



FAO-NEDAC Regional Workshop on
“Role of agricultural cooperatives in biofuel
development at community-level for rural food and
livelihood security”

5-7 July, 2007
Pattaya-Bangkok, Thailand

**FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO)
REGIONAL OFFICE FOR ASIA AND THE OFFICE**

**NETWORK FOR DEVELOPMENT OF AGRICULTURAL COOPERATIVES IN ASIA
AND THE PACIFIC (NEDAC)**

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I. INTRODUCTION

1. Senior government officials, cooperative leaders and experts on biofuels from China, India, Malaysia, Philippines and Thailand met in Pattaya, Thailand on 5 and 6 July 2007 to discuss how agricultural cooperatives can take advantage of the growing opportunities in biofuel development in Asia. The regional workshop titled “Role of agricultural cooperatives in biofuel development at community-level for rural food and livelihood security” was organized by NEDAC under a Letter of Agreement with the FAO Regional Office for Asia and the Pacific.

Major objectives

2. The major objectives of the workshop were:
 - (i) To share information on national and local experiences in development of biofuels at community level, with a focus on enabling policies, regulations, financial incentives, access to technologies, public-private sector partnership in programmes/projects and role of rural SMEs/agricultural cooperatives.
 - (ii) To identify potential and capacity building needs for effective participation of agricultural cooperative enterprises in cost-effective and sustainable development of biofuel products and services at affordable prices for small farmers and other rural poor.
 - (iii) To identify advocacy and networking strategies at national, subregional and regional level for promoting development of biofuel products and services by rural SME's/agricultural cooperatives in Asian developing countries.
 - (iv) To make recommendations for follow-up by FAO, NEDAC, Governments, UN agencies, the Cooperative Movement, NGOs/expert/financial institutions.

Attendance

3. The workshop was attended by 12 participants from NEDAC member organizations in five countries (China, India, Malaysia, Philippines and Thailand). Invitees from Nepal and Sri Lanka were unable to attend.

4. Mr. Mongkalut Pukkanud, Chairman, CLT (Thailand) and Mr. Wit Pratuckchai, Executive Director, CLT participated in the inauguration of the workshop. A welcome speech was delivered by the CLT President. Mr G.H. Amin, President NCUI (India) was also present. Assoc. Prof. Dr. Sombat Chinawong of Thailand's Kasetsart University, a leading national expert on *jatropha*, Mr. Songsil Thongsit, Manager Khongsamakhee Agricultural Cooperative, Nakhonratchasima Province and Mrs Duangduen Kattiyante, Manager Wiangsa Agricultural Cooperative in Nan Province were among the participants from Thailand. Mr Wim Polman, Rural Development Officer, FAO RAP provided technical assistance to the workshop. Mr. Simmathiri Appanah, FAO National Forest Programme Advisor (Asia-Pacific) facilitated the discussions and Mr. Conrado Heruela, UNDP Technical Adviser on Renewable Energy assisted as a resource person. Mr W.I. Khan, Programme Advisor, NEDAC coordinated the proceedings, assisted by Mr M. Uniyal as rapporteur of the workshop. The programme of the workshop is at Annex I and the list of participants at Annex II.

Opening Session

5. Mr. Mongkalut Pukkanud, Chairman, CLT welcomed the participants and thanked FAO and NEDAC for giving CLT the honour of hosting the workshop on this important topic. He invited the participants to visit Thailand's first Energy Expo on the topic "Alternative Energy, the Energy of the Future" at the CLT campus in Bangkok during 6–8 July. The welcome address is at Annex III.

Opening remarks by Mr P. Uma Shankar, Chairman, NEDAC

6. In his opening remarks (Annex IV), Mr. P Uma Shankar, Chairman, NEDAC and Managing Director, NCDC, India, thanked FAO for its funding support to NEDAC in organizing the workshop. He also expressed thanks on his own and NEDAC's behalf to the Government of Thailand, especially, CPD and CLT for their warm and generous hospitality.
7. He pointed out that NEDAC has organized regional seminars on relevant, topical cooperative development issues and noted that often cooperatives in the developing world were a step behind the private sector in taking up new opportunities for rural enterprise development. Accordingly, NEDAC can play a useful catalytic role in keeping the agricultural cooperative sector abreast of relevant information and recalled the excellent regional seminar on "Fair Trade" which took place in New Delhi in July 2006.
8. This regional workshop is highly relevant and has immense potential for agricultural cooperatives at a time when both developed and developing countries give high priority to reduction of their dependence on fossil fuels and are seeking alternatives in renewable energy use. From a food security point of view, developing nations cannot depend on edible oil seed crops for bioenergy, but can exploit many other sources such as trees and shrubs which can be converted into petro-diesel. However, such enterprises need to be on a larger scale as primary cooperatives lack the resources and management capacities for this type of enterprise development. Many governments including India and Thailand have already started the development of biodiesel. Sri Lanka, Bangladesh and Nepal are on the way to developing bioenergy crops.

9. However, key issues need to be addressed such as identification and development of high-yielding plant material, incentives for cultivating energy crops, development of efficient processing technologies and marketing networks reaching out to rural communities. This workshop provides an opportunity to study these issues and learn from each other's experiences.
10. He noted that primary producers of energy crops do not benefit much as middlemen and traders again corner the main profit in the market. This is where groups of primary producers and clusters of agricultural cooperatives play a valuable role. The NEDAC Chairman said that more information is needed on biofuel development by cooperatives.
11. So far governments have not offered special treatment to the cooperative sector in biofuel development as the experience in India has shown. It is important to highlight the positive role of biofuel development by cooperatives in raising rural living standards in order to ensure recognition of the cooperative sector in policy formulation on the topic.

CLT statement by Mr. Wit Pratuckchai, Executive Director, CLT

12. The Cooperative League of Thailand (CLT) is an apex, independent and non-profit organization which was established in 1968. Its membership includes more than 7 000 national cooperative federations and primary cooperatives with about 9 million individual members. Among these are 6 million small and marginal farmer members of agricultural, fisheries and land & settlement cooperatives who have been affected by the increasing prices of petroleum products. To address their concern, CLT has proposed involvement of cooperatives in the development, production and consumption of bioenergy at community level.
13. Bioenergy can be produced from palm, *jatropha* seeds, coconut, cassava, sugarcane, and used cooking oil. Agricultural cooperatives in north and northeast Thailand are being encouraged to grow *jatropha* which can form the basis of a cooperative business activity, to produce bioenergy both to meet community needs and for marketing. For this, CLT is seeking national and international-level partner organizations. A pilot project for bioenergy production by agricultural cooperatives is being launched to demonstrate a business model based on farm produce, a processing plant, and a marketing system. The expected outcomes include sustainable bio-energy production, updated research and education, food and livelihood security and a clean environment.

FAO statement by Mr Wim Polman, Rural Development Officer, FAO RAP

14. Introducing the topic of the workshop, Mr Wim Polman, Rural Development Officer in the FAO Regional Office for Asia and the Pacific, pointed out that this was the first seminar of its kind in Asia. He informed about the organizational changes in the FAO work structure which had led to the creation of the new department dealing with environment, energy and climate change with a focus on bioenergy.

15. As it promotes bioenergy, FAO is concerned about the livelihoods of small farmers and rural poor in order to avoid the mistakes of the Green Revolution where small farmers were left behind. Therefore, this regional workshop is extremely important and practical for planning and decision-making related to biofuel development. With scientific knowledge on bioenergy growing rapidly, the agricultural cooperative sector needs a clear understanding of its role in the development of bioenergy. Agricultural cooperatives in the Asia and Pacific region have to intensify collaboration on the topic not only within but also among NEDAC member countries.
16. NEDAC and FAO are strategic partners in promoting agricultural cooperative enterprise development in the region as well as in enlisting the support of other UN agencies.
17. Mr Polman presented guidelines for discussion by the two working groups to assist the participants in formulating practical recommendations and project proposals. A reader on biofuels and rural poverty reduction was distributed to the participants.

NEDAC statement by Mr W. I. Khan, Programme Advisor, NEDAC

18. Mr W. I. Khan, NEDAC Programme Advisor said the workshop was an occasion for NEDAC members to review what agricultural cooperatives can do practically to benefit small farmers through improved food and livelihood security. He encouraged the participants to develop project proposals and action plans which would involve agricultural cooperatives in biofuel development for rural food and livelihood security in the region.

II. SUMMARY OF COUNTRY PAPERS

China

19. China's energy needs are growing fast in keeping with rapid economic growth and have increased by 47 percent since 2000, making it the world's second biggest energy consumer after the United States. Fossil fuels meet 90 percent of national energy needs. Because of limited oil and natural gas resources, 50 percent of China's oil demand is met by imports and these are expected to meet 80 percent of demand within 20 years. Increased use of fossil fuels results in environmental degradation, which has an economic cost estimated to be 8 to 12 percent of the GDP annually, according to the World Bank. Air pollution is responsible for 170 000 premature deaths every year. The world's second largest emitter of greenhouse gases, China will soon be the largest.
20. Accordingly, the government is giving high priority to developing alternative energy sources, including nuclear, hydropower and bioenergy. The China Association of Rural Energy Industry has estimated a vast national potential for biomass energy with annual availability of 720 million tonnes of straw, 127 million tonnes of firewood, 130 million tonnes of livestock waste and 120 million tonnes of urban waste that are not used efficiently. The Ministry of Science and

Technology is focusing on research and development of biomass utilization technologies. The current 10th Five-Year-Plan is also focused on demonstration of applicable bio-energy technologies, including biomass gasification and electricity generation systems, making ethanol from cellulose wastes and sweet sorghum juice, and biomass fast pyrolysis. Support and cooperation is being sought with international organizations, foreign governments and experts.

21. While trying to reduce greenhouse gas emissions, China also stresses that as a developing country its first priority is “sustainable development and poverty eradication”. The strategy to reduce greenhouse gas emissions includes:
 - developing, demonstrating and popularizing efficient energy technologies
 - developing renewable energy including coal bed gas and nuclear power
 - afforestation; efficient farm water management
 - improving farm practices and restoration of degraded lands
 - strengthening scientific research and development
 - improving public awareness of climate change

Example

22. The Zhejiang Ninhai Lifeng stockbreeding cooperative in the Zhejiang east coast has an agricultural demonstration garden covering 108 *mu* and runs an organic fertilizer factory with 230 cooperative members. It uses livestock waste to produce low-cost organic fertilizer which is sold to members. The cooperative has built a marsh gas pool using livestock waste to produce gas and marsh residue. The marsh gas meets energy needs of members and the residue is used by members for poultry breeding or as a fertilizer. Each family can save 1 000 yuan every year in living and production costs. As the raw material is livestock waste and the marsh gas pool is built by members’ voluntary labour, the costs are spread with each house paying only about 100 yuan.
23. Farmers are being encouraged to use rural marsh gas with a target of 40 million rural households by 2010. Bioenergy has strategic and practical significance as effective local-level use of biomass resources to produce energy leads to rural development and natural resource conservation.

India

24. Cooperatives have played an important role in bringing about socio-economic development in rural India over the past half century. In particular, they have organized small and marginal farmers, protecting them from middlemen and supported them with farm inputs and value addition. Cooperatives have helped the nation become self-sufficient in production of food grain, milk, vegetables and fruits.
25. As the world’s fifth largest energy consumer increasingly dependent on fossil fuel imports which meet up to 75 percent of demand, India is giving high priority to developing environment-friendly alternative energy sources. Scientific studies over the past decade have identified several sources of bioenergy, including edible and non-edible vegetable oils that can be processed into biodiesel. The country’s oil and automobile industries have certified that biodiesel can be used

as a 20-percent blend with fossil oils without any modification in automobile engines.

26. The most abundant bioenergy sources are *Sal* oil, *Mahua*, *Neem* and *Pongamia*. *Jatropha Curacus* and *Pongamia Pinatta* are non-edible oil seed plants that can be cultivated on India's vast wastelands. *Jatropha* has multiple medicinal properties. It has been established that these two plants have a life of up to 50 years and start bearing fruit in the third year of planting. The fruit yield increases every year. Both plants can also yield a number of useful by-products.
27. The President of India in his address to the nation in 2005 said the country should become energy independent by 2020 by planting *jatropha* on wasteland. *Jatropha* energy plantations can also provide rural employment to a large number of people. *Jatropha* and *pongamia* crops can be cultivated on the 33 million ha of available wastelands in 23 states. It is estimated that by 2017 India can grow enough *jatropha* and *pongamia* to meet the nation's 20 percent blended biodiesel target.
28. However, India's biofuel development policy does not assign any role to cooperatives and the cooperative sector wants the national policy to give a prominent role to cooperatives in the development of biofuels at primary, secondary and tertiary levels. State governments have leased or propose to lease wasteland for *jatropha* cultivation to big private sector entities ignoring cooperatives and self-help groups.
29. Agricultural cooperatives can be more effective in promoting awareness of the economic and environmental advantages of bioenergy crops among rural people as well as arranging credit and organizing rural unemployed youth and others in self-help groups to cultivate biofuel crops, collect and transport seeds to cooperatives for processing. Cooperative societies can establish forward and backward linkages involving value- addition through by-products. Cooperatives can also be involved in leasing of unused railway land for energy plantations.
30. To ensure adequate recognition of the cooperative sector in the national biofuels policy, NCUI will consult state-level cooperative federations and follow up with relevant agencies. It will also highlight the significant role of cooperatives in the Green and White Revolutions which have made the country self-sufficient in food and milk production and contributed substantially to rural employment generation. In this context, the government will be reminded of the Presidential address which suggested involvement of rural cooperatives in the plantation, collection, storage and processing of biofuel crops as was done successfully to make the country self-sufficient in milk production.
31. Cooperatives are already involved in biofuel production in the country with 5.1 million farmer members of sugar cooperatives which produce half of the country's sugarcane, contributing to 46 percent to national sugar production and a substantial amount of molasses to produce ethanol.

Malaysia

32. The aims of the National Bio Fuel Policy are (a) to promote use of renewable energy to supplement the depleting fossil fuel supply; (b) mobilization of local resources for biofuel production; (c) tapping of local know-how to generate energy for transport and industry; (d) preparing the country for biofuel exports; and (e) stabilizing palm oil prices
33. In view of the escalating prices of petroleum products, the introduction of biofuels as an alternative source of energy is considered critical. The use of palm-based biofuels as a substitute for diesel will reduce imports of petroleum and diesel, saving foreign exchange and lowering fuel costs in the country. Biofuels developed from palm oil will also help cut down national greenhouse gas emissions.
34. The use of palm oil-based diesel substitutes will generate new market demand for palm oil, benefiting farmers by stabilizing prices of palm oil products. Production of processed palm oil can be varied according to market needs, giving flexibility in supply management.
35. Incentives are being offered to the agricultural sector. Inclusion in the list of business activities encouraged under the Promotion of Investments Act 1986 has made bio-fuel projects eligible for Pioneer Company status, offering significant exemption from income tax and Investment Tax Allowance (ITA).
36. Other initiatives to promote biofuels include establishment of the Malaysian Standard specifications for biofuel, selection of government departments that will participate in biodiesel trials using their vehicles, setting up of biofuel stations, voluntary biofuel trials in the industrial sector and a public awareness campaign. Automobile engine manufacturers will also be persuaded to extend warranties on their vehicles for the use of biofuels and legislation is planned for mandatory use of biofuels.
37. The Malaysian Standard specifications for palm oil-based methyl ester biofuels for domestic use and export will be established and the Malaysian Palm Oil Board (MPOB) will take the lead in pioneering the establishment of palm biofuel plants in Malaysia in collaboration with the private sector.

Philippines

38. The Bio Fuel Act of 2007 has stimulated interest among cooperatives in the production of various forms of biofuels like biogas from crop and livestock waste. The recent trend of low grain prices is one of the key factors encouraging them to be involved in the grain-to-fuel transformation process.
39. Agricultural cooperatives in Sanchez Mira and Tabbugan, Cagayan are using a biomass mechanical dryer/husk furnace to dry *palay*, corn and other farm products. Cooperatives in Sampaguita, Solana and Cagayan will take up development of ethanol. Cooperatives engaged in livestock fattening can also

add value through livestock processing for bio-energy production. Cooperative biofuel enterprises can also have other livelihood activities based on by-products.

40. Agricultural cooperatives in the country are engaged in a variety of business activities but have not been effective in adding value to farm commodities. Most are in the food manufacturing sector and struggling with competition, branding and market access issues. Farm cooperatives are also constrained by the fragmentation of farmland among households, necessitating consolidated and integration of cultivable land.
41. For agricultural cooperatives to play an effective role in keeping with national biofuel development goals, strategies, priorities and programmes, the following are needed:
 - mandates in the Bio Fuels Act to reinvigorate the sugar and coconut industry with the sale of biofuels to oil companies;
 - promoting agricultural growth based on biofuels;
 - optimum use of farmland for sugarcane production for ethanol projects;
 - efficient waste disposal through conversion by cogeneration plant into electric power;
 - integration of plantations and refineries to keep land and labour costs in check for low feedstock prices;
 - identification/location of new biofuel plantation areas; and
 - mobilizing local government and the private sector partners to team up with cooperatives and potential investors for agribusiness development based on biofuel production.
42. Cagayan Valley in Region 2 is a good choice for community-level biofuel development in view of its bountiful natural resources including mountain ranges, sentinel islets, forest reserves, land bridges, flora and fauna, a big river and a wide expanse of fertile agricultural land.
43. Cooperatives can be vertically or horizontally linked as part of value-chain activities for biofuel products and services. A minimum of 15 primary cooperatives can federate or integrate plantations and take up diversified farming for biofuel feedstock production. Secondary cooperatives can collect feedstock for marketing to oil companies and undertake drying activities using the husk furnace. Waste products from this can be used by primary cooperatives as farm inputs. Tertiary or regional-level cooperative federations can provide training facilities for demonstration and transfer of biofuel technologies.
44. Cooperatives are eyeing biofuel development and all resources are being readied for this. However, appropriate information, technology transfer and training demonstrations are needed to make their aspirations come true.

Thailand

45. The Cabinet Resolution of May 2005 made the ministries of agriculture and cooperatives, finance, energy and industry responsible for promoting development and use of biofuels in the country. The Ministry of Agriculture and

Cooperatives was asked to identify potential areas for expanding oil palm plantations in the southern and eastern regions; develop a pilot project to grow oil palm in the northeast and north; provide improved oil palm seeds for oil palm expansion; and to cooperate with neighboring countries to establish oil palm plantation based on contract farming.

46. The finance ministry was assigned to undertake a feasibility study for establishing a special purpose vehicle (SPV) to promote oil palm plantation and biodiesel production. The Bank for Agriculture and Agricultural Cooperatives (BAAC) was also to be involved in promoting biofuel development. The ministries of energy and industry were assigned to develop the national biodiesel strategy, determining the structure of the biodiesel plant policy in conformity with the palm plantation area to prevent cooking oil shortages and reduce logistical costs of blending with biodiesel.
47. In November 2006, a government Energy Policy Statement set the following objectives:
 - promote a campaign for energy efficiency and use of alternative energy;
 - encourage the exploration and development of internal and external energy sources;
 - setting up an appropriate energy price structure and a clear assignment of responsibilities to relevant agencies; and
 - support research and development on renewable energy.
48. A national biofuel development strategy should be based on the availability of raw materials and the economic cost of biofuel. A multi-faceted biofuel promotion strategy is needed to enhance use of renewable and next-generation energy resources, promote fuel efficiency and increase the domestic supply of conventional energy. Research and development on bio-fuel production technology as well as a carbon balance study based on biofuel crops are also national priorities.
49. The government has set a target of 10 percent substitution of diesel with biodiesel by 2012. This will require a daily production of 8.5 million litres of biodiesel from palm oil.
50. Oil palm cooperatives currently have plantations covering 77 400 ha. There are three palm oil plants with an annual capacity of 302 000 tonnes per and one biodiesel plant with a capacity of 10 tonnes per day.
51. Thailand also grows sugarcane, cassava, maize, sugar beet, rapeseed, sunflower and soybean which and can be used for biofuel production. Sugarcane and cassava are cultivated over 2 million ha, mainly in the central and northeast region.
52. The Cooperative Promotion Department (CPD) of the Ministry of Agriculture and Cooperatives will give 700 000 Baht each to 100 cooperatives for biodiesel production. Fifty of these cooperatives will buy one biodiesel producing machine at a cost of 700 000 Baht each. Each machine can produce 30 litres of biodiesel

per hour, yielding 240 litres in a working day. The machines will process jatropha into biodiesel with 4 kg of jatropha costing 12.5 Baht yielding 1 litre of biodiesel.

53. The remaining 50 cooperatives will also buy biodiesel producing machines costing 700,000 Baht each. But their raw material for biodiesel production will be used cooking oil costing 10 Baht per litre. Each machine will produce 150 litres per day.
54. Members of these biodiesel cooperatives will also be involved in jatropha cultivation and will sell the jatropha seed to the cooperatives. The project will enable members to produce biodiesel at community level for their farm machines, reducing agricultural costs and promoting self-reliance.

III. SUMMARY OF TECHNICAL PRESENTATIONS

55. Two presentations were made on the technical, economic and environmental viability of bio-fuel production at community level by rural poor organizations.
56. Dr Sombat Chinawong, Associate Professor Department of Agronomy, Faculty of Agriculture, Kasetsart University of Thailand made a presentation on a four-year-old Kasetsart University project on jatropha as a “zero waste” product for rural food and livelihood security.
57. The project has found that jatropha grows very fast, is drought resistant and gives seed all round the year with irrigation. The yield is lower in rain fed conditions, the plant is also vulnerable to pests, falling in dry conditions and not resistant to flooding.
58. Besides its known value as an energy crop, the project demonstrated that all parts of the jatropha plant have economic value – the cakes and hulls yield a good quality organic fertilizer while leaves and stem can be used as fuel. Paper and particle boards can be made from the stem and branch as well as handicraft items.
59. The project is a good model for promoting economic self-sufficiency at community level. It has designed machinery to process the various parts of jatropha into products with market value to suit different scales of production. The project has shown that jatropha can form the basis of a community-level income and employment generation programme. Different parts of the plant can provide inputs for small-scale economic activities producing organic fertilizer, fuel for electricity generation, farm machinery and local transport, construction material as well as medicinal herbs. A jatropha school started by the project offers training in the various stages of jatropha production and its processing into market-value products. More than 5 000 students have graduated from the school.
60. Conrado S Heruela, Technical Adviser, Renewable Energy, UNDP Bangkok explained the various forms of bioenergy and the technical and commercial challenges to development of bioenergy by cooperatives. Recent scientific and technological developments have made bioenergy competitive for small-scale producers and it can be used for either transport or stationary power generation.

61. Thailand is one of the countries where large-scale bioenergy technologies are being successfully used for processing farm wastes such as rice hull and bagasse. But only private entrepreneurs or large agroprocessing corporations seem to be using the technology in the country. It is now possible for cooperatives with sufficient capital and government support to venture into an entirely new biopower plant operation – integrated grain milling. For example, cooperatives in Thailand can assess existing incentives for Independent Power Producers which may help them start such businesses (Annex V).

IV. KEY ISSUES AND CONCERNS RAISED DURING PRESENTATIONS

62. The country and technical presentations and discussions following these focused on ensuring that biofuel development promotes rural food, livelihood and energy security. The technical, economic and environmental viability of biofuel development by cooperatives at community level were also discussed. The following issues and concerns were raised:
- For technical and economic viability of bioenergy enterprises, there is need for an optimum scale. For example, India has 150 oil seed varieties of which 17 are highly suitable for biofuel production and only two of these are being used, one being jatropha; only one jatropha specie has been found most suitable with the highest biofuel yield; jatropha may not have adequate genetic variety for proper breeding; in India, many claims have been made regarding biofuel crop production “which do not stand the test of field practice”.; biofuel crop breeding programmes are now exploring the use of genetically modified organisms (GMOs). Farmers need training to pick the right seed; there is need for development of suitable cultivation practices; each country will have to select the most suitable species for itself.
 - Palm oil can be a viable source of biofuel development by the industrial sector while jatropha is more suitable for biofuel development by the cooperative sector.
 - Business planning and marketing capacities of cooperatives need to be strengthened; the Internet can be used for networking on this among members in NEDAC countries. Value-chain activities in biofuel development involving cooperatives at primary, secondary and tertiary levels can be viable and sustainable, promoting local energy self-reliance and improving rural poor livelihoods; however, “single-purpose cooperatives” dealing with biofuel alone may not be viable and it might be better if cooperatives take up biofuel development as one of their livelihood-cum-marketing activities; for e.g. in India, cooperatives have long been the main sugar producers and are marketing ethanol to large oil companies as a by-product.
 - Policy contradictions in national biofuel policies which, on the one hand, emphasize mobilization of local communities but, on the other, support biofuel development by big agribusiness, for e.g. in Malaysia; some countries still heavily subsidize sale of fossil fuels leaving little incentive for biofuel development; however, in the Philippines, Chinese investors are developing 40 000 ha of agribusiness lands for cassava and sugar that will be exported

to China for ethanol production; India's national biofuel development policy has rural employment creation and poverty alleviation as one of its goals yet it envisions farmers merely as contract workers of big agribusiness owning biofuel plantations; as yet, there is no recognition of a role for cooperatives in biofuel development in India.

- In view of high levels of rural poverty and food insecurity in the region, there is need for a pro-rural poor emphasis in national biofuel policies; bioenergy offers high potential for income and employment generation for rural poor dependent upon agriculture; in Thailand, biodiesel is competitive with diesel in terms of production; a project by Kasetsart University in Thailand is successfully training farmers and rural people in cultivating, harvesting, processing and using jatropha as fuel, organic fertilizer, construction material and raw material for handicrafts; this is a practical demonstration of the localized, self-sufficient and sustainable economy development model advocated by His Majesty the King of Thailand; in Malaysia, two Farmer Area Organizations are using rice husk to produce heat energy for paddy drying before milling; yet agricultural cooperatives in Malaysia are still not envisaged as partners in biofuel development.
- Biofuel development needs new synergies in agriculture policies; need for new types of institutional collaboration and coordination in biofuel development among public agencies and with the private sector, in particular, linking up with cooperatives on research and development on jatropha; need for a "code of conduct" for large-scale agribusinesses in biofuel development to ensure for ecological sustainability and positive socio-economic impact.
- Agricultural cooperatives still have to demonstrate their ability to be competitive in commercial biofuel development; yet cooperatives have the potential for large-scale education of rural people about the advantages of biofuels in terms of livelihood improvement; cooperatives can be promoters of local energy self-reliance; energy plantation is a new concept and requires a lot of education and motivation of rural people on land use, cultivation practices, establishment of seed and plant nurseries.
- Success stories of cooperative federations In India which have established credibility in their fields are IFFCO in fertilizers, KRIBHCO in seeds and fertilizers, AMUL in dairy products and SUGAR in sugarcane; these cooperative federations are in a position to organize large-scale awareness and training activities; they can promote cooperative bioenergy plantations of jatropha and Pongamia based on sustainable cultivation practices ensuring prevention of soil depletion of nutrients, soil erosion and land degradation.
- National biofuel development policies should ensure access for small farmers to marginal and waste lands for biofuel crop cultivation based upon a multi-cropping farming system, avoiding mono-cultures.
- Collaboration needs to be enhanced among different cooperative sectors involved in biofuel development and retail so that consumers can be assured of quality.

- These concerns should be taken up by NEDAC members in their respective countries with government, relevant agencies, industry and with FAO country representations for possible technical assistance.

V. WORKING GROUP DISCUSSIONS AND RECOMMENDATIONS

63. On the second day, the participants were formed into two groups with India, Philippines and Thailand in one group and China, Malaysia and Thailand in the second group. The discussions were guided by the guidelines provided by FAO (Annex VI)
64. The recommendations of both groups were then presented to the workshop. The reports of the working groups are at Annex VII.

VI. RECOMMENDATIONS

65. The major recommendations of the workshop were on policy issues, capacity building of agricultural cooperatives and networking at national and regional level (Annex VIII). Details are as follows :

POLICY ISSUES

- Ensuring that biofuel development programmes take into account the vulnerability of small-scale farming in regard to food security and environment
- Adequate representation for the cooperative sector in national policy making bodies and policy implementation
- Review of existing laws and policies to ensure a level playing field for agricultural cooperatives (farm, forestry, fisheries and livestock)
- Ensuring incentives for bioenergy development to provide a level playing field for agricultural cooperatives
- Ensuring that R&D efforts take into account the needs and potentials of the agricultural cooperative sector
- Ensuring inclusion of agricultural cooperative enterprises in poverty reduction programmes linked to bioenergy development, in particular biofuels

CAPACITY BUILDING

- Ensuring awareness building, education and skills development for members, managers and leaders of agricultural cooperatives, as well as key partners including cooperative banks, R&D institutions, law makers, government decision-makers and energy sector partners
- Ensuring development and strengthening of institutional capacities, financial and human resources for the above

- Ensuring development of Training-of-Trainer programmes, methodologies and tools, including project formulation
- Strengthening IT capacities of agricultural cooperatives at all levels
- Promoting collaboration among training/capacity building institutions

NETWORKING

National

- Strengthening linkages between the government and the agricultural cooperative movement in promoting bioenergy policies, programmes and activities in support of rural food and livelihood security
- Developing linkages between the agricultural cooperative movement and local governments on the topic
- Developing and strengthening information sharing on experiences in biofuel development at community level for food and livelihood security among agricultural cooperatives at all levels
- Developing and strengthening linkages of agricultural cooperatives with relevant public/private partner institutions
- Developing the NEDAC Web site as an information channel for agricultural cooperatives and their partners on the topic

Subregional/regional/international

- Strengthening linkages among NEDAC members and the International Cooperative Alliance (ICA) for collaboration and advocacy
- Promoting networking of agricultural cooperatives with intergovernmental organizations – SAARC, ASEAN; others as well as UN/INGOs, funding and research agencies

VII. PRESENTATION OF WORKSHOP RECOMMENDATIONS

66. Mr P. Uma Shankar, Chairman NEDAC and Managing Director NCDC, India, presented the workshop recommendations at the celebration of the International Day of Cooperatives on 7 July, 2007 organized by CLT (Annex IX).

ANNEXES I – XII

PROGRAMME

*FAO-NEDAC Regional Workshop on “Role of Agricultural Cooperatives in Biofuel Development at Community Level for Rural Food and Livelihood Security”
5-7 July 2007, Pattaya-Bangkok, Thailand*

Date/Time	Activities	Venue
4 July 2007	Arrival of NEDAC delegates	– Suvarnabhumi Int'l Airport
14.00 hrs	– Transfer to Pattaya City by CLT/CPD of NEDAC members (own transport arrangements by UN Agencies' representatives) – Check in at Central Pattaya Hotel	– Pattaya City
18.00 hrs	Dinner	Pattaya City
5 July 2007		Central Pattaya Hotel
08.30-9.00 hrs	– Registration	
09.00-9.30 hrs	– Welcome Remarks (CLT Chairman)	
	– Opening Remarks (NEDAC Chairman)	
	– Statement by CLT	
09.30 – 10.00 hrs	Introduction of the workshop (NEDAC & FAO)	
10.00 – 10.30 hrs	Tea/Coffee	
10.30 – 13.00 hrs	Presentation of country papers	
13.00 – 14.00 hrs	Lunch	
14.00 – 17.30 hrs	Continuation of presentation of country papers & presentation of technical papers by UN Agencies, experts	
18.30 hrs	Dinner	Pattaya City
6 July 2007		Central Pattaya Hotel
09.00 – 12.30 hrs	Discussion in Working Groups	
12.30 – 13.00 hrs	Presentation of Group Reports	
13.00 – 14.00 hrs	Lunch	
14.00 – 15.00 hrs	– Presentation of draft recommendations – Adoption of Recommendations	
15.00 – 16.00 hrs	Presentation of outcome of seminar and closing	
16.30 hrs	Departure for Bangkok	
7 July 2007		
09.30 - 12.30 hrs	– Celebration of International Cooperatives Day – Presentation of Workshop recommendations – Keynote Speech, Ministry of Energy, Thailand	CLT Main Conference Hall
12.30 hrs	– Biofuel and Thailand Cooperative Products Expo – Departure of delegates	CLT Campus

LIST OF PARTICIPANTS

China

Mr. Liuyang
Rural Co-operative Economy Dept
Ministry of Agriculture
Chaoyang District, Nong Zhanguan, Nanli II
Beijing 100026
Tel: (86) 10-64193170
Fax: (86) 10-64193162
E-mail: ncjygl@agri.gov.cn

India

Mr. Bhagwati Prasad
Chief Executive
National Cooperative Union of India (NCUI)
3 Siri Institutional Area, August Kranti, Marg,
New Delhi 110016
Tel: (91-11) 2686 1988
Fax: (91-11) 2686 3248
E-mail: bhagwatiprasad47@hotmail.com

Mr. G.H. Amin
President
NCUI

Mr. P. Uma Shankar
Managing Director, NCDC & Chairman,
NEDAC,
4, Siri Institute Area, Hauz Khas
New Delhi
Tel: 011-265 10314
E-mail: pumashankar@ncdc.in

Malaysia

Mr. Chong Teik Ee
Director of Organization Supervision
Farmers' Organization Authority (FOA)
Block 'C' North Damansara Town Center
Damansara Heights, 50460
Kuala Lumpur
Tel: (603) 2094 5222, 2096, 2090
Fax: (603) 2095 4235
E-mail: chongte@lpp.gov.my

Philippines

Mr. Salaman D. Mangca
Administrator Cooperative Development
Authority (CDA)
Quezon City
Tel: 0-2373 6876/ 0-9189 05759

Thailand

Mr. Mongkalut Pukkanud
Chairman
Cooperative League of Thailand (CLT)
13 Pichai Road, Dusit
Bangkok 10300
Tel: 66-2 6693254

Mr. Wit Pratuckchai
Executive Director
CLT

Mr. Pipat Piyawongsiri
Cooperative Promotion Department (CPD)
12, Krung Kasem Road, Theves
Bangkok 10200
Tel: 66 2 2828725

Ms. Ratre Poomithanon
CPD
Tel: 66 2 628 5527
E-mail: ratree@cpd.go.th

Ms. Saovane Shoojan
CPD
Tel: 66 2 628 5515
E-mail: saovaneecpd@hotmail.com

Ms. Janruwan Jan-in
CPD
Tel: 02628 5515
E-mail: frepd@hotmail.com

Mr. Songsil Thongsit
Manager
Khongsamakkhee Agri. Co-op
99 Moo 11, Muangkhong, Khong District
Nakhonratchasima
Tel: 66 44 459025

Thailand (Contd.)

Assoc. Prof. Dr. Sombat Chinawong
Kasetsart University
(Kampaengsaen Campus)
Nakhonpathom 73140
Tel: 66-8-1880 1465
E-mail: agrsbc@yahoo.com

Mrs. Duangduen Kattiyante
Manager
Wiangsa Agricultural Coop
159 Moo 10, Ownalai, Wiangsa
Nan
Tel: 66- 54 775765

UNDP

Mr. Conrado Heruela
Technical Adviser, Renewable Energy
UNDP Bangkok
448/391 Subkaew Tower
448 Oracha-utit Road, Huay Kwang,
Bangkok 10320
Tel: (66) 8 7083 3591
E-mail: csheruela@yahoo.com

NEDAC

Mr. W. I. Khan
Programme Advisor
39, Phra-Atit Road, Phranakhon
Bangkok
Tel: (66-2) 6974336
Fax: (66-2) 697 4445
E-mail: nedac@fao.org

Ms. Suthusanee Rakpanyakaew
Secretary

FAO

Mr. Wim Polman
Rural Development Officer
39, Phra-Atit Road, Phranakhon, Bangkok
Tel: (66-2) 697 4316
Fax: (66-2)697 4445
E-mail: wim.polman@fao.org

Mr. Simmathiri Appanah
FAO National Forest Programme Advisor
(Asia-Pacific)
Tel: (66-2) 6974136
E-mail: Simmathiri.Appanah@fao.org

Mr. Mahesh Uniyal
Consultant, FAO-NEDAC
Tel: (66-2) 6974234
E-mail: mcuniyal@yahoo.com

Secretariat

Mr. Phanuwat Wanraway
Chief, International Relations Section
CLT
13 Pichai Road Dusit
Bangkok 10300
Tel: 66-2 6693254

Mr. Sarawuth Butma
Audio-visual Section
CLT

Ms. Nawarat Watthanahathai
International Relations Section
CLT

Ms. Patchanee Wiyaporn
International Relations Section
CLT

WELCOME SPEECH

FAO-NEDAC Regional Workshop on *“Role of Agricultural Cooperatives in Biofuel Development at Community Level for Rural Food and Livelihood Security”*
5-6 July 2007, Pattaya, Thailand

Mongkalut Pukkanud
Chairman, Cooperative League of Thailand

On behalf of the cooperative movement in Thailand, I have a pleasure to extend my warmly welcome to all distinguished participants of the regional workshop on ***“Role of Agricultural Cooperatives in Biofuel Development at Community Level for Rural Food and Livelihood Security”*** which will be started by now until tomorrow, here, in Pattaya City.

I also would like to extend my thankful to NEDAC in giving us the honor to host this workshop, especially, to FAO Bangkok office in providing the fund and technical support for this event. I have to say a special thanks to Mr. W. I. Khan and Mr. Wim Polman for their greatest efforts to form up this workshop.

Ladies and Gentlemen,

Agricultural cooperatives in Thailand provide real economic benefits to the farm families in rural communities and beyond making farmers economically stronger, the cooperatives make socially responsible place by promoting understanding among people through democratic business structures. Agricultural cooperatives in Thailand are functioning to provide a suitable infrastructure which can help to add value to primary producers and farmers.

It is our first time that we organize such a regional workshop on the era of the critical issue of world energy. We have to thank you for the cooperative leaders, practitioners in bio fuel development and representatives of FAO, especially the president of NEDAC, the president and executive director of NCUI, the national apex organization of India for gathering here to share with us the information on national and local experiences in development of bio fuel. We need to identify the potentials and capacity building for effective participation of agricultural cooperative enterprises in cost-effective, sustainable development of biofuel products and services at affordable prices for small farmers and other rural poor. With the conclusion of this workshop, we do hope to get your excellent idea for capacity building on the project development for promotion of biofuels by agricultural cooperatives and other rural communities in Thailand. The outcome of the workshop will also be official presented on the occasion of the 85th International Cooperative Day Celebration at CLT Conference Hall on 7 July. We also organize the first Energy Expo on ***“Alternative Energy, the Energy of the Future”*** at CLT compound in Bangkok during 6 – 8 July of which I would like to invite all of you to visit and learn how our efforts to play the roles for development of renewable energy and bio fuel in agricultural cooperatives at rural communities.

Finally, I hope all of you, especially; the international participants will have all happy stay in Thailand. Again, I would like to extend my personnel appreciation to NEDAC Executive Committee and FAO Bangkok Office for all their supports to this workshop and I would like to express and declare an official welcome to all of you to the first regional workshop of the bio fuel and cooperative movement.

Thank you and see you again in Bangkok.

OPENING REMARKS

*FAO-NEDAC Regional Workshop on “Role of Agricultural Cooperatives in Biofuel Development at Community Level for Rural Food and Livelihood Security”
5-6 July 2007, Pattaya, Thailand*

*P. Uma Shankar
Chairman, NEDAC*

Mr. Mongkalat Pukanat, Chairman Cooperative League of Thailand, Mr. G H Amin, Chairman National Cooperative Union of India, distinguished delegates from member-countries, Mr. Apanah of FAO, Mr. Conrado of UNDP, Mr. Wichien of Cooperation Promotion Department of Thailand, Mr. Bhagawati Prasad, CEO, NCUI, Mr. Wim Polman, Mr. Khan, ladies and gentlemen

I have great pleasure in being here in this regional workshop on “Role of Agricultural Cooperatives in Biofuel Development at Community Level for Rural Food and Livelihood Security”.

At the outset I would like to thank the FAO for the funding support which had made this seminar possible. I am also grateful for the Government of Thailand, especially the Cooperation Promotion Department and the Cooperative League of Thailand, for their warm and generous hospitality. Chairman, CLT, as you may be aware, is extremely busy with the preparations for the International Cooperative Day celebrations, scheduled for the 7th of this month. Notwithstanding, he has taken the time out to be here at the time of the inauguration of the workshop and is immediately thereafter returning to Bangkok. I am grateful to you for the pains you have taken to be here with this.

NEDAC has been organizing seminars on very relevant, topical issues from time to time. We are quite aware that in general, in the developing world, coops are a step behind the private sector in so far as initiatives go. It takes more time for new ideas to reach the coops, percolate down, be accepted as worthwhile and for action to begin. So if NEDAC can catalyse this process, reduce the time lag for information to reach coops, it is a useful contribution to the cause of coops. I recall vividly the excellent seminar on “Fair Trade” organized by NEDAC in Delhi last year. It definitely helped in increasing awareness, starting with me!

The present workshop to be held over two days is again very relevant and is of immense potential. The high and increasing dependence of developing countries on fossil fuel, its costs—financially and environmentally—its irreplaceable nature... all these are now fairly well understood. That alternate renewable fuels need to be developed—there is no doubt about.

Some developed countries have used edible oil seed crops. Developing countries can not afford to do this. But there are luckily many trees/shrubs bearing non-edible oil seeds growing in the wild in many developing countries which can be converted into petro-diesel like substance. This is what one is trying to exploit. These trees/shrubs occur naturally, in isolation. Cultivation of these has to be done in a big way to make available huge quantities of biomass for biodiesel production.

Many national governments have started serious consideration of biodiesel production. India aims at 20 percent blending of petro-diesel with biodiesel by 2012 and wishes to take up an ambitious programme of plantation of energy crops. Thailand has several bio-diesel making plants, including one from used cooking oil in Chiangmai. Besides, Thailand wishes to start 5 percent blending this year and complete it by 2011. Sri Lanka, Bangladesh and Nepal are all studying the feasibility of growing energy crops.

However there are a no of issues to be addressed: identification and development of high-yielding plant material, methods for quick propagation, set of agricultural practices for energy crop farming etc. Besides, incentives for growing these crops both for seed purposes and for commercial production need also to be looked at.

For processing, design and development of efficient oil expellers and trans-esterification plants of a continuous type which is of smaller capacities and affordable need to be considered. The cost of production can be reduced by allowing duty-free import of technology/machinery in the initial stages. Investment in this emerging sector may be encouraged by providing tax breaks. In these two days we hope to understand all these issues and learn from the experience of each other.

The primary producer of energy crops today doesn't, as usual, realize as much as he ought to and the middle man/trader is benefited handsomely. This is where organizing the primary producers into groups or coops will help. I don't think there has so far been an example of coops in this sector. We hope to see in our deliberations the pros and cons of organizing the farmers into cooperatives, its sustainability etc.

It could take many forms: you could have a federated structure where primaries are responsible for plantation management and collection of seed, central societies for oil extraction and state level societies for biodiesel production and marketing. This may have the advantage of high tech responsibility devolving on the apex tier where technical expertise of the requisite kind may be expected and not, say the primary society. We may also note that at this time many national governments are in the process of making policies for development of biodiesel.

This is hence an appropriate time for us to come up with our recommendations for development of the sector and involvement of coops therein. I would also like to caution that governments may not be expected to give coops any special privileges or favoured treatment. At least in the Indian context I can say that it is very unlikely. If we can show a clear advantage of coops in this sector both from the point of view of rural development and economic upliftment of the rural people involved, then policies would specifically mention using coops also as an instrument. If we have a few success stories of coops, all the better.

With these words I have great pleasure in declaring this workshop open.

Thank you for your kind attention.

TECHNICAL PRESENTATION

Assessing the potential role of cooperatives in bioenergy development

Conrado S Heruela
Technical Adviser, Renewable Energy
UNDP Bangkok

Biofuel is one component of bioenergy. Bioenergy includes also bioheating and biopower. Agricultural (and forestry) cooperatives could be involved in any business activity involving all areas of bioenergy.

In fact, cooperatives may already be involved in bioheating. Enterprises or business activities related to bioheating include sustainable production, processing, marketing and trading of fuelwood and charcoal to supply urban markets and industrial or commercial users. In some cases, cooperatives were also encouraged in the production, commercialization and marketing of improved biomass stoves. In areas where sustainable production of fuelwood trees and other biomass resources can be assured, higher petroleum fuel prices and increasing concern for climate change mean opportunities to expand such business activities targeting industrial and commercial users with greater demand for heating fuel. This is an area where many agricultural and forestry cooperatives can enter or expand their business activities.

In recent years, biopower has become increasingly competitive, including small-scale systems that can be used for off-grid or mini-grid operations. Biopower is the use of biomass to generate electricity. Earlier cogeneration technologies utilize agricultural processing wastes such as rice hull and bagasse (from sugar processing) to produce electricity and heat for the operation of rice and sugar mills. These are large and capital-intensive technologies, suitable only for cooperatives that are already operating large rice or sugar mills. Thailand is among the countries using this technology with high success, but it appears to be mostly by private entrepreneurs or large agroprocessing corporations in the country.

Recent improvements in gasifier technology that can be used with smaller scale systems now present opportunities for smaller rice mill operators and plants generating agroprocessing wastes to venture into biopower. At this scale, cooperatives, particularly those already in grain milling operations can venture into such bioenergy investment. With enough capital and government incentives, it is even possible for cooperatives to venture into an entirely new biopower plant operation – integrated grain milling. For example, cooperatives in Thailand can assess existing incentives for Independent Power Producers which may help them start such businesses.

The “rage” today is for “biofuels”, a term used for “biomass-derived liquid fuels. These can be gasoline or diesel additives or substitutes. Diesel additives/substitutes are now commonly called bio-diesel, while gasoline additives/substitutes are mainly alcohol compounds and are generally known as alcohol fuels.

The high interest in biofuel is mainly generated by its potential use in the transport sector, which represents a huge market. Biofuels can also be used in stationary engines to generate off-grid electricity, but this is seldom focused on. The thrust is on the transport sector, particularly, urban private transport. The market, therefore, is definitely huge, even if the aim is only to use bio-fuels as additives and the targets are modest – from 2 to 5 percent. Thus,

in terms of the impact on energy substitution and climate change, these are not really very significant.

Very recently, many countries, including some Asian developing nations such as China, India, Malaysia, the Philippines, and Thailand have adopted policies, laws and mandates for the expanded use of biofuels in the transport sector, although only as additives. This means that “markets” for biofuels now exist in these countries and are readily available to whoever can produce and supply the biofuels, including cooperatives.

Biofuel supply however involves several stages, and, in principle, cooperatives can participate as a business entity in all of these stages. Biodiesel production, for example, starts with the cultivation of plants from which raw vegetable oil is extracted such as palm, jatropha and coconut. The next step is the extraction of the oil from the nuts produced by these plants. Many agricultural cooperatives can be involved in this process. However, they need access and bargaining power to sell their product to whoever will buy this “crude vegetable oil”. In the Philippines, one company has already been given this mandate by the government and more are coming, many of them foreign-owned.

Cooperatives may want to get involved in the next level of processing – the esterification process. The raw vegetable oil is mixed with methanol (still mostly produced from petroleum) to produce the biodiesel. Glycerin is a by-product of the process. This is already a mature technology. This requires cooperatives to have the technical and managerial capability to operate such a processing plant and have the bargaining power to sell the biodiesel and glycerin. Their buyers will be local petroleum products companies.

The same is the “storyline” for alcohol fuel, which now is mainly produced through the fermentation/distillation process. This is also a matured technology. In fact, such processing may already be taking place in developing countries – mainly to produce beverage or medical alcohol.

Cooperatives can definitely be involved in the production of the feedstock for alcohol production such as sugarcane and corn. Getting involved in the next stage of processing and marketing alcohol fuels will require more financial inputs as well as sophisticated technical and managerial skills than what most agricultural cooperatives have.

Building such capacities and providing access to financing, which may be available in most countries, are not hard tasks for cooperatives. Regional groupings such as NEDAC, with possible assistance from IFAD and FAO can kick start the process.

GUIDELINES FOR WORKING GROUP DISCUSSIONS

Existing policy, legislative & investment, framework in support of:

- *Energy security*
- *Environment;*
- *Food & Livelihood security*

Key features & challenges

Challenges, pros & cons of agricultural cooperative involvement

Assessment criteria

- Membership participation in decision making and delivery of services
- Viable and sustainable business development
- Replicability, upscaling
- Contribution to community development

Benefits/risks in terms of food security and poverty alleviation at community level

Assessment criteria

- Improved production, productivity
- Improved income, employment
- Sustainability
- Benefit poorest (US\$1 per day)
- Socially inclusive
- Improved access to community level services

Options for agricultural cooperatives in biofuel development at community level

- Viable& sustainable enterprise dev
- Improved livelihood & food security
- Improved agricultural practices
- Improved natural resources management
- Partnership with local governments, public, private sector

Capacity building requirements of agricultural cooperatives

- Membership participation
- Skills development
- Business development
- IT capacities
- Networking
- Advocacy

Enabling policies, strategies, laws, regulations, investment in support of SMEs/agricultural cooperatives

- Pro-poor, gender-sensitive, participatory strategies, priorities
- Public, private partnership open to agricultural cooperative participation
- Financial incentives at par with private sector
- Inter-sectoral, integrated decentralized planning for food and energy security
- Supportive information and awareness building strategies
- Mobilization of suitable R&D, technology

Role of NEDAC, ICA, UN and donor agencies in support of agricultural cooperatives involvement in biofuel development aimed at community-level food security and poverty alleviation

Assessment criteria

- Priority to agricultural cooperatives
- Priority to food security, poverty alleviation
- Priority to community development
- What, where how?
- Challenges & priorities
- Collaboration with cooperative sector

WORKING GROUP REPORTS

Role of agriculture cooperatives in biofuel development at community level for rural food and livelihood security

WORKING GROUP I (India, Philippines and Thailand)

Potential

- Most Asian countries are meeting their huge demand for energy fuel through imports.
- Realization among counties that due to rising prices of crude oil internationally there is a need to find alternate sources of energy.
- Biofuel has the potential to supplement energy needs to some extent and provide an alternate source of energy.
- Sugarcane, sweet sorgum, cassava, palm oil, Jatropha, rapeseed, sunflower and Neem, Pougania piñata are major potential biofuel crops.

Policies

- Government policy to provide conducive environment for the development of biofuel and cooperatives should be recognized as an instrument of such development
- Biofuel energy be recognized as a distinct sector of the economy and specific policies should be framed for its intensive development.
- Certain areas such as transportation be reserved for blending of certain percentage of biofuel.
- Legislative support to regulate production, processing and marketing of biofuel.
- Policy support for tax-exemption in initial stage, price-support and certain incentives.

Capacity

- Outreach of cooperatives from grassroots to national level is their greatest strength.
- Agricultural cooperatives as farmers' organization can help them in production, processing and marketing.
- Agricultural cooperatives can provide credit, seeds, fertilizer, insecticides, pesticides, implements and irrigation management.
- Higher tier cooperatives can establish processing plants to produce biofuel.
- For capital investment, cooperatives can borrow from banks, government agencies or elsewhere. They can also explore the possibility of private partnership.

- Cooperatives can play a role in biofuel distribution to retail customers.

Strategies

- Identify areas for cultivation and production of biofuels, focusing on waste land.
- Small and marginal farmers and their cooperatives should be allowed to use such lands for cultivation and development.
- Agricultural diversification from mono-culture to multiple cropping.
- Farmers should be trained in cultivation, harvesting and processing of biofuels.
- Adequate arrangements for adequate supply of quality seeds.
- Timely supply credit, inputs, and technology.
- Ensure minimum support price to farmers.

Networking

- Networking through sharing of information from grassroots level to national and international level.
- Establish linkages between farmers' cooperatives, processing plants and marketing.
- Establish linkages between government, agencies, financing, research and academic institutions.
- Establish linkages with specialized expert institutions for technology transfer.

WORKING GROUP'S REPORTS (Contd.)**GROUP II** (*China, Malaysia and Thailand*)**Objectives**

- Share information – policies, regulations, finance, technologies, public-private partnership
- Identify potential roles of cooperatives; capacity building needs, participation of cooperatives
 - a. cooperative strategies
 - b. policy issues
 - c. exchange of information and experts
 - d. advocacy of network strategies

Defining market targets for agricultural cooperatives*Products*

- Biofuels – bio-oil, biodiesel, solid fuels, expeller cake for fertilizers, chemicals from glycerine
- Biopower – electricity, process/central heating
- Bioheating – cooking, process heating, space heating

WORKING GROUP'S REPORTS (Contd.)

WORKING GROUP II (Contd.)

Cooperative organization level & development objectives	Potential current and strategic roles of cooperatives	Policy initiatives/capacity-building needs/network strategies
<p>Target: <i>Community/village/town-level cooperatives</i></p> <p><u>Development objective:</u> <i>Integrated bioenergy and rural livelihood/ food security projects/programmes</i></p> <p><u>Technologies/Products</u></p> <p>a) <u>Biodiesel</u>: crude bio-oil, solid fuels, fertilizer, glycerine-based chemicals</p> <p>b) <u>Bio-alcohol</u>: ethanol feedstock, ethanol, blends, solid fuels, biogas</p> <p>c) <u>Bioheating</u>: biomass fuels, improved/modern biomass stoves (e.g.; biogas stoves, gasifier stoves) for households/enterprises, kilns, furnaces</p> <p>d) <u>Biopower</u> – Off-grid electricity</p>	<p>(1) Agricultural production of feedstock for crude bio-oil production (jatropha, palm oil, coconut oil) <u>up to</u> bio-oil extraction process</p> <p>(2) Agricultural production of feedstock for alcohol fuel production (sugarcane, cassava) <u>up to</u> operation of micro-distilleries</p> <p>(3) Agricultural, agroforestry, farm forestry production of trees/woody biomass (gliricidia, <i>ipil-ipil</i>) and processing/ marketing of solid biofuels for bioheating & biopower</p> <p>(4) Agricultural waste recovery/ processing for bioheating & biopower use</p> <p>(5) Farm-level production/ marketing of improved/ modern biomass stoves, kilns, furnaces</p> <p>(6) Farm/village-level applications of biofuels, bioheating <u>up to</u> off-grid biopower use in agriculture, agroprocessing, off-farm & service enterprises for food/livelihood security</p>	<ul style="list-style-type: none"> ▪ Analyze existing policies/laws on cooperatives to strengthen the role of cooperatives in biofuel production and remove barriers, if any ▪ Promote integration/ incorporation of provisions to strengthen role of cooperatives by providing access to training, financing and markets in forthcoming laws, policies and/or implementation guidelines for biofuel development/ commercialization ▪ Organization of data bank on biofuels and biopower technology (Web-based and multi-lingual) ▪ Awareness-building campaign among cooperatives on biofuels/biopower ▪ Training and country specific case studies on agricultural/farm production techniques for bioenergy feedstock (for both biofuels and biopower generation) feedstock (example of Thailand's Kasetsart University's one-day training course on Jatropha) ▪ Training and country-specific case studies on the management of integrated oilseed plantation/oil expeller operation facility ▪ Training on technical operation and management of mini-alcohol distilleries

Cooperative organization level & development objectives	Potential current and strategic roles of cooperatives	Policy initiatives/capacity-building needs/network strategies
<p>Target: <i>Provincial/ county/district-level cooperatives or federation of cooperatives at these levels</i></p> <p><u>Development objectives:</u> <i>integrate bioenergy development with rural livelihood, food security and <u>climate change</u> objectives (possible entry level for CDM projects, particularly bundled CDM projects)</i></p> <p><u>Products:</u></p> <p>a) <u>Biodiesel:</u> bio-oil feedstock, bio-oil, biodiesel, blends, solid fuels, fertilizer, glycerine-based chemicals</p> <p>b) <u>Bio-alcohol:</u> ethanol feedstock, ethanol, blends, biogas for bioheating/ biopower applications</p> <p>c) <u>Bioheating</u> – process heat for community-level agro-processing (drying, smoking), off-farm enterprise operations, service sector (restaurants, hotels/hostels, schools, temples, etc)</p> <p>d) <u>Biopower:</u> mini-grid electricity/ hybrids</p>	<p>(1) Agricultural production of biofuel feedstock and operation of mini-scale distilleries and esterification plants to market biofuels to petroleum products dealers/oil companies <u>up to</u> blending/ local retailing of pure and blended biofuels</p> <p>(2) Agricultural/ agroforestry/farm forestry production, processing, marketing of solid biomass fuels for bioheating applications</p> <p>(3) Agricultural/ agroforestry/farm forestry production and processing of feedstock for mini-grid biopower plants <u>up to</u> the operation/ maintenance of biopower plants including distribution/retailing of electricity</p> <p>(4) Applications of bioenergy in town, provincial, district, county-levels agricultural, agroprocessing, off-farm and service enterprises for integrated rural development</p>	<ul style="list-style-type: none"> ▪ Training on rural energy demand surveys focused on applications of biofuels and biopower, and implementation of such surveys ▪ Training/ country-specific case studies on technical and economic feasibility of bio-energy technologies ▪ Training/ country specific case studies on social and environmental assessment of bioenergy projects ▪ Training/country-specific case studies of feasibility evaluation, design and implementation of biofuels/biopower applications in agriculture, agroprocessing, off-farm and service enterprises ▪ Training/country-specific case studies on solid and liquid biofuel production, marketing and retailing business ▪ Training of financing institutions/ banks in the financial evaluation of biofuel/biopower projects

Cooperative organization level & development objectives	Potential current and strategic roles of cooperatives	Policy initiatives/capacity-building needs/network strategies
<p>National-level federation of cooperatives – <i>integrated with rural livelihood, food security, climate change and <u>energy security</u></i></p> <p><u>Products:</u></p> <p>Overall programme direction, support and advisory services</p>	<p>(1) Overseeing coordination and integration of bioenergy activities, projects and programmes implemented by cooperatives operating at various levels – priority to widening awareness, deepening understanding and local capacity building for “full bioenergy fuel cycle”</p> <p>(2) Policy analysis, dialogue and advocacy</p> <p>(3) Inter-sectoral coordination/linkages with energy, agriculture, forestry, environment, industry, and financing sectors</p> <p>(4) Overall programme formulation, direction-setting, monitoring and assessment</p> <p>(5) Monitoring of biofuel prices and other relevant economic, financial and market data</p> <p>(6) Technical, financial, economic, management advisory and assistance services</p>	

RECOMMENDATIONS OF FAO-NEDAC REGIONAL WORKSHOP

“ROLE OF AGRICULTURAL COOPERATIVES IN BIOFUEL DEVELOPMENT AT COMMUNITY-LEVEL FOR RURAL FOOD AND LIVELIHOOD SECURITY”

5-6 July 2007, Pattaya, Thailand

- Considering the opportunities offered by the bioenergy sector for small farmers' and rural producers' cooperatives in the region
- Recognizing the key role of agricultural cooperatives in promoting food and livelihood security as member-owned grassroots organization of small farmers and rural poor
- Having reviewed existing national policies, legislation and bioenergy initiatives

This workshop recommends:

POLICY

- Ensuring that biofuel development programmes take into account the vulnerability of small-scale farming in regard to food security and environment
- Adequate representation for the cooperative sector in national policy making bodies and policy implementation
- Review of existing laws and policies to ensure a level playing field for agricultural cooperatives (farm, forestry, fisheries and livestock)
- Ensuring incentives for bioenergy development to provide a level playing field for agricultural cooperatives
- Ensuring that R&D efforts take into account the needs and potentials of the agricultural cooperative sector
- Ensuring inclusion of agricultural cooperative enterprises in poverty reduction programmes linked to bioenergy development, in particular biofuels

CAPACITY BUILDING

- Ensuring awareness building, education and skills development for members, managers and leaders of agricultural cooperatives, as well as key partners including cooperative banks, R&D institutions, law makers, government decision-makers and energy sector partners
- Ensuring development and strengthening of institutional capacities, financial and human resources for the above
- Ensuring development of training-of-trainer programmes, methodologies and tools, including project formulation

- Strengthening IT capacities of agricultural cooperatives at all levels
- Promoting collaboration among training/capacity building institutions

NETWORKING

National

- Strengthening linkages between the government and the agricultural cooperative movement in promoting bioenergy policies, programmes and activities in support of rural food and livelihood security
- Developing linkages between the agricultural cooperative movement and local governments on the topic
- Developing and strengthening information sharing on experiences in biofuel development at community level for food and livelihood security among agricultural cooperatives at all levels
- Developing and strengthening linkages of agricultural cooperatives with relevant public/private partner institutions
- Developing the NEDAC Web site as an information channel for agricultural cooperatives and their partners on the topic

Subregional/regional/international

- Strengthening linkages among NEDAC members and the International Cooperative Alliance (ICA) for collaboration and advocacy
- Promoting networking of agricultural cooperatives with intergovernmental organizations – SAARC, ASEAN; others as well as UN/INGOs, funding and research agencies

**SPEECH BY NEDAC CHAIRMAN, MR P. UMA SHANKER AT THE CELEBRATION OF
INTERNATIONAL DAY OF COOPERATIVES AT CLT ON 7 JULY 2007**

Honourable Minister of Agriculture, Government of Thailand,
Director General of Cooperative Promotion Department (CPD),
Chairman of Cooperative League of Thailand (CLT),
President, National Cooperative Union of India (NCUI),
Members of the Board of directors CLT, Dignitaries,
Respected Cooperative Leaders, Officials of CPD & CLT,
Ladies and Gentlemen

I am honoured to be present here on the occasion of International Cooperative Day. I am grateful to the Government of Thailand and Cooperative League of Thailand for inviting me to this celebration.

As chairman of the Regional Network for the Development of Co-operatives in Asia and the Pacific (NEDAC) and on my own behalf, I extend my warmest felicitation on this occasion. NEDAC and CPD and Cooperative movement in Thailand have strong and mutually beneficial association. We in NEDAC sincerely appreciate the support provided by CPD and CLT.

NEDAC held its Executive Committee meeting on 3rd and 4th of this month. This was followed by a Regional workshop attended by several member counties on the “Role of agricultural cooperatives in biofuel development at community level for rural food and livelihood security”.

Both the events were held successfully owing to the warm and generous hospitality and excellent logistical support provided by CPD and CLT. In fact the very inspiration for a workshop on Bio-fuel came from CLT. We would like to place on record our heartfelt appreciation and thanks to CPD and CLT. We look forward to further strengthening of these ties in the interests of development of agricultural co-operatives.

Now I would like to present before you the recommendations of the workshop.

Quote

Considering the opportunities offered by the bioenergy sector for small farmers' and rural producers' cooperatives in the region and

Recognizing the key role of agricultural cooperatives in promoting food and livelihood security as member-owned grassroots organization of small farmers and the rural poor and Having reviewed the existing national policies, legislation and bioenergy initiatives,

This workshop recommends:

POLICY

Ensuring that biofuel development programmes take into account the vulnerability of small-scale farming in regard to food security and environment

Adequate representation for the cooperative sector in national policy making bodies and policy implementation

Review of existing laws and policies to ensure a level playing field for agricultural cooperatives (farm, forestry, fisheries and livestock)

Ensuring incentives for bioenergy development to provide a level playing field for agricultural cooperatives

Ensuring that R&D efforts take into account the needs and potentials of the agricultural cooperatives

Ensuring inclusion of agricultural cooperative enterprises in poverty reduction programmes linked to bioenergy development, in particular biofuels

CAPACITY BUILDING

Ensuring awareness building, education and skills development for members, managers and leaders of agricultural cooperatives, as well as key partners including cooperative banks, R&D institutions, law makers, government decision-makers and energy sector partners

Ensuring development and strengthening of institutional capacities, financial and human resources for the above

Ensuring development of training-of-trainer programmes, methodologies and tools, including project formulation

Strengthening IT capacities of agricultural cooperatives at all levels

Promoting collaboration among training/capacity building institutions

NETWORKING

National

Strengthening linkages between the government and the agricultural cooperative movement in promoting bioenergy policies, programmes and activities in support of rural food and livelihood security

Developing linkages between the agricultural cooperative movement and local governments on the topic

Developing and strengthening information sharing on experiences in biofuel development at community level for food and livelihood security among agricultural cooperatives at all levels

Developing and strengthening linkages of agricultural cooperatives with relevant public/private partner institutions

Developing the NEDAC Web site as an information channel for agricultural cooperatives and their partners on the topic

Subregional/Regional/International

Strengthening linkages among NEDAC members and the International Cooperative Alliance (ICA) for collaboration and advocacy

Promoting networking of agricultural cooperatives with intergovernmental organizations – SAARC, ASEAN; others as well as UN/INGOs, funding and research agencies - unquote

These recommendations are being separately forwarded to national governments and cooperative movements for further consideration and action.

Let me assure you, NEDAC with the support of national government and FAO, shall strive its best to further the role of Agricultural Co-operatives in Bio-fuel development for the welfare of the small farmers and the rural poor.

I would like to once again extend my greetings to all of you and my sincere thanks for your kind invitation.

LIST OF THE DOCUMENTS DISTRIBUTED TO THE PARTICIPANTS

1. Reader on “Role of agricultural cooperatives in biofuel development for rural food and livelihood security in Asia”
2. FAO statement on 13th UN International Day of Cooperatives
3. Workshop Agenda
4. “Rural poor and biofuel cooperative enterprises”, FAO press release
5. “Role of biofuels in rural food and livelihood security in Asia”, *FAO presentation*
6. FAO Project concept: “Biofuel use for pro-poor sustainable rural development – a strategy for agricultural cooperative enterprises”
7. FAO website and note on FAO Bioenergy and food security ;project
8. Project overview, “Bioenergy and food security”
9. “Talukas can provide critical mass for India’s sustainable development” – *Anil k Rajvanshi, Current Science, Vol. 82, No. 6, 25 March 2002*
10. FAO Project concept: “Bioenergy and cooperatives”
11. FAO Bioenergy objectives 2008-09
12. Summary and conclusions of ADB, FAP, IFAD “Planning workshop on strategies and option for integrating bio-fuels and rural renewable energy for poverty reduction”
13. Website Asian and Pacific Centre for Agricultural Engineering and Machinery (APCAEM)
14. The Great Biofuel Hoax. *Eric Holt-Gimenez*
15. The Ecological and social tragedy of crop-based biofuel production in the Americas. *Miguel A Altieri & Elizabeth Bravo*
16. India Biofuels Production Report, 2006, *USDA Foreign Agricultural Service Global Agriculture Information Network Report 15/6/2006*
17. New Zealand Biofuels Policy, Production Market potential, New Zealand, 2007, *USDA Foreign Agricultural Service Global Agriculture Information Network Report 21/2/2007*
18. Philippines Biofuels Law Signed 2007, *USDA Foreign Agricultural Service Global Agriculture Information Network Report 12/1/2007*

19. Peoples Republic of China, Bio-fuels An alternative Future for Agriculture, 2006, *USDA Foreign Agricultural Service Global Agriculture Information Network Report 8/8/2006*
20. "Potential partners needed by UK-based biodiesel firm", news report, *Philippines Information Agency,, Tacloban City 10/5/2006*
21. "Sugar coops to supply ethanol to oil PSUs", news report *Hindu Business Line, New Delhi 14/1/2006*
22. Biofuels Annual – Korea, Indonesia, Japan, Taiwan, Brazil, Australia (one page summary)
23. "Bioenergy could drive rural development", *FAO Press Release, Rome 23/4/2007*
24. Biofuels: Revolution of energy sources for China, *Liu yang*
25. FAO Background, Progress and recent development – Bio-energy/Biofuels

FAO-NEDAC PROJECT CONCEPT SUBMITTED TO WORKSHOP

Biofuel use for pro-poor sustainable rural development – a strategy for agricultural cooperative enterprises

Wim Polman, Rural Development Officer FAO Bangkok

Period 2008-2011

This project aims to build national capacities for agricultural cooperative enterprise development based on the use of biofuels for sustainable agriculture and rural development through pilot field-level implementation of community-level biofuel development projects. Pilot projects in collaboration with NEDAC members in selected Asian countries will develop capacities for promotion of pro-poor, biofuel agricultural cooperative enterprises aimed at (i) reduction of rural poverty and food insecurity (MDG1); (ii) reduction of gender disparities (MDG 3); (iii) promotion of sustainable natural resources management strategies (MDG 7); and (iv) promoting international collaboration (MDG8).

Pilot field projects for 4–6 selected NEDAC member countries will be designed, implemented and monitored by national cooperative movements and government agencies for cooperative development in collaboration with and coordination by the FAO Rural Development Section in the FAO Regional Office for Asia and the Pacific and FAO country offices concerned.

This project starts with the preparation of Detailed Country Assessment papers and TOR's for project activities in Phase 1. The preparation of assessment papers will involve collection and assessment of data and information from India, Nepal, Sri Lanka, Thailand, the Philippines and Malaysia.

Phase I

Estimated period of implementation: 1.5 year

As a first step, assessment papers will be prepared which will identify the risks, potentials and challenges for pro-poor, biofuel agricultural cooperative enterprise development. The assessment papers will be discussed at national and regional level aiming at (i) identification of success cases in pro-poor agricultural cooperative enterprise development (ii) identification of institutional capacity building needs of agricultural cooperative enterprises, (iii) developing training-of-trainers' methods and tools for successful replication and up-scaling (iv) developing an institutional framework for dialogue and collaboration in biofuel agricultural cooperative enterprise development at national and decentralized levels and (v) enabling national policies, regulations and financial support.

Phase II

Estimated period of implementation: 2–3 years

FAO and NEDAC will share the country experiences at regional level aimed at starting up project investment in the selected Asian countries for pilot, pro-poor biofuel cooperative enterprise development for successful demonstration, replication and up-scaling in collaboration with national cooperative movements, interested government agencies, donors and relevant UN technical agencies.

On the basis of the outcome of Phase I, two pilot zones/sites will be selected within the four pilot project countries for comparative purposes and identification of decision-making criteria, methods and tools for development of pro-poor approaches in biofuel agricultural cooperative enterprise development under different food security, poverty, agro-ecological and market conditions

Activities in the eight pilot zone's will be guided by a local, pro-poor and gender-sensitive biofuel development plan as part of decentralized and integrated planning of capacity building for local governance (for e. g. India's sub-district *Taluka* model for food and energy security development planning), agriculture and rural development. The pilot field implementation will help develop institutional mechanisms for participatory project planning and implementation and develop agricultural cooperative/SME-based entrepreneurial activities generating rural employment/income and improving access to reliable, cost effective biofuel energy sources at community level for local transport, agricultural machinery, public and domestic lightning needs. The pilot projects will demonstrate the viability of biofuel agricultural cooperative enterprise activities contributing to household food security and poverty alleviation as well as sustainable management of natural resources at community level.

The field projects will be monitored through participatory monitoring by FAO and stakeholders/partner agencies. The results will be assessed to draw lessons and formulate guidelines for formulating a national and regional replication strategy.

Different funding sources will be identified depending on the availability of funding and data on biofuels and relevant agricultural cooperative enterprise development. The entire project duration may take up to four years.

Main partners: cooperative sector agencies/movements in selected countries, NGO's, local governments, MOAC.

Main financial tools: consultancies, ATS and contracts.

Phase I

1. September–December 2007. Start up of project activities, finding funding arrangements, selection of experts TOR's, drafting outline of assessment papers
2. January 2008 – December 2008. Field visits covering four countries, six-month contracts for four national consultants with technical coordination by a regional consultant under supervision of FAO RAP Rural Development Officer. Estimated budget for consultants US\$80 000, travel/DSA US\$32 000, is US\$112 000
3. Budget for four national seminars to discuss assessment papers and identify eight pilot zones estimated US\$40 000.
4. LTU RD RAP technical support: US\$30 000, editorial reporting printing support US\$18 000, communications US\$2 000 = US\$50 000,

Phase II: January 2009 to December 2011 (3 years).

Pilot projects in four countries in eight pilot zones estimated budget 4x 8x US\$40 000 = USD\$1 600 000.

Total estimated costs Phase I and II: US\$1 820 000 exclusive services/administration costs (negotiable up to 13 percent).

Donor agencies to contact: IFAD; UNDP; GTZ, others

MESSAGE OF THE FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS (FAO)

**13th UN International Day of Co-operatives – 07 July 2007
“Co-operative Values and Principles for Corporate Social Responsibility”**

Corporate social responsibility (CSR) is a concept which has rightly gained much momentum over recent years, yet core elements of the concept are not new, but have been successfully developed and practiced by the co-operative movement for more than 150 years. Co-operatives are integrating social, economic and increasingly also environmental concerns in their business operations and in their member-based decision making and interaction with other stakeholders, on a voluntary basis.

Values which co-operatives commonly refer to include self-help, self-responsibility, equity, equality and solidarity and are mostly put into practice through principles such as: voluntary and open membership, democratic member control, accountable and transparent management, economic participation of members, autonomy and independence, education, learning opportunities and information for members and employees, co-operation with other co-operatives and networking and an explicit concern for their community. Looking at this list of values and principles, it is not surprising that co-operatives have for long placed CSR at the centre of their business operations, yet without necessarily or often referring to the term as such.

Co-operatives take up corporate social responsibilities by voluntarily going beyond minimum legal requirements and obligations when e.g. supporting, practicing or requesting from their suppliers and other stakeholders, Good Agricultural Practices (GAP), sustainable community forestry management, responsible fishery practices, Integrated Pest Management (IPM), Pro-Equity Education Programmes, Pro-Equity Savings and Credit Programmes, integrated soil and water management, programmes combining poverty alleviation and biodiversity objectives, awareness campaigns on child labour practices, promotion of human and labour rights, employment creation for disadvantaged groups, creation of more transparency and accountability, marketing and labelling of healthy food and non-toxic chemicals, fair-trade agreements and organic agriculture.

FAO would like to congratulate on this occasion all agricultural and other co-operatives for their most valuable work towards achieving their business, social and environmental objectives. FAO would like to invite it's member countries, entrepreneurs throughout the world and global initiatives such as the UN Global Compact, to strengthen their dialogue, experience exchange and co-operation with those co-operatives which have proven to be centres of excellence in CSR practices, meaning those have made their business truly work for it's members, the people and organizations it affects and for it's natural environment.