Baht project. The mill also donated 48,000 Baht worth of traffic control equipments, traffic light, etc. to Wang Sapung Police Station and Kok Kamin Subdistrict Administration Organization.

Besides, Mitr Phol Group has continuously supported local culture activities, such as present robes to monks at the end of Buddhist Lent and during off season, Songkran merit making, etc. In 2013, Mitr Phu Viang Sugar Mill organized 20,000 Baht worth to Mitr Phu Viang's Good Children, Good Thinking Project to promote ethical thinking for the youth living around the factory. The mill also donated 1,447,999 Baht for annual Buddhist Lent merit making for temples and schools preservation and an other 50,000 Baht for cultural activities – Loy Kratong, Children Day, New Year's day and Song Kran festival.

[Mitr Phol Singburi Sugar Mill](#) organized annual Buddhist Lent merit making and donated 900,000 Baht and another 50,000 Baht for cultural activities – Loy Kratong, Children Day, New Year's day and Song Kran festival.

[Mitr Phu Luang Sugar Mill](#) organized annual Buddhist Lent merit making and donated 959,999 Baht and another 50,000 Baht for cultural activities – Loy Kratong, Children Day, New Year's day and Song Kran festival.

[Mitr Phol Dan Chang Sugar Mill](#) organized annual Buddhist Lent merit making and donated 1,459,999 Baht and another 50,000 Baht for cultural activities – Loy Kratong, Children Day, New Year's day and Song Kran festival.

[Mitr Kalasin Sugar Mill](#) organized annual Buddhist Lent merit making and donated 1,247,999 Baht and another 50,000 Baht for cultural activities – Loy Kratong, Children Day, New Year's day and Song Kran festival.

[Mitr Phol Singburi Sugar Mill](#) organized annual Buddhist Lent merit making and donated 1,203,819 Baht and another 90,000 Baht for cultural activities – Loy Kratong, Children Day, New Year's day and Song Kran festival.

[For health care services in nearby communities](#), Mitr Phol Group has supported medical and health care services, as follows:

[Mitr Phu Luang Sugar Mill](#) donated 2,000 Baht for clean water system development project to provide enough clean water to communities. The mill also donated 4,000 Baht to organized football match to promote sport activities to draw youth away from drug.

[Mitr Phol Dan Chang Sugar Mill](#) spent 40,000 Baht on health check program for nearby communities.

[Mitr Phu Kieo Sugar Mill](#) organized drinking water improvement project worth 150,000 Baht for 4 schools in Tambon Kok Saad. The mill also donated 70,000 Baht to support sport activities to draw youth away from drugs. Besides, 1,600,000 Baht was donated for hospital's patient ward construction at Chaiyapum hospital.

Since cane growers and nearby communities are the main stakeholders of Mitr Phol's business, any investment or business operations has to pass [risk assessment to community](#) before fully operate. Mitr Phol opens for community to share their views as it is an active way to help ease potential disputes. Mitr Phu Viang held public hearing session with villagers on sugar production expansion and co-generation plant construction. Yet, Mitr Phol Group arranged for different channels of communication with farmers. For example, Mitr Kalasin and academics from Khon Kaen University organized 5 km radius community seminar to hear problems, ideas and advises of people in the communities. Academics acted like a middle man to listen to problem and possible effects from factory. Tripartite Committee on Cooperation among local authorities, communities and Mitr Phol is another communication channel to communities. Joint allocation of budget was arranged to fund project for communities – [Brave Youth for Environment Development Project](#) – held at Pa Na Kam temple, Kuchinarai district, Kalasin province. Informal communication with communities can be done by visiting the community and hearing their concern or talking with villages on cane growing techniques. Activities in 2013 included:

[Mitr Phu Viang](#) organized Around Fence around Home Project to build cordial relationship and provide environment knowledge to nearby communities. About 150 people joined this 50,000 Baht project. The mill donated 100,000 Baht to Electricity Fund to build good understanding.



Donated 100,000 Baht for Tripartite Committee (government, community and factory) to forge good relationship and ease concern on environment. The mill allocated 100,000 Baht budget for factory visit program for communities with the aim to provide better understanding and reduce environment concern.

Besides, Mitr Phol Group has supported staffs of each factory to conduct **Public Mind Activities** for community development. In 2013, activities included

Mitr Phol Singburi Sugar Mill allocated 100,000 Baht to organize staffs volunteer for community development. Another 50,000 Baht was spent on school playground repairing.

Mitr Phu Kiao staffs and communities refurbished temple with the budget of 200,000 Baht.

Mitr Phu Luang Sugar Mill staffs repaired road and water ditch in Tambon Kok Kamin communities with 15,000 Baht budget.

Mitr Phol Dan Chang Sugar Mill officials organized 70,000 Baht for public mind activity by repairing roads and temples around the factory.

Since 2012, Mitr Phol Group and Khon Kaen University's Research and Development Institute have upgraded Cane Yield Increasing Village Project to **Sustainable Community Development Project** to "enhance living conditions of cane growers and communities members" on economic, social, natural resources, health and moral for a happy, strong and sustainable community. The pilot projects were launched in 6 provinces namely Khon Kaen, Roi-ed, Chaiyapum, Loei, Saraburi and Suphanburi. It was pleased to state that 1,589 families joined this project. Project's activities for community and live quality development were

1. "Core Community Leaders Development".

Mitr Phol, Khon Kaen Univeristy, Ubonratchathani Rajabhat University joined hands in organizing work shop on "Core Community Leaders Development" to train leaders on role, responsibility and better understanding of community development as well as skills on community management. These leaders are the engine that drives community development works. They work and coordinate with community leaders, people in the community and other concerned parties to strengthen communities. The workshop was attended by 37 leaders from 6 communities.

2. "Education Development".

Mitr Phol and representatives from communities, schools, Primary Educational Service Area, Sub-district Administrative Organization jointly organized "Teacher Development Workshop" to provide new teaching skill and knowledge. "Local Career Curriculum Development" program was created to equip children with community's way of live, culture and career options, 6 local schools participated in the project. "Community ICT Center" was established to be a data and researching center for community members. "Community Children Education Fund" was also established. Each year Mitr Phol provided 30 – 40 million Baht scholarships for "Under-privileged School Children".



3. **“Income Increases, Cost Cuts”**. The project is to focus on income increasing derived from skills and expertise development. Income could come from main job or additional job. Members are encouraged to cut their expenses. **“Cane Yield Increasing and Cost Cutting”** program was created to educate growers on cane growing techniques, irrigation system development, machineries operation, group management for cost reduction, etc. **“Income Expense Accounting”** was taught to let members learn how to manage monthly income and expense of the families. After members knew how to make family’s account, activities on income generating and expense cutting were created, such as growing for eating, mushroom growing, frog and fish farming, cattle, handicraft, soap making and alternative energy. After 862 family members joining this project, it was reported that over 5,000 Baht was added to each member families monthly incomes.

4. **“Healthy Goes Happy”**. Mitr Phol Group, Tumbon Health Promoting Hospital and Local Administrative Agency jointly promoted health care information on diseases, healthy food, nutrition and exercise. Healthy eating behaviors were introduced for better health and better economy. **“Annual health check, clean food cooking, herbal medicine, Community Welfare Fund and water filtering system”** were all promoted. Since 2008, 30 water filtering machines have been donated to schools and communities.

5. **“Child and Youth Development”**. Mitr Phol Group and Port Authority of Thailand’s Futsal team organized **“Futsal Clinic”** to teach children on futsal’s skills. Sport is always a mean to draw youth from drugs. In 2013, 450 youth joined the **“Brother Teaches Brother”** project. Mitr Phol staff and community’s youth conducted public mind activities – tutoring and homework coaching – for kids in the areas. **“Do Good for Adult”** activity was organized to promote youth to join public mind activities – community cleaning and garbage bank. Mitr Phol Group together with Office of the Non–

Formal Education and Vocational Schools staged **“supporting youth who couldn’t make it to compulsory education to complete the required course to finish their education”** activity to give those unfortunate youth the opportunity to return to school and complete their education. Job training was also held to equip these youth necessary skills to enter workforce.

From our tireless contributions to society during the past years, we have been recognized by several agencies and been giving several awards. In 2011, Mitr Phol Singburi Sugar Mill was awarded an organization with CSR activities from Ministry of Social Development and Human Security. In 2012, Mitr Phol Phu Luang Sugar Mill was awarded White Factory from the Department of Labour Protection and Welfare. Mitr Kalasin Sugar Mill won NACC INTEGRITY AWARD 2012 and every mill won Moral Congress Awards on Public Mind Creation by DSR from Moral Assembly. In 2013, all mills won CSR–DIW Award from Department of Industrial Works and Green Meeting Awards from Thailand Environment Institute. We also won Green Industry Award Level 3 from Ministry of Industry. Mitr Kalasin Sugar Mill won Social Responsibility Academic Cooperation Award from Ministry of Social Development and Human Security. Mitr Phu Luang Sugar Mill won Supporting Police Activities Award from Loei Provincial Police office. Mitr Phol Dan Chang Sugar Mill and Mitr Phu Vieng won Outstanding Enterprise on Labor Relations and Welfare for 5 consecutive years from Department of Labour Welfare and Social Development. Mitr Phol Dan Chang received certificate on Environmentally–Friendly Production from Ministry of Natural Resources and Environment. Mitr Phol Dan Chang Sugar Mill and Mitr Phol Singburi Sugar Mill won Good Governance Awards from Ministry of Labour. Mitr Kalasin Sugar Mill and Mitr Phol Dan Chang Sugar Mill won Outstanding Good Governance Awards on Transparency and Accountability from the National Anti–Corruption Commission.



Among our Proud Awards



Domestic Awards

- 2012 Superbrands Thailand Award (Mitr Phol's brand sugar produce)
- 2011 Corporate Social Responsibility Award, Department of Industrial Works)
- 2011 ICT for Society Award
- 2011 Cane Loves the World Award
- 2011 MAT Award from Marketing Association of Thailand
- Outstanding Sugar Factory Awards in 2010 and 2011
- 2010 EIA Monitoring Awards (Outstanding)
- 2010 Outstanding Good Corporate Governance
- 2010 Outstanding Industry on Logistics
- 2009 National Social Innovation Awards (Second Best)
- Outstanding on Information Technology Management for Change Awards for 2009 and 2008
- 2009 Outstanding Labour Relations and Welfare Award
- 2006 Chamber of Commerce Outstanding Ethical Factory
- 2005 Outstanding Industry on Quality Management

International Awards

- 2013 Asia Responsible Entrepreneurship Awards (AREA) on Social Empowerment
- 2011 ASEAN Business Award on CSR
- 2011 Geospatial Excellence Award
- 2011 ASEAN Energy Award
- 2011 Thailand Energy Award
- 2009 Green Excellence Award (Frost & Sullivan)
- 2008 ASEAN Most Admired Business in Corporate Social Responsibility
- ASEAN Energy Awards for 2004 and 2005

Conclusion

This sustainable report collects all information on corporate social responsibility covering issues related to organization's stakeholders in numerous dimensions, namely corporate governance and business ethics, human rights and labor practices, environmental protection, consumer protection and sustainable community development. Since this report is Mitr Phol first CSR publication, information in this report derives from our CSR pilot projects initiated several years ago. Some information, for example, statistics on waste water treatment of our factories based on 2013 figures. All information is traceable.

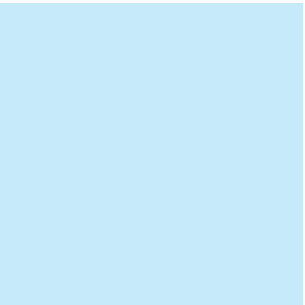
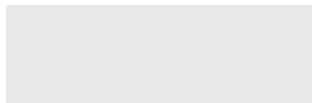
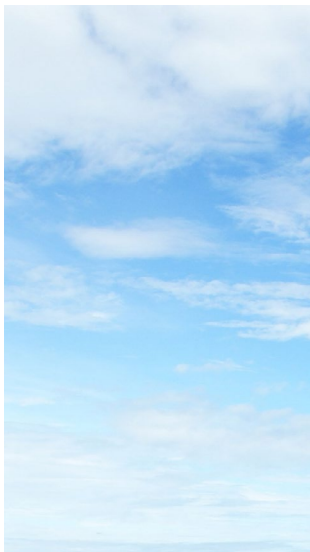
The path of business on “Grow Together” philosophy which leads to sustainable status requires methodology to transfer this philosophy from generation to generation. Priority should be given to the transfer of organization culture. In 2013, Mitr Phol Group has initiated way to promote five Mitr Phol Cultures which are Excellence, Integrity, Trustworthiness, Innovation and Care & Accountability. It can be said that driving the said cultures is the preaching of “Mitr Phol people” to be indoctrinated in the same direction. Our people are taught on how to manage and work in each situation. **Caring and social responsibility** is one of the important keys to drive the organization to the status of sustainable growth in parallel with social and national development. The 3 core practices are

- 1) Develop cane growers, communities and society
- 2) Caring the environment
- 3) Put oneself in someone else's shoe

Information gathered in this report could be used to

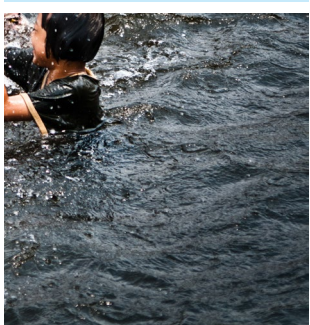
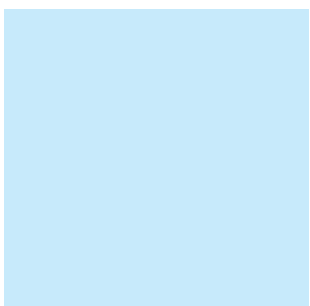
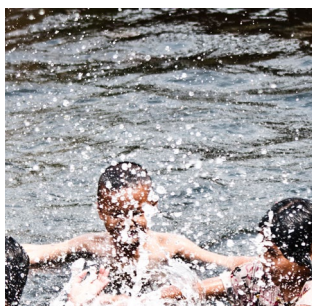
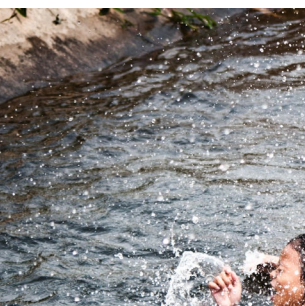
compare Mitr Phol's conducting of business with social responsibility. Of course, there are many areas that need to be improved in the following years. Every part of our organizations has to integrate social responsibility concept to their work details for the highest benefits of stakeholders. And certainly, the practices should be a good example for corporate society.





Support Information

- Sugar Business
- Renew Energy Business
- Wood-Substitute Materials Business
- Mitr Phol Group's Head Office



สร้างคุณค่า...สร้างอนาคต



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