

Leading the Castor Oil supply chain in Cambodia



*Adalidda Castor
Business plan (2012-2020)*

January 2012

TABLE OF CONTENTS

Contents

1. EXECUTIVE SUMMARY	1
2. INTRODUCTION	6
3. COMPANY STRUCTURE.....	7
4. BIO-DATA OF KEY PERSONEL.....	8
5. PRODUCTS.....	14
6. MARKET STUDY	17
6.1. Castor seed.....	17
6.2. Castor oil	17
6.3. Castor cake.....	17
6.4. Castor leaves powder	17
7. FARM CAPACITY AND PRODUCTION PROGRAMME	18
7.1. Farm location.....	18
7.2. Farm Management.....	19
7.3. Crops Management Software.....	21
7.4. Plot Manager.....	22
7.5. Castor cultivation techniques	23
7.6. Castor Farm Production.....	25
7.6. Contract farming.....	26
8. PLANT CAPACITY AND PRODUCTION PROGRAMME	27
8.1. Castor oil plant	27
9. MATERIALS AND INPUT	29
9.1. Raw and auxiliary materials for crops farms	29
9.2. Raw and auxiliary materials for castor oil plant.....	29
10. ENERGY	30
10.1. Electricity	30
10.2. Bio-diesel.....	30
10.3. Economic and Environmental Benefits.....	30
11. SUPPLY CHAIN	31
12. MAN POWER.....	33
13. CAPACITY BUILDING.....	34
13.1. Short-Training for Managers.....	34
13.2. Short-Training for Technical staffs	34
13.3. Scholarship for talented staffs.....	34
13.4 English Course for all staffs	34
14. DEVELOPMENT PLAN.....	35
14.1. Phase 1 (2012-2015)	35
14.1.1. Improve the capacity of our agronomists	35
14.1.2. Raise the awareness of the farmers associations	35
14.1.3. Research and Development Unit	37
14.2. Phase 2 (2016-2021)	37
14.2.1. Increase the capacity of our processing plant.....	37
14.2.2. Expansion of the Office Space, warehouse and biomass plant.....	37
15. SOCIAL ACTIVITIES	38
15.1. Agro-tourism.....	38
15.2. Community Center.....	41
16. FINANCIAL ANALYST	42
17. ECONOMIC BENEFIT.....	44
18. CONCLUSION.....	44
BIBLIOGRAPHY	45

BOX

Box 1: Second-Generation Biofuels	1
Box 2: Medical Uses for castor plant.....	16
Box 3: Hybrid Castor Seed	23
Box 4: Castor Oil Extraction.....	28
Box 5: Agrotourism.....	39
Box 6: What is Organic Farming?	39

ACRONYMS

ADB	Asian Development Bank
AFTA	ASEAN Free Trade Area
ASEAN	Association of Southeast Asian Nations
CDC	Council for the Development of Cambodia

1. EXECUTIVE SUMMARY

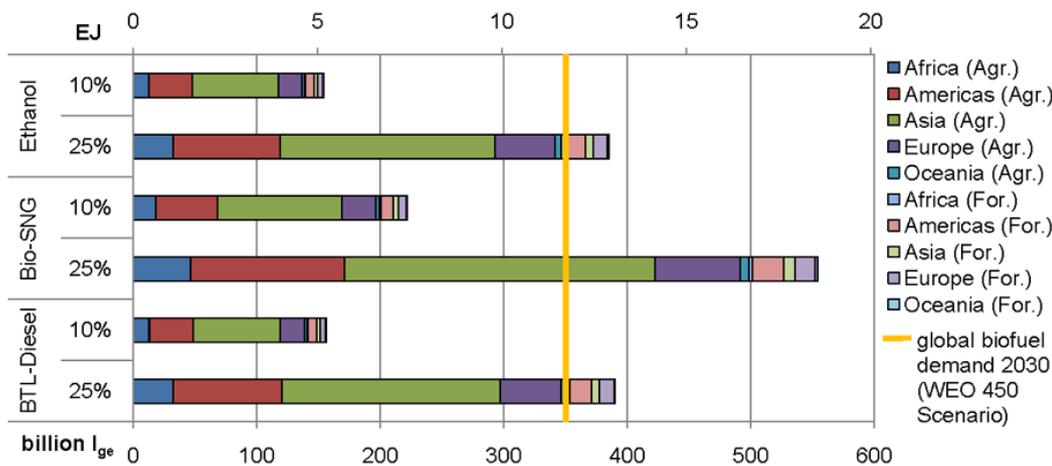
Due to the global warming, Environment has become one of the big issue of the 21st century. Global warming concerns create new and profitable business opportunities, because developing alternative forms of energy and other environmentally-friendly technologies are not only good for saving the environment, but for proexpanding the job market.

“Overall in 2010 the revenues on the world biodiesel market made up more than \$18bn, this index being projected to increase unprecedentedly in the coming future the revenues are forecast to reach up to \$70bn,” according to the study entitled, Biodiesel: 2011 World Market Outlook and Forecast up to 2016.

“To truly transform our economy, protect our security, and save our planet from the ravages of climate change, we need to ultimately make clean, renewable energy the profitable kind of energy.”

BARACK OBAMA,
Address to Joint
Session of
Congress,
Feb. 24, 2009

Theoretical Second-Generation Biofuels production from residue in 2030



Amounts cannot be summed up. Each bar indicates biofuel yields using all available residues. “25%” and “10%” assume respective shares of agricultural and forestry residues to be available for biofuel production.

Assumed conversion factors: BTL-Diesel – 217 lge/t_{DM}, Ethanol - 214 lge/t_{DM}, Bio-SNG – 307 lge/t_{DM}

Source: OECD/IEA 2010, Sustainable Production of Second-Generation Biofuels.

Box 1: Second-Generation Biofuels

The potential feedstocks for second-generation biofuels production are biomass from crops residues (e.g. cassava residue), other non-food energy crops, wood/forestry residues, castor bean, jatropha and algae. “The use of second-generation biofuels is expected to reduce the emission of green house gases, particularly carbon dioxide, from combustion engines by 80 to 85 per cent in comparison to conventional fossil fuels,” notes Frost & Sullivan senior research analyst Phani Raj Kumar Chinthapalli. “The lifecycle emissions for second-generation biofuels are in the negative range, which implies consumption of carbon dioxide rather than emission.”

Face to the global market demand for the bio-energy, we oversee a potential to establish a new profitable agro-industry firm 'Adalidda Castor'. Adalidda Castor will be an integrated bio-energy supply chain company focused on the cultivation, marketing, trading, transportation, and distribution of raw materials for bio-ethanol plants across the globe. By leveraging Adalidda Castor's core competencies in oil crops farm management, logistics, distribution, and trading, Adalidda Castor will be able to provide innovative, value-added solutions for a more stable, disciplined, and vertically integrated supply chain.

Adalidda Castor will be a joint venture between Smart International Consulting and a venture capital firm. This business plan presented a 10-year development plan and the key financial data. Adalidda Castor aims to be a leading corporate citizen firm in Cambodia. Our business development will be complying with the environment, the Corporate governance and the Corporate social responsibility:

- Adalidda Castor will use biomass generator to generate electricity
- Adalidda Castor will use biodiesel for its vehicles and agriculture machines
- Adalidda Foundation will developed an agrotourism activity and the profit generated from this activity will be used for the benefit of our workers families (please refer to section 15.2 for more detail information about the social activity managed by Adalidda Foundation)

Key Data of our business plan

Investment required : 16 millions USD

We will use this budget to operate:

- a castor farm on 20,000 hectares
- a castor oil processing plant
- contract farming with the farmers associations

Development Plan

Our 10-year development plan is divided in 2 phases.

Phase 1 (2012-2015): secure the raw materials for the bio-ethanol plants.

- Improve the capacity of our agronomists on modern crops farm management through technology transfer from international partners
- Raise the awareness of the farmers associations on the benefit of using modern technology for crops farms.
- Set up Contract farming with the farmers associations
- Establish a Research and Development unit to increase the crops yield and develop new products.

Phase 2 (2016-2021): Increasing the capacity of our processing plant to meet the regional and global market demand.

Contract farming Land in hectare

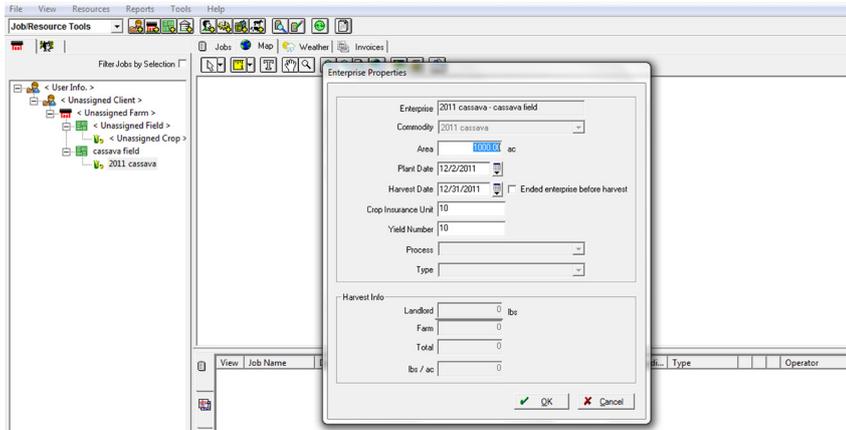
	1	2	3	4	5	6	7	8	9	10
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Castor Farm (hectare)	0	2000	3000	5000	7500	10000	12500	15000	17500	20000
Total	0	2000	3000	5000	7500	10000	12500	15000	17500	20000



Information technology

Our crops farms will use crops farm management software to manage the whole process of a modern farm tasks like sowing, using the fertilizers, using farm machineries, disease prevention, harvest, etc...

Our supply chain will use web based software to manage the whole process of our supply chain like purchase order management, shipping, invoice, crops production, contract farming, castor oil production, etc...



Cassava chip for Export



Cassava chips for bioethanol plant



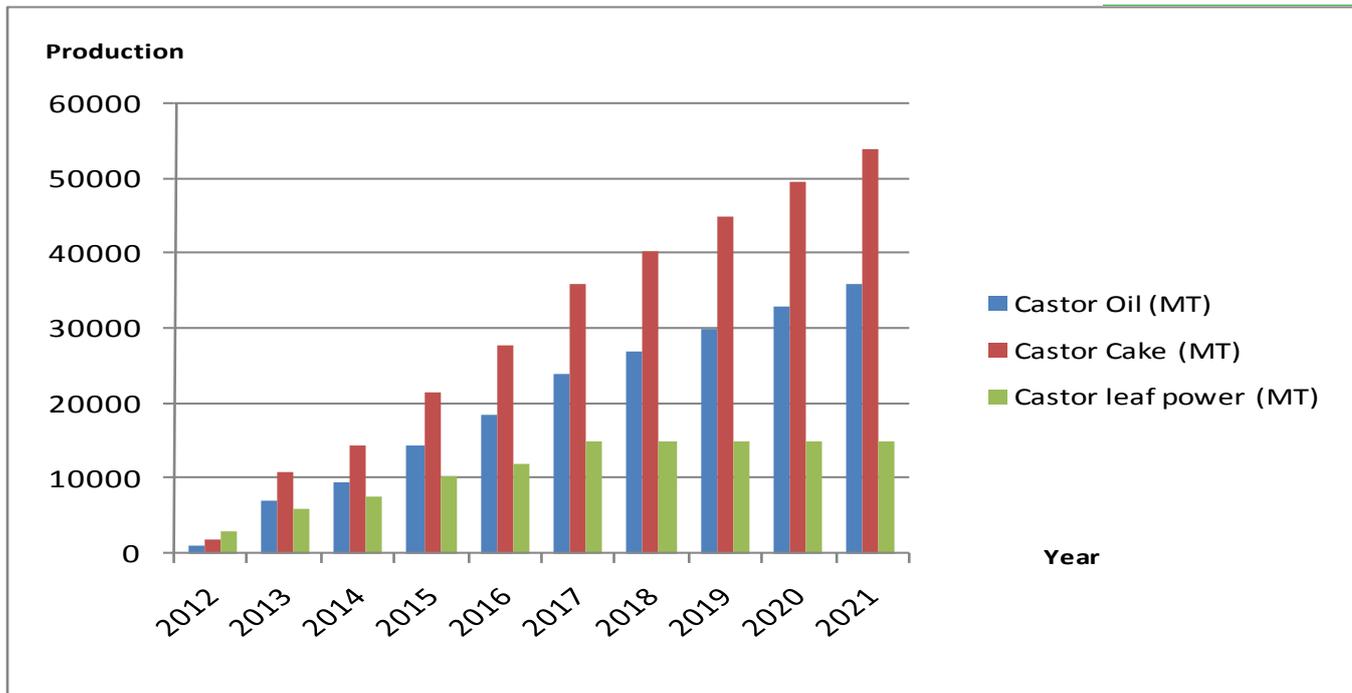
Cassava oil



Key Indicators

	1	2	3	4	5	6	7	8	9	10
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Castor Bean-Cost per MT (USD)	483	54	59	60	63	60	60	60	63	63
Castor Bean-Cost per hectare (USD)	724	163	177	180	189	179	179	179	190	190
Castor Oil-Cost per MT (USD)	1,752	618	657	678	734	746	789	819	847	868
Castor Oil-Gross Profit per MT	148	1,282	1,243	1,222	1,166	1,154	1,111	1,081	1,053	1,032

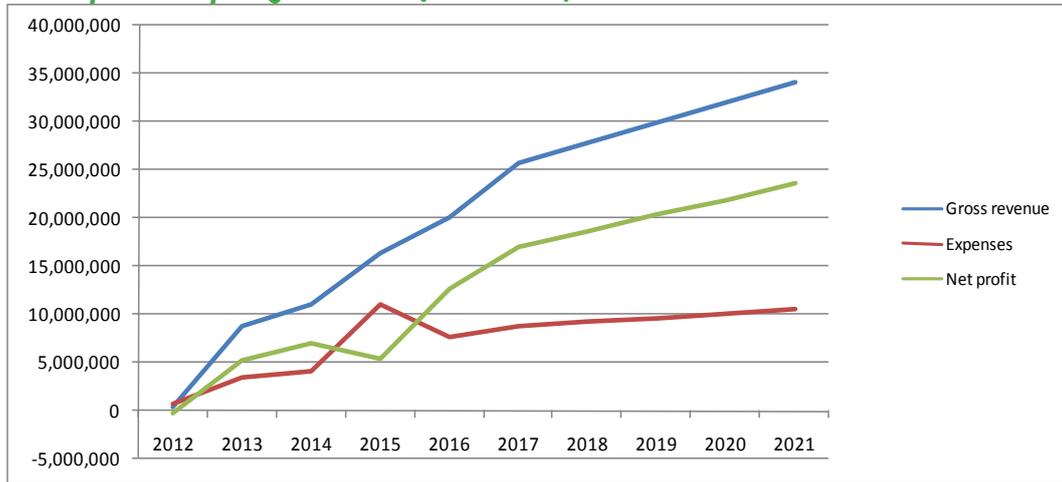
Production (in MT)



Financial Projection (in US)

	1	2	3	4	5	6	7	8	9	10
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Gross Revenues (in USD)										
Castor Oil+Castor cake	450,594	8,750,735	11,145,932	16,361,297	20,182,127	25,762,546	27,777,484	29,943,400	31,953,088	34,119,004
Castor leaves powder	15,000	30,000	37,500	52,500	60,000	75,000	75,000	75,000	75,000	75,000
Total	465,594	8,780,735	11,183,432	16,413,797	20,242,127	25,837,546	27,852,484	30,018,400	32,028,088	34,194,004
General Expenses and Overheads										
Management and Administration Salaries	384,360	672,818	682,852	698,915	908,434	914,444	920,754	927,379	934,336	966,725
Operating Expenses	141,600	1,209,120	1,329,120	8,560,800	3,156,000	3,156,000	3,156,000	3,156,000	3,156,000	3,156,000
Depreciation	218,673	393,585	319,354	266,814	228,214	198,944	176,145	157,971	143,182	130,924
Social Activity (1% of the previous year annual profit)	-	4,656	87,807	111,834	164,138	202,421	258,375	278,525	300,184	320,281
Total General Expenses and Overheads	744,633	2,280,180	2,419,133	9,638,364	4,456,786	4,471,809	4,511,275	4,519,875	4,533,702	4,573,930
Earnings Before Interest and Taxes	(279,039)	6,500,555	8,764,299	6,775,433	15,785,341	21,365,736	23,341,209	25,498,525	27,494,385	29,620,074
Net Interest Expense	-	-	-	-	-	-	-	-	-	-
Pretax Income	(279,039)	6,500,555	8,764,299	6,775,433	15,785,341	21,365,736	23,341,209	25,498,525	27,494,385	29,620,074
Corporate Income Tax	4,656	1,244,303	1,752,860	1,355,087	3,157,068	4,273,147	4,668,242	5,099,705	5,498,877	5,924,015
Net Profit	(283,695)	5,256,252	7,011,439	5,420,347	12,628,272	17,092,589	18,672,967	20,398,820	21,995,508	23,696,059
Profit Margin %										
Pretax Margin %	-11.0%	42.9%	43.4%	22.4%	40.3%	42.3%	41.1%	40.4%	39.6%	39.1%
Net Profit %	-11.2%	34.7%	34.7%	17.9%	32.3%	33.8%	32.9%	32.3%	31.7%	31.3%

Net profit projection (in USD)



By 2015, we will increase the capacity of our processing plant and biomass plant. We had budget an expense of 6 million USD for this expansion. This budget is funded from the cash generated from 2013 to 2015. Therefore, in the graph above, we can note an increase in expense and less net profit for 2015.

Economic benefit

- This project will provided technology transfer on modern crop farms management to farmers in Cambodia.
- Our Research and Development Unit will developed new products and bring innovation to the biofuels supply chain.
- At full capacity, Adalidda Castor will provided direct employment to 719 people. Through contract farming on 20,000 hectares land, we estimate that at least 20,000 household in Cambodia will benefit from the contract farming.
- We budget 3% of our gross salary for the capacity building of our employees. Therefore our people are expected to be of high competency.
- We budget 1% of our gross salary for the social activity for the benefit of our employees families therefore 719 families will benefit from basic health care, professional skills courses, etc...

Project Partners

In the last 5 years, Smart International Consulting had developed an important business network with the key leaders in the global agro-industry:

1. Japan Development Institute (JDI, www.jditokyo.com). JDI is an international consulting firm with head office in Tokyo, Japan. JDI is specialized in the development of the Special Economic Zone (SEZ). JDI had developed SEZs in Indonesia, Thailand, China and Cambodia.
2. Japan Bio-Energy Development (JBEDC, www.jbedc.com). JBEDC is a subsidiary of Japan Development Institute (JDI). JBEDC operates a Jatropha farm and a Bio-diesel processing plant in Myanmar.
3. Sri Sai Agri Bio Labs (www.srisaiaagri.bio.com). Sri Sai Agri Bio Labs Private Limited was established in 2005 with an aim to produce and market products and services that are necessary for supporting and promoting Sustainable Agriculture and Organic Farming.

Conclusion

This paper presented our overall vision for the development of a profit generated bio-ethanol supply chain firm in Cambodia. We believe that this project will demonstrated that we can combine corporate citizen values with economic development for the benefit of the company shareholders and for the benefit of Cambodian people.

“Bioenergy expertise, shown by Brazil in its automotive industry, is a central element to technological innovation, sustainable agriculture and cleaner urban environments”

Mario Garnero,
Chairman of
Brasilinvest at the
conference
“Sustainable
bioenergy: sowing the
seeds of sustainable
development”
in Rome, Italia.

2. INTRODUCTION

In 2010 the global production of bio-fuels increased 17% to reach an all-time high of 105 billion liters, up from 90 billion liters in 2009. High oil prices, a global economic rebound and new laws and mandates in Argentina, Brazil, Canada, China and the US, among other countries, are all factors behind the surge in production, according to research conducted by the Worldwatch Institute's climate and energy program for the website Vital Signs Online. Face to the global demand, the price of the raw materials using in the production of the bio-fuels had increased noticeably:

- In India, the price of castor oil increased from 1,330 \$ USD per MT in 2009 to 4,000 \$ USD per MT in 2011 (+200%).

In May 2011, Smart International Consulting and Japan Bio-Energy Development (JBEDC) decided to grow hybrid castor bean (seeds from China and India), on 1 hectare land in Anlong Veng, Oddor Meanchey province, Cambodia. This pilot-test demonstrated that hybrid castor bean is well adapted to Cambodian soil and the average yield per hectare is around 1.5 MT per harvest.

In the last 5 years, Smart International Consulting had developed an important business network with the key leaders in the global agro-industry:

1. Japan Development Institute (JDI, www.jditokyo.com). JDI is an international consulting firm with head office in Tokyo, Japan. JDI is specialized in the development of the Special Economic Zone (SEZ). JDI had developed SEZs in Indonesia, Thailand, China and Cambodia. In 2007, JDI had studied the development of the biofuel supply chain in Lao PDR.
2. Japan Bio-Energy Development (JBEDC, www.jbedc.com). JBEDC is a subsidiary of Japan Development Institute (JDI). JBEDC operates a Jatropa farm and a Bio-diesel processing plant in Myanmar.
3. Sri Sai Agri Bio Labs (www.srisaiagribio.com). Sri Sai Agri Bio Labs Private Limited was established in 2005 with an aim to produce and market products and services that are necessary for supporting and promoting Sustainable Agriculture and Organic Farming.
4. Kaiima Agro-biotech Ltd (www.kaiima.com). Kaiima Agro-biotech Ltd. is an Israel-based agro-biotech startup company that can dramatically increase crop productivity by using its breakthrough Enhanced agriculture platform.

Face to the market demand and understand that Smart International Consulting can bring its expertise in the biofuels supply chain to develop a profitable business in the agro-industry, we would like to establish 'Adalidda Castor' as a castor oil supply chain firm. Adalidda Castor will be a joint venture between Smart International Consulting and a venture capital firm. This business plan presented a 10-year development plan and the key financial data. Adalidda Castor aims to be a leading corporate citizen firm in Cambodia. Our business development will be complying with the environment, the Corporate governance and the Corporate social responsibility.

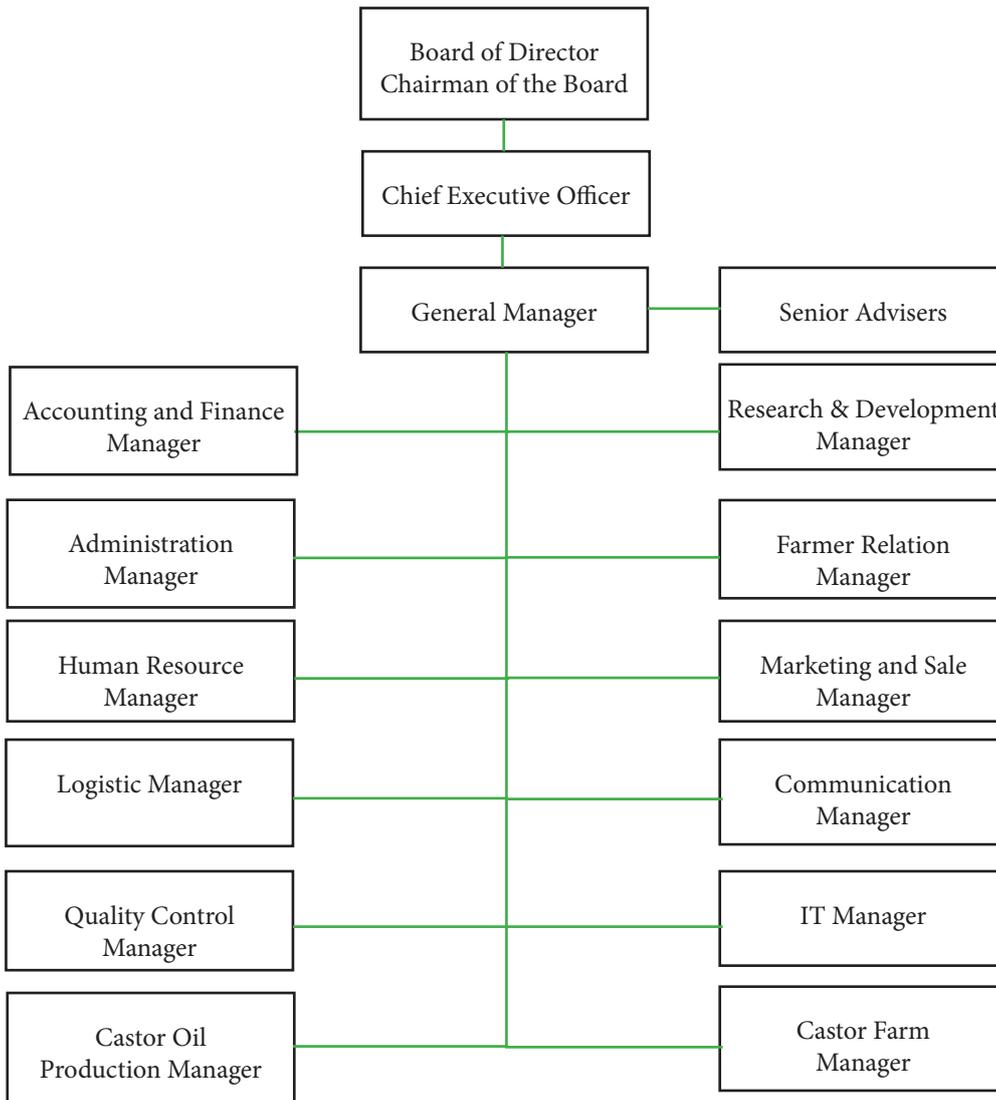
3. COMPANY STRUCTURE

We had 2 options for Adalidda Castor:

Option 1: we registered an investment company in Singapore and this investment company owned 100% Adalidda Castor, a local company registered in Cambodia. The advantage of this option is that by 2016, we could registered local companies in Vietnam and Laos as subsidiaries of Singapore investment company.

Option 2: we registered Adalidda Castor as local company registered in Cambodia.

Organization Chart



4. BIO-DATA OF KEY PERSONEL

Chief Executive Officer: Mr. Kosona Chriv

Cambodian and French citizen, Mr. Kosona Chriv has more than 25 years of professional experiences in France, Cambodia and Laos. In partnership with the local authorities and the private sectors, Mr. Chriv works actively with the international corporations and business networks to promote the foreign direct investment (FDI) in Cambodia, Laos and Vietnam in tourism, hospitality, bio-energy, high-tech and agro-industry.

After he was graduated in 1985, he started his career as a software developer for the first Apple Macintosh. This job gave him detailed insight of the pharmaceutical and fashion industries in France. In 1988, he was recruited by the French National Association for the Research in Technology as IT Manager. This job gave Mr. Chriv the opportunity to understand the contribution of the R & D to the corporate development, the important of human resource development and to learn about high level communication with the decision-makers in the public and private sectors in France and in the European Union.

Mr. Chriv decided to move to Cambodia in February 2001 to participate to the implementation of the e-government in Cambodia. Mr. Chriv felt that he can contribute to the development of Cambodia by sharing his professional experiences and business network. In February 2001, Mr. Chriv helped to raise fund for an IT school in Odong, Kompong Speu province. This IT school offered second chance to students who finished their high school but too poor to attend course at the university in Phnom-Penh. After working as a free lance consultant for AQIP (Agriculture Improvement Program funded by the Australian Government) in 2004, Mr. Kosona Chriv understands that Cambodia faced many issues that make the export of Cambodian products difficult. The most important issues were logistic, corporate governance, human resource, marketing and cash flow. In 2005, he won the bid to organize the Cambodia booth for the Ministry of Post and Telecommunication during the GMS-ASEAN summit in Kunming China. In the same year, in partnership with Ms. Tevy Chan, Mr. Chriv co-founded Smart International Consulting, a business consulting firm with head office in Phnom-Penh Cambodia. Since its foundation, Smart International Consulting had the opportunitiestoworkformanyprestigiousinternationalcorporationssuchasMicrosoft Corporation, Samsung Electronics, Logrus and Japan Development Institute (JDI). Mr. Chriv met with Dr. Kobayashi, Chairman of JDI in 2010 and since then, both of them appreciated each other for their common vision for the development of Cambodia and Laos. JDI is specialized in the development of the Special Economic Zone in Asia and Africa therefore Smart International Consulting had the opportunity to be associated with JDI for the development of the Special Economic Zone in Cambodia and Laos and in particular for the development of the Agro-forestry and Agro-processing SEZs.

Nowadays, Smart International Consulting focused its priorities on the investment support services to international investors and capital raising services to local firms in Cambodia, Laos and Vietnam. Smart International Consulting encouraged foreign direct investment in tourism, hospitality, high-tech and agro-industry.

Mr. Chriv received recognition for his valuable contributions in the public and private sectors:

- 3 Interviews on TVK (2009, 2010, 2011) (government TV)
- 1 interview on TV5 (private TV in Cambodia)
- Reports in Cambodian magazines
- Gold Medal from the Prime Minister of Cambodia in 2009 for his contribution to the development of Cambodia
- Certificate of Appreciation from IFC/MPDF in 2005

Mr. Chriv was co-author of the Cambodia Chapter of the Digital Review of Asia Pacific 2009-2010. Since 2010, he is member of the advisory committee strategy of the business school PSE Institute

General Manager: Ms. Nishi Malhotra

Nishi Malhotra has been involved in lot of research work in management of back end processes and operations of agricultural products starting right from procurement from Domestic and International Vendors, coordination with agricultural inputs suppliers (including seed and fertilizers), packing material, development and sourcing, management control of warehouses and RFD based inventory management, logistics management from manufacturer, supplier to individual customers. She has good analytical assessment skills to strengthen effectiveness. She has taken several initiatives in implementing several cost saving measures to make entire value chain cost effective. She believes in getting the work done from teams, effective communicator with good interpersonal skills. She is able to communicate and relate to people at any level of business. She was responsible for mapping various activities involved in conducting auction of agricultural products coming to agricultural markets of Rajasthan. She was also responsible for reengineering the Supply Chain and Financial Management of all Agricultural Markets in State of Rajasthan. She has immense experience in Third party outsourced production contracts/ agreement/ of vendors for supply of agricultural products. She is also well versed with all statutory compliance amendments in license management, submission of monthly reports to Government Offices, Quality & Inspection Units and Marketing Units. She is also well versed in Sorting and Grading of the post harvest storage/ handling of various agricultural products. She has worked extensively in several value chain analysis projects for different agricultural products including Cashew Nuts, Soya Bean, Jojoba seeds. She has written various Research Papers on Rural Marketing and new agricultural practices.

She has more than 6 years of experience in Financial Management. She has done Business Planning and Financial Planning for Department of Agricultural Marketing for State Government of Rajasthan. She has worked extensively on Financial Management and Treasury Management for various State Government departments and agencies. Her core competencies are Financial Management, Treasury Management, Supply Chain Management, Operations Management and Business Process Reengineering.

She has worked extensively with various Agricultural Universities and Agricultural Scientists with ICAR, National Agricultural Innovation Project.

Nishi Malhotra has completed her MBA (Finance and Marketing) from Management Development Institute Gurgaon. In year 2004 – 05 she won the Asia Finance Business Challenge and was offered role of Process Change Officer to be responsible for reengineering of the Supply Chain for Philips Medical Systems, Beijing. In her next role she was selected for General Electric Leadership Management program. She has independently driven various projects of national importance and achieved break even, eventually leading to revenue generation.

She has lot of experience in General Management of various agricultural projects including Marketing, Supply Chain and Financial Management. She has worked extensively with Agriculture Department in State of Rajasthan and has liasoned and networked with Agricultural Department, Delhi, Karnataka, Chhattisgarh, and Haryana. She has also worked closely with various researchers and officials of International repute on modernization of agricultural supply chain.

Senior Adviser: Mr. Philip MAYHEW

Mr. Philip MAYHEW, a British Engineer. He specializes in Agri-Business, Business Intelligence and Internet technologies. He has over 25 years' experience in Europe, USA and Asia. He provides business intelligence to corporations in Cambodia. His expertise in Agri-Business and eco-tourism is well appreciated by the international corporations and organizations.

Currently Mr. Mayhew is working on a research and development project which aims to develop the quality seed that are adapted to Cambodia.

Senior Adviser: Mr. S.A. Alagarsamy Sornam

Mr. S.A. Alagarsamy is Indian citizen. He owned a Master Degree in Public Administration and a bachelor Degree in Chemistry. Since 2003, Mr. S.A. Alagarsamy works actively to raise the public awareness on the benefit of Bio-fuels from Jatropha, Castor Bean and Pongamia. He had supervised the development of many jatropha farms and jatropha refinery in India. Mr. S.A. Alagarsamy had conducted many researches to improve the oil extraction from Jatropha. He had a strong business network within the green energy community.

Contract Farming: Ms. Moy Ngech An

Ms. AN Moy Ngech holds a Master degree of agriculture science (MSc) in Japan, at the Saga University of Agriculture (Kyushu). Her thesis research focused on the sustainable agriculture of farm productions and using local resources to increase the living of farmers. She also got experiences in social improvement. She is specialized in the crop development, Sustainable Agriculture and farm productions. She was involved in the capacity building/ training , community development and management for the National and International organizations in Cambodia.

As Agro-Economist of ECOSORN-ADDA (reducing poverty and inequality through the implementation of the National Poverty Reduction Strategy and Socio-Economic Development Plans) project in Siem Reap province, Ms. An supervised the projects such as analysis on rice production, fish pond and rice-field culture rearing, Animals rearing, cash crop productions, and writing proposals/ protocols, for implementation in the rural community development. She also had experiences in developing curriculum and give lecture in the field related to the agribusiness.

Communication: Mr. Dave Garrison

Mr. Dave Garrison is a native of Anaheim California in the United States of America. He has lived and worked throughout Asia since arriving in the region as a contract helicopter pilot in 1972 and has served as Education Advisor as well as managing Hotels and leisure centers for the US government until his retirement in 1999.

In 2000, Dave served the Minister of Tourism, Kingdom of Thailand as Hospitality & Tourism Consultant, and as the only foreigner on the Thai panel of Hospitality and Tourism experts for the ASEAN Tourism Board in 2003, in addition to his role as Executive Director and Director of Academic Affairs for an International Hotel and Tourism College at Bangkok Thailand until 2006. In 2006, he was offered the unique challenge of providing his Hospitality leadership and training expertise at the only 5-star Hotel located in war torn Kabul Afghanistan with the clear objective of training and providing professional Hospitality management skills to the local national employees before handing over the Hotel to them in 2008.

In 2008, Dave established his own Hospitality management consultancy firm, CebuSmart, at Cebu Philippines which continues to provide professional consultant services to Hotels, fine dining restaurants and travel agencies in the Philippines through an extensive network of foreign Hospitality professionals based there.

Over the years, Dave has taught at several prestigious educational institutions including the International Hotel and Tourism College, University of Maryland, Oklahoma State University, Central Texas College and Ewha Women's University. He has also consulted and conducted professional business management and Hospitality courses for a number of companies including Intercontinental Hotel, Ambassador Hotel, Seoul Garden Hotel, Roche Pharmaceuticals, Samsung Electronics, LG Electronics, Nestles, Sampoong Textiles, Berli-Jucker Trading and Elite Global Security Services and more.

Dave has consulted, authored and taught a wide range of theoretical and practical courses including Business Management, Hospitality Sales & Marketing, Presentation skills, Time Management, Communications, Front Office Operations, English for Restaurant Service, Housekeeping Operations & Management and conducted assessments of Training, Security and Disaster Preparedness for governments as well as the private sector.

Dave can visualize tremendous growth in the SE Asian Hospitality sector over the next few years and wants to be directly involved in bringing global awareness to the regions great potential for pleasure travel as well as other incredible business opportunities.

Professional Affiliations and Certificates

1. Certified as Public Health Physicist, California, USA, 1991
2. Certified as Hazardous Materials Technician III, California, USA, 1991
3. Certified in Disaster Preparedness and Emergency Management, Emergency Management Institute, FEMA, USA since 1986
4. Member, International Emergency Managers Society, Brussels, 2005
5. Member, United States Global Entrepreneurs Association, 2009
6. Member, United States Entrepreneurs Business Network, 2010

Marketing and Sale: Mr. Heang Suo Saravorn

Mr. Heang started his career as a veterinarian and has branched out into a number of areas related to market development, research, and monitoring and evaluation for agriculture and rural development programs. During 2007 and 2009 he was Agricultural Attaché for the French Embassy and in this position he provided background research on regulations to facilitate direct foreign investment, and conducted feasibility studies and market assessment. He has been responsible for reviewing the agricultural sector in Cambodia for a number of clients, organizing trade missions and facilitating meetings between local organizations from domestic private and public sector and overseas organizations. Working as Monitoring and Evaluation Coordinator at GRET, he has considerable field experience, and has been directly involved in conducting field surveys, analyzing data, writing reports, and presenting findings in national workshops and other consultative meetings. Moreover during his work at CEDAC from 2004 to 2007 he has been responsible for conducting a long term research project on Consumers' Demand and Sector Dynamics, Urban Consumers' Behaviors, Perception, and Expectation for Food Products in Sihanouk ville and Kampong Thom province. He has also conducted several research consultancy services including the study on Affects of AFTA on Agricultural Products and Migration.

Mr. Heang Suo Saravorn holds a Master Degree in Animal Production, Hygiene, Quality, and Environment from the university François Rabelais, Tours, France in 2003.

Farm Manager: Mr. Dararith Soun

Mr. Dararith SOUN holds a Master degree (MSc) of Agriculture Economics at the Faculty of Agricultural Sciences, and Technology, University of India.

He worked in various International Organizations such as FAO, WB, Oxfam GB, MRCs and AusAID. He has many research worked on Oil Crops Comprehensive Technology (included Tea Oil Camellia, Peanut, Soybean, Corn, Cotton, sesame, and rice brain) Hunan, China; Sustainable Agriculture in an environmental perspective, svalof weibull, Sweden and Denmark; Agriculture and Rural Development Hokkaido, Japan. Moreover, He has also been appointed a Lecturer on agribusiness at University of Battambang.

Information Technology: Mr. Sarith Hem

Mr. Sarith Hem held a Master degree in Computer Science and Engineering at Setec University, Phnom Penh and he is currently applying for Master of Business Administration (MBA) at National University of Management in Phnom Penh, Cambodia. Sarith has stated his first carries with the Banking and Finance in 2003 and move back to his educated I.T skill from 2009. With his over 7 years experience, Sarith has built his carrier with many professional achievements and confidents in both local and international projects. Recently, Sarith has conducted an I.T training and website coaching at National Committee for Special Economic Zone (SNCSEZ), Lao PDR and made the website lives and professionally.

5. PRODUCTS

The products related to castor bean are castor seed, castor oil and castor cake.

Castor seed: castor seed is the seed of the castor oil plant.

Castor oil: castor oil is extracted from the castor seed.

The usages of Castor oil reflected mainly in three aspects:

- a) High quality Lubricating Oil. Castor oil is an edible oil which unfreeze under -18°c and its quality can remain unchanged and unburnt with high temperature over 500° - 600°c . Hence it's become the main substance for aviation and aerospace industry applications.
- b) Main Production Material. Castor oil contains 90% of Ricinoleic acid which is the modernization of raw material. For those chemical products produced from oil can replace with Castor oil production. However, the products produced from Castor oil are irreplaceable by oil. Currently, castor oil has more than 3,000 of processed products.
- c) The most promising bio-energy. The usage of Castor oil as bio-energy has become an attention in the wake of the growing shortage of oil. Castor Oil will become the most promising bio-energy due to its high-yield and wide adaptability traits.

Castor cake: de-oiled castor cake is also called castor meal, castor residue or castor extract. Castor meal, the residue obtained from castor cake by the solvent extraction process is one of the most versatile natural manures. It is truly an organic manure which enhances the fertility of the soil without causing any damage or decay. It is enriched with the three big elements vital and conducive to the proper growth of crops Nitrogen, Phosphorus and Potassium. It also has traces of nutrients like Manganese, Zinc and Copper, thus making it a balanced fertiliser. Moreover, it helps to neutralise the detrimental effects of chemical fertilisers. Apart from their contribution to Nutrients, they have a number of benefits in agriculture, which none of the synthetic fertilizers or pesticides can offer. They bring in the wonderful molecules that nature has designed to help the plants flourish naturally. They provide slow and steady nourishment, stimulation, protection from soil nematodes and insects, improve yields, and quality of product like taste, flavour, amino acid composition etc.

The pressed cake obtained after the expression of castor bean can be used as a fertilizer. Castor Cake is an excellent fertilizer because of high content of N (6.4%), Phosphoric Acid (2.55%) and Potash (1%) and moisture retention.

“Total world cassava utilisation is projected to reach 275 million MT by 2020 with some researchers estimating the number closer to 291 million MT.”

Cassava value chain overview (2009). Meridian Institute.



Castor Seed



Castor Oil



Castor Cake

Castor leaves

Castor leaves are used for medical application.

Box 2: Medical Uses for castor plant

Skin disorders

Castor leaves are highly beneficial in the treatment of boils and swellings. You can make a plaster of castor leaves and apply it externally on the affected area. Coat this leaves with coconut oil and heat them, apply the heated leaves on the sores due to guinea- worms. This application will extract the worms and kill them.

Rheumatism

Combine the roots of castor plant with carbonate of potash, and apply this paste to cure rheumatism and sciatica. You may also add the paste of castor kernel to boiling milk. It is also good remedy to cure rheumatism.

Source: <http://www.herbsonline.net/castor-seeds-cures-rheumatism-and-skin-disorders.html>



Castor Leaves

6. MARKET STUDY

6.1. Castor seed

In China, the annual demand for Castor is estimated to 300 million MT, however the annual output is only up to 120 million MT. 70% of the huge Castor demand of China is relies on import.

6.2. Castor oil

Castor oil has got wide application in hydraulic fluids, paints and vanishes, surfactant in the production of synthetic fibres, pharmaceuticals, cosmetics and dibasic acids. Castor oil has a very wide demand in the international market especially in countries where the user industries are developed. The market in Europe alone ranges from 500,000 to 750,000 MT.

6.3. Castor cake

Castor Cake is an excellent fertilizer. As Cambodian fertilizer market relied on import from the neighbouring countries, we oversee a potential to market the castor cake as organic fertilizer in Cambodia.

6.4. Castor leaves powder

We will sell the castor leaves powder to pharma firms.

“The fact that cassava is being used for biofuel in China, rapeseed is being used in Europe, and sugar cane elsewhere is definitely creating a shift in demand curves. Biofuels are contributing to higher prices and tighter markets.”

Timothy D. Searchinger,
a research scholar at
Princeton University

7. FARM CAPACITY AND PRODUCTION PROGRAMME

7.1. Farm location

The farm is located in Varin, Siemreap province, Cambodia. We choose this location for 3 strategic reasons:

1. Varin is only 1 hour from the Thai border so our products can be transited through Bangkok port in Thailand. The route infrastructure in Thailand is better than in Cambodia.
2. Siemreap is the second city in Cambodia. A modern airport will be in service in 2016 with a capacity to accommodate 14 million passenger a year. If necessary, we can use the cargo air service from this new airport.
3. In case there are conflict with Thailand, we can use an alternative route to export our products through Vietnamese port.

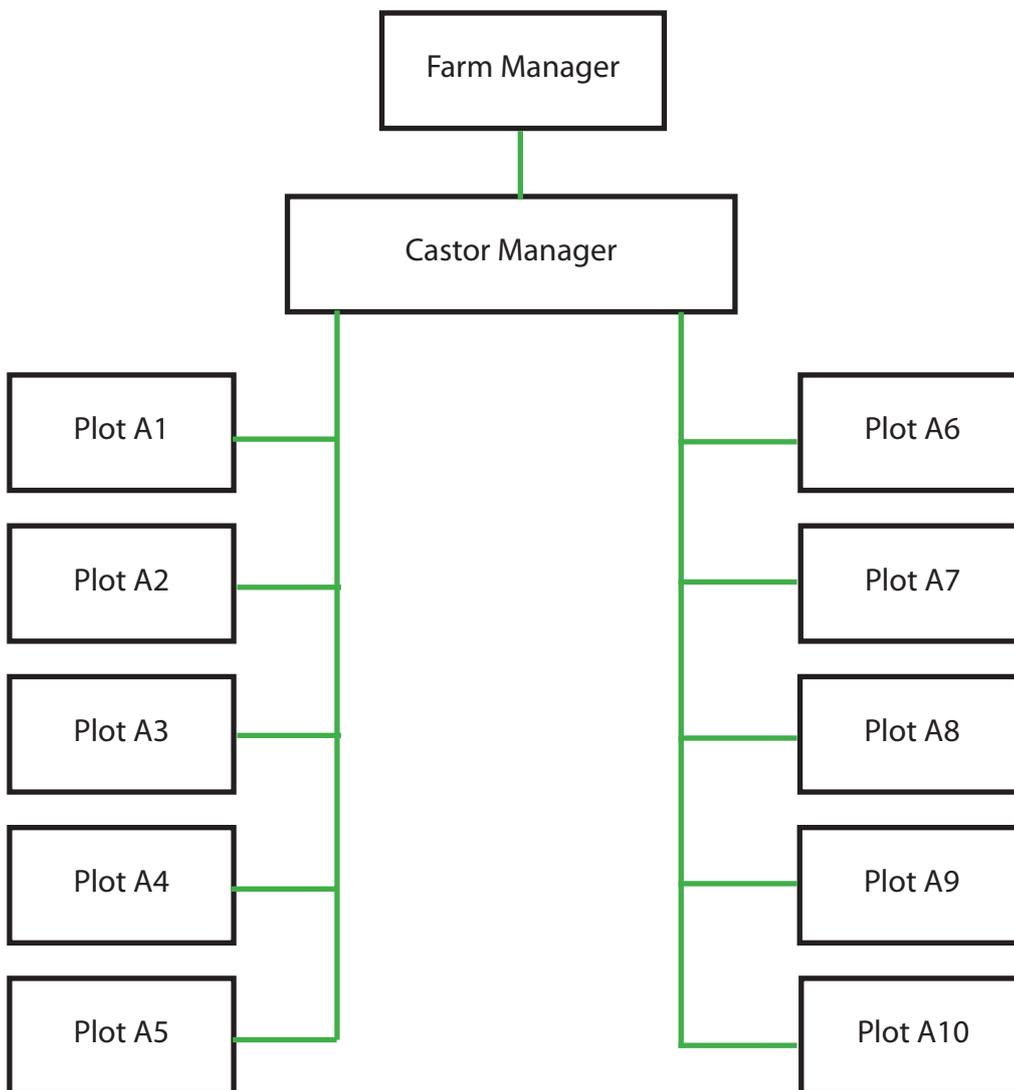


Route from Varin to Bangkok port, 6 hours trip

7.2. Farm Management

The farm size is 10,000 hectares located on Government land concession for 70 years.

The land will be divided in 10 plots with a size of 1,000 hectares: plot A1 to A10. Each plot will have one plot manager responsible for the cultivation, disease prevention and yield. Castor can be harvest twice a year but in order to preserve the soil quality, each plot is divided in 2 sub-plots that we use to alternate the castor cultivation. The annual average yield of each plot is estimated to 1.5 MT per hectare. With the input of our research and development unit, we expect to reach 5 MT per hectare by 2016 (however our business plan used 1.5 MT per hectare as assumption).



Health Unit

We will set up a health unit within our crops farms. The health unit will provide medical care to personnel inside the crops farms. Health is an important issue for people living in the rural area of Cambodia. By having a health unit within our crops farms, we will lower the risk related to the day-off of our workers due to health and its also a way to attract workers to work for our crops farms.

Agricultural machineries

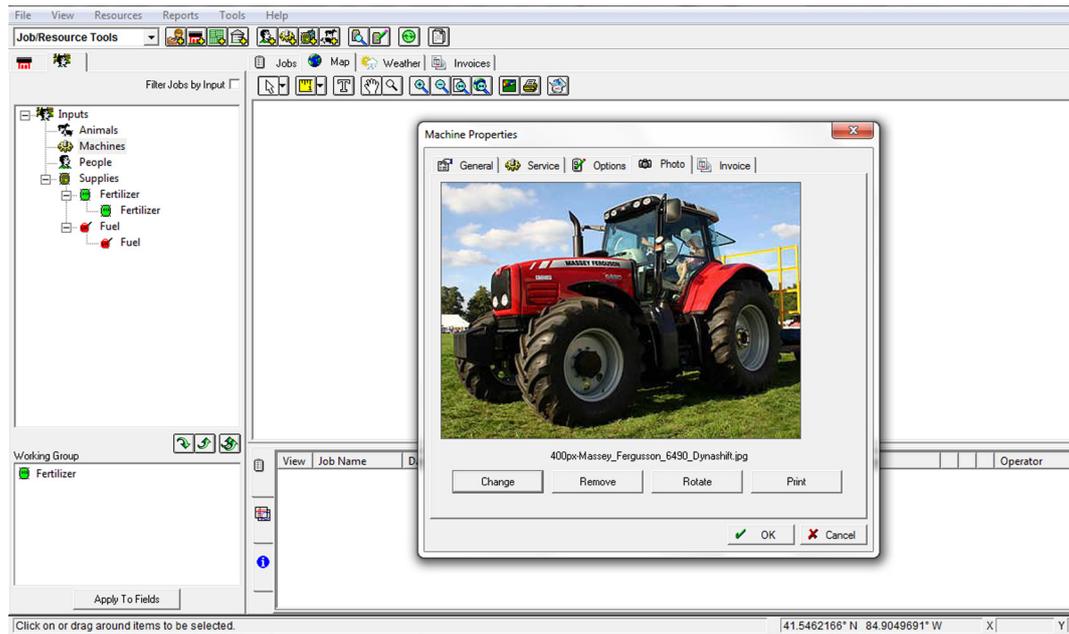
We will use the agricultural machineries to help improve the yield of our crops farms: The agricultural machineries include tractors, machine for ploughing, machine for harrowing, harvesting, etc...



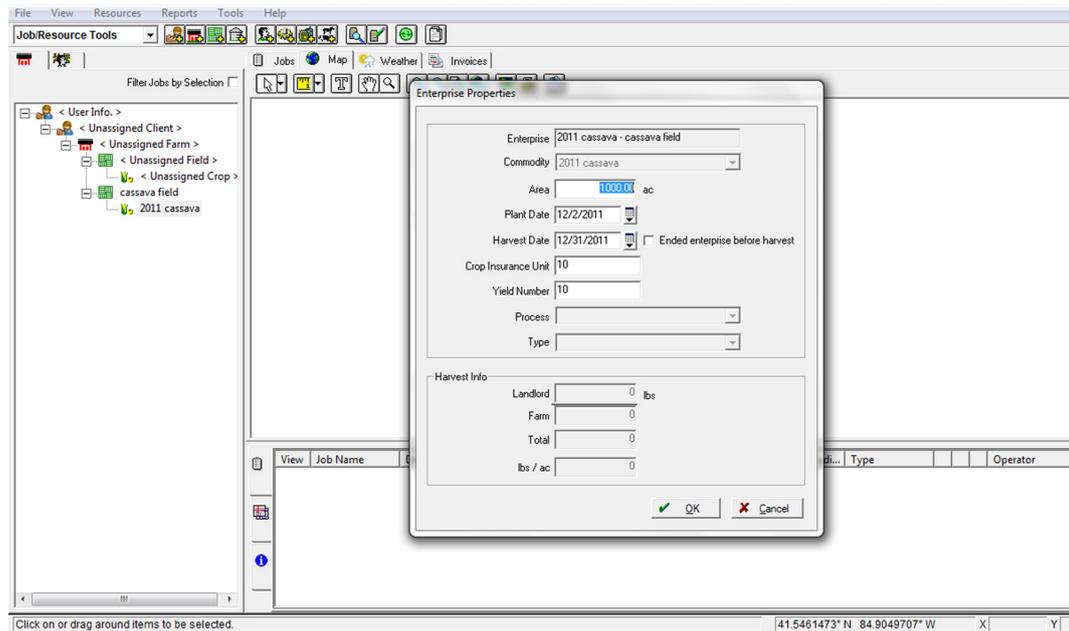
Ploughing machine

7.3. Crops Management Software

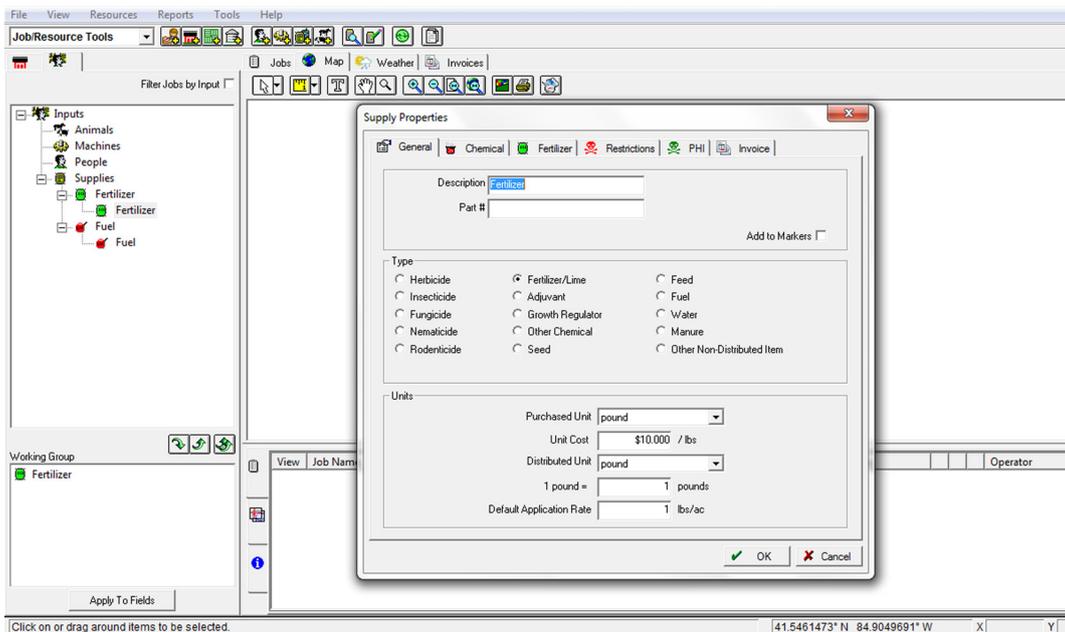
Our agronomists will use the crops management software to manage the different steps of the production from sowing to harvesting.



Management of the agricultural machinerie



Crops plot Management



Supply and fertilizers

7.4. Plot Manager

The plot manager is responsible for the crops production of his/her plot of land. Under the direct supervision of the farm manager, he/she will benefit from the technical expertise of the Agricultural Senior Advisor. The plot manager will use a crops management software to control its production chain: sowing, fertilizer, pest and disease prevention, harvest forecast, etc...

Each plot manager will manage 50 full time staffs and 50 seasonal workers (during the sowing and harvesting). He/She is responsible for the management of field staffs and materials allocated to his/her unit. With the approval of the farm manager, he/she is authorized to research the better way to improve the crops yield.

After the harvest, all plots managers will share their experiences with each other and the best harvest plot will receive a special bonus from the management team.



Workers prepared the sowing of the castor plant

7.5. Castor cultivation techniques

We will use Hybrid seed from India for our castor farm. Mechanized cultivation of the castor crop have been successful in India, China and Israel. We will work with Kaiima Agro-biotech in Israel (www.kaiima.com) to progressively mechanize our castor crop production chain. The average yield of the hybrid castor seed is 3 MT per hectare per harvest. The hybrid seed gives 2 harvests per year.

Box 3: Hybrid Castor Seed

Brief Morphological Details

- Normal plant type & Green Plant color
- Plants having Triple Bloom proved sucking pest tolerance to castor crops
- Elongated internodes on stems and divergent branching habit provide symmetrical plant growth
- Divergent Branching Pattern
- Flat Shaped Leaves with 9-11 Lobes, Smooth Petiole Surface
- Bold, semi-spiny and green capsules
- Dark Brown, Medium bold Seeds, 100 seeds weigh 28-30 grams
- 50- 55 Days to 50 % flowering
- 115 to 120 Days to maturity (first spike harvesting)
- 15-17 nodes to primary raceme
- Plant height up to base of primary raceme; 70-80 CM
- Oil Content: Seed contains 50% Oil

Castor Biofuel

- Developing Hybrid Castor cultivation for biodiesel production has the two-fold environmental benefit of growing trees that store carbon while producing oil for fuel.
- It will grow on land not fit for food crops. No direct competition with existing farmland as it can be grown on degraded and marginal land.
- As a confident source of biodiesel has high oil, content (>50%) and can grow on malnourished soils.
- The main advantages of Hybrid Castor is that the higher recovery and quality of oil. It is easy to grow and is resistant to drought.
- Great opportunity for agricultural development in arid and impoverished areas throughout the tropics and sub tropics globally.
- An unintended but important advantage to a castor bean project is that the plants absorb carbon dioxide, thereby reducing greenhouse gas accumulations in the atmosphere. The estimated carbon dioxide absorption level of castor bean plants is 34.6 MT per hectare, with two growing cycles per year.
- Castor oil is the best substance for producing Biodiesel because it is the only one that is soluble in alcohol, and does not require heat and the consequent energy requirement of other vegetable oils in transforming them into fuel.
- Hybrid Castor yields seeds that contains >50% oil, which is rich in triglycerides, mainly ricinolein and provides a great natural resource for Bio diesel production.

Source: <http://www.hybridcastorseeds.com>



Hybrid Castor Plant after 60 days



Castor Bean at the maturity

7.6. Castor Farm Production

At full capacity, the castor farm will employed 223 people as following:

	1	2	3	4	5	6	7	8	9	10
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Management										
Agricultural Senior Advisor	-	1	1	1	1	1	1	1	1	1
Farm Manager	1	1	1	1	1	1	1	1	1	1
Plot Manager	-	1	2	3	4	4	4	4	4	4
Total	1	2	3	4	5	5	5	5	5	5
Team Workers										
Agronomist	2	3	5	7	10	10	10	10	10	10
Agronomist Assistant	-	-	-	-	-	-	-	-	-	-
Agricultural Equipment Operator	1	2	2	2	2	2	2	2	2	2
Agricultural Equipment Technician	1	2	2	2	2	2	2	2	2	2
IT Operator	1	1	2	2	2	2	2	2	2	2
Seasonal workers	30	60	100	150	200	200	200	200	200	200
Total	35	68	111	163	216	216	216	216	216	216
Medical Team										
Doctor	1	1	1	1	1	1	1	1	1	1
Nurse	1	1	1	1	1	1	1	1	1	1
Total	2	2	2	2	2	2	2	2	2	2
Total Management, Team Workers and Medical Team	37	72	116	169	223	223	223	223	223	223

Castor bean production forecast (in MT)

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Castor-farm	3000	12000	15000	21000	24000	30000	30000	30000	30000	30000
Contract Farming	0	2000	3000	5000	7500	10000	12500	15000	17500	20000
Total	3000	14000	18000	26000	31500	40000	42500	45000	47500	50000

7.6. Contract farming

In order to have sufficient raw materials for our processing plants, we will complement our production with the farmers associations production.

Contract farming land (in hectare)

	1	2	3	4	5	6	7	8	9	10
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Contract farming	0	2000	3000	5000	7500	10000	12500	15000	17500	20000
Total	0	2000	3000	5000	7500	10000	12500	15000	17500	20000

Benefits from ASEAN FREE TRADE AREA (AFTA) tariff cuts

In 2015, Cambodia, Laos and Vietnam will benefit from Asean Free Trade Area tariff cuts, therefore we could extend our contract farming to the farmers associations in Laos and Vietnam. By 2021 and over, we plan to have the contract farming on 20,000 hectares.

Benefits for the farmers associations

Through our contract farming, we provide the following services:

1. Seed distribution
2. No upfront payment for fertilizer
3. We give 3 training sessions (sowing, pest and disease prevention, harvesting) to each farmer association
4. Buy-back contract
5. Problem solving related to the farm management

8. PLANT CAPACITY AND PRODUCTION PROGRAMME

8.1. Castor oil plant

In order to have the castor oil plant working at its full capacity, we need to secure the raw materials, the production of castor seed. At full capacity, we will cultivate the castor plant on 15,000 hectares through direct plantation and contract farming.

For the purpose of this project, we will set up a castor oil plant with a production capacity of 10,000 MT per year. The plant will operate single shift of 8 hours a day and for 300 days a year. Production can be increased by operating the plant double shift for 16 hours a day or three shift for 24 hours a day, if the market warrant.

By 2016, we will upgrade our castor oil plant production capacity to 20,000 MT per year.

At full capacity, the castor oil plant will employed **418** people as following:

	1	2	3	4	5	6	7	8	9	10
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Management	2	4	4	4	4	4	4	4	4	4
Factory Worker	28	51	117	179	218	249	289	319	359	389
Medical Team	3	6	6	6	12	12	25	25	25	25
Total	33	61	127	189	234	265	318	348	388	418

The production of castor oil and castor cake (in MT) is forecast as following:

	1	2	3	4	5	6	7	8	9	10
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Castor oil	1,200	7,200	9,600	14,400	18,600	24,000	27,000	30,000	33,000	36,000
Castor cake	1,800	10,800	14,400	21,600	27,900	36,000	40,500	45,000	49,500	54,000

Box 4: Castor Oil Extraction

Extraction of oil from castor seeds is done in a manner similar to that for most other oil seeds. The ripe seeds are allowed to dry, when they split open and discharge the seeds. These seeds are cleaned, cooked and dried prior to extraction. Cooking is done to coagulate protein (necessary to permit efficient extraction), and to free the oil for efficient pressing. The first stage of oil extraction is pre-pressing, using a high pressure continuous screw press called the expeller. Extracted oil is filtered, and the material removed from the oil is fed back into the stream along with fresh material. Material finally discharged from the press, called cake, contains 8 to 10 percent oil. It is crushed into a coarse meal, and subjected to solvent extraction with hexane or heptane.

Source: <http://www.castoroil.in/extraction/extraction.html>



Oil extraction machine

9. MATERIALS AND INPUT

9.1. Raw and auxiliary materials for crops farms

The material for crops farms include:

- Trucks
- Tractors
- Disk for ploughing 3 set types
- Disk ploughing 7 set types
- Disk for harrowing
- Castor bean planting machine
- Castor bean harvester machine
- Sprayers

The cost and unit number are given in the financial projection.

9.2. Raw and auxiliary materials for castor oil plant

The material for the castor oil plant include:

- Goyum 150 Oil Expeller (Capacity 15 - 18 TPD) with Two Stage Cooker
- Seed Cleaner (Capacity 50 TPD)
- Filter Press (24"x24"x30 Plates)
- Bucket Elevator
- Screw Conveyors
- etc...

These materials can be procured both from local and foreign markets. The cost and unit number are given in the financial projection.



Mechanize castor harvest

Source: Kaiima Video, http://www.youtube.com/watch?v=44CL_2C85xk

10. ENERGY

10.1. Electricity

Adalidda Castor will use a biomass generator to generate electricity for its usage. The biomass generator is a Gasifier System working in dual mode (75% gas, 25% diesel). The biomass generator had a capacity of 200 kWe. In 2016, we will increase the capacity of the biomass generator to 500 kWe. The biomass generator will use woodchips as raw material.

10.2. Bio-diesel

Adalidda Castor will keep 5% of the castor oil production to produce biodiesel for its own usage: vehicle, agriculture machines, etc... By using our own biodiesel production, we estimate that we will reduce our gasoline bill by 30% every year.

10.3. Economic and Environmental Benefits

Base on the projection from SME Renewable Energy Limited, the biomass generator (200 kWe) will provide the following Economic and Environmental Benefits:

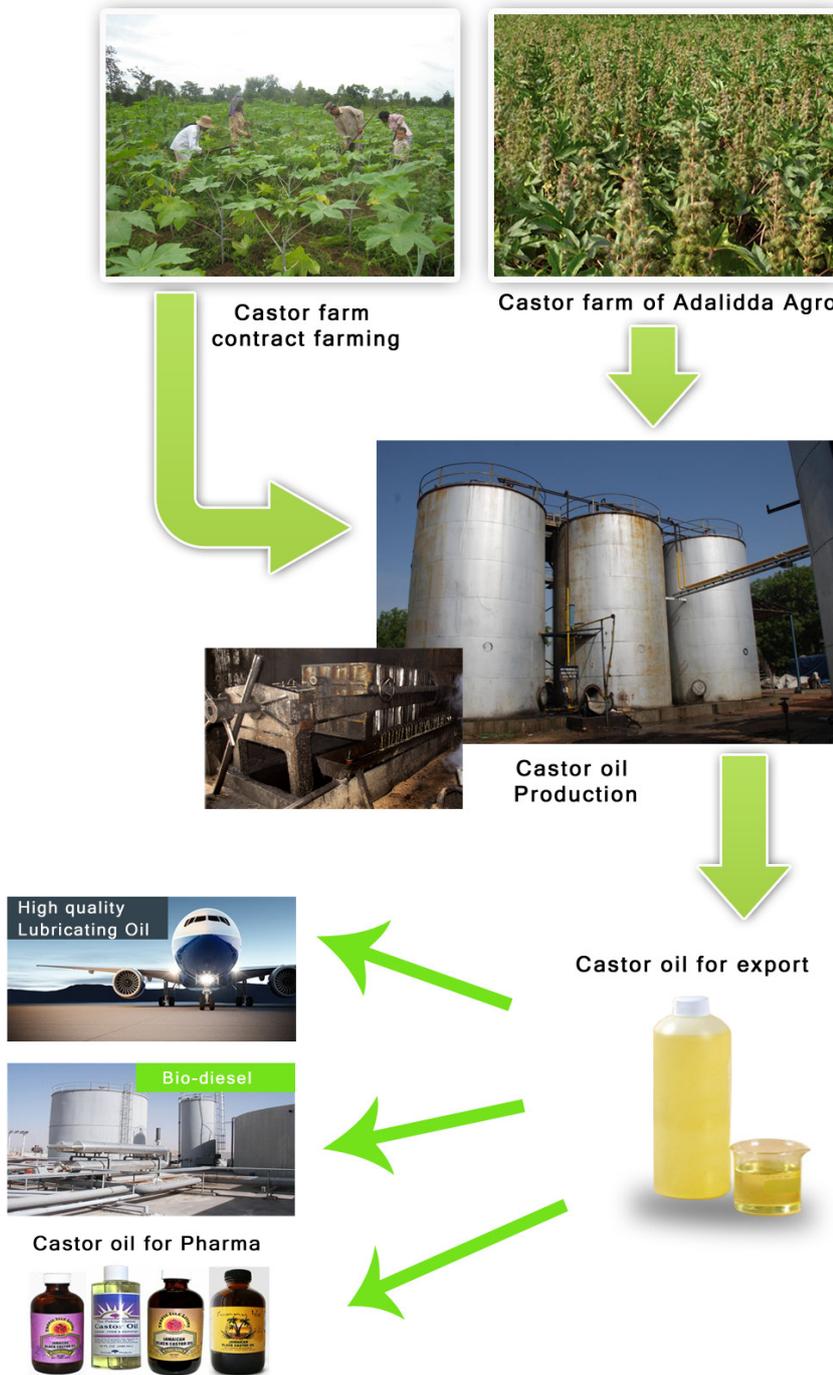
- Return on investment: 1.4 years
- Diesel reduction: 135,000 liters per year
- Carbon Emission Reduction: 350 tonne per year



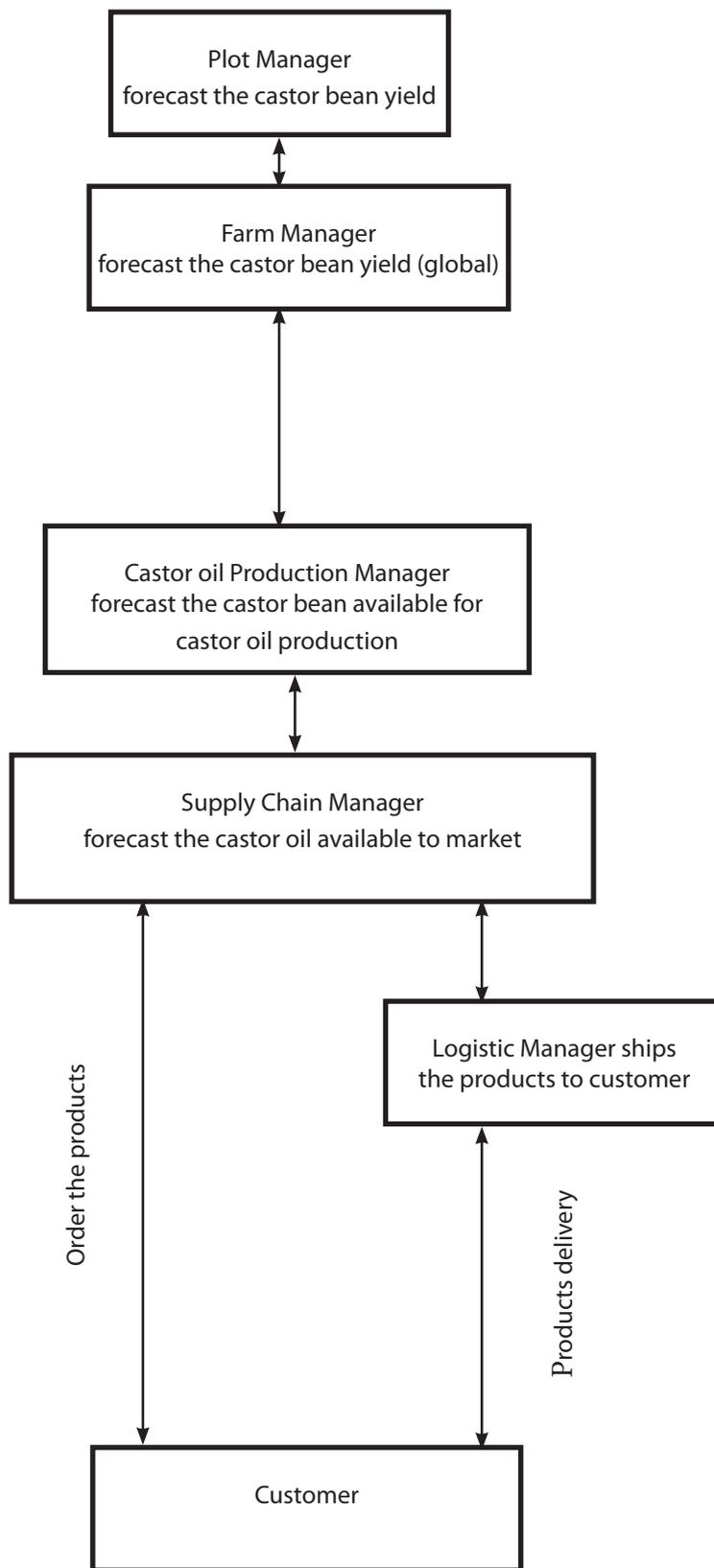
Biomass generator 200 kWe

11. SUPPLY CHAIN

Good management of the supply chain is critical for this venture therefore our whole supply chain will be computerized.



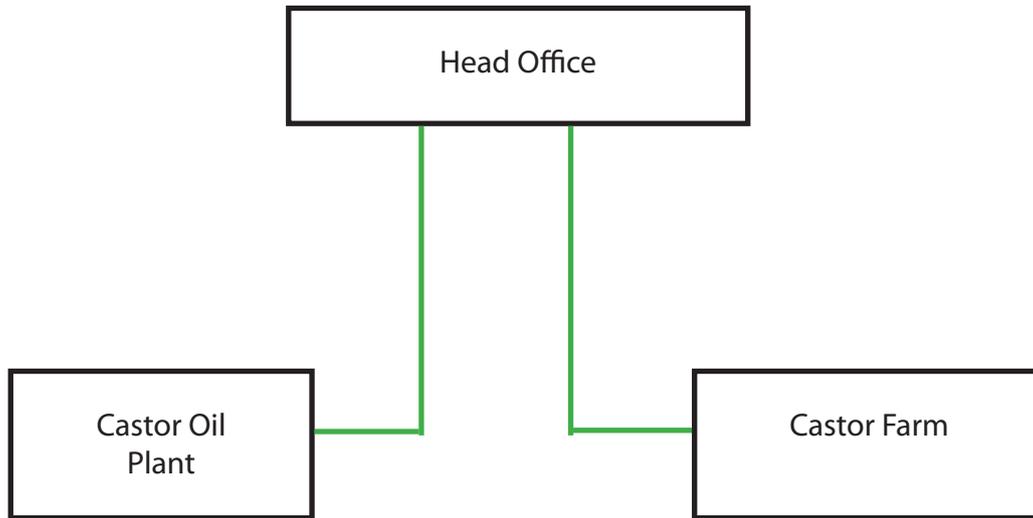
Supply Chain Flow managed by IT software



12. MAN POWER

In order to be competitive on the world supply chain market, we should employed talented and motivated staffs.

Our human resource department will work in a close-tie with universities in Cambodia to raise the interest of the students on the job opportunities at Adalidda Castor. Our participation to the trade fair in Cambodia and in the region will offered also the opportunities to identify people with high potential.



At full capacity, Adalidda Castor will employed 719 people.

	1	2	3	4	5	6	7	8	9	10
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Management	7	10	10	10	11	11	11	11	11	12
Administration	34	43	44	45	66	66	66	66	66	66
Castor farm	37	72	116	169	223	223	223	223	223	223
Castor Oil plant	33	61	127	189	234	265	318	348	388	418
Total	111	186	297	413	534	565	618	648	688	719

Bonus and incentive will be offered to staffs base on the annual performance appraisal. Moreover, staffs families have access to the social activity and medical care offered by Adalidda Foundation (please refer to section 15.2).

13. CAPACITY BUILDING

We will dedicated 3% of the gross salary to the budget for staff training.

The staff training curriculum can be divided in 4 parts:

1. Short-Training for Managers
2. Short-Training for technical staffs
3. Scholarship for talented staffs
4. English Course for all staffs

13.1. Short-Training for Managers

Managers could participate to the short-training session to improve their professional skills. The training course could focus on project management, leadership, etc...

13.2. Short-Training for Technical staffs

Technical staffs will be invited to attend short-training course. The purpose of this training course is to learn to use the production machine that they have to use in their daily works.

13.3. Scholarship for talented staffs

In order to retain talented staffs, we will offered to them the opportunity to attend degree course. After the completion of the degree, talented staffs will get promotion to a better position and salary.

13.4 English Course for all staffs

For a trading firm like Adalidda Castor, English skills are very important. We will offered to our staffs the possibility to attend evening english course inside our office building.

Capacity Building Budget (USD) (3% of gross salary)

Year	1	2	3	4	5	6	7	8	9	10
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Management	2,895	19,033	19,315	19,772	25,641	25,816	25,999	26,192	26,395	27,328
Castor farm	2,100	4,728	6,852	9,012	11,532	11,532	11,532	11,532	11,532	11,532
Castor Oil Plant	3,810	7,848	11,376	14,904	18,324	20,160	25,200	26,820	28,980	30,600
Total	8,805	31,609	37,543	43,688	55,497	57,508	62,731	64,544	66,907	69,460

14. DEVELOPMENT PLAN

Our 10-year development plan is divided in 2 phases: Phase 1 (2012-2015) and Phase 2 (2016-2021).

14.1. Phase 1 (2012-2015)

The objective for this phase is to secure the raw materials for the castor oil plants.

In order to reach this objective, we will work on 2 directions:

1. Improve the capacity of our agronomists on modern crops farm management through technology transfer from international partners
2. Raise the awareness of the farmers associations on the benefit of using modern technology for crops farms.
3. Establish a Research and Development (R&D) unit.

14.1.1. Improve the capacity of our agronomists

Our agronomists will benefit from the technology transfer from our projects partners: Kaiima, Japan Bio-Energy Development, Sri Sai Agro Bio. They will learn modern crops farms management such as using machine to prepare land and harvest, soil care, pest control, disease prevention, etc... Our agronomists will also use crops software to monitor the crops development from sowing, disease management to harvesting.

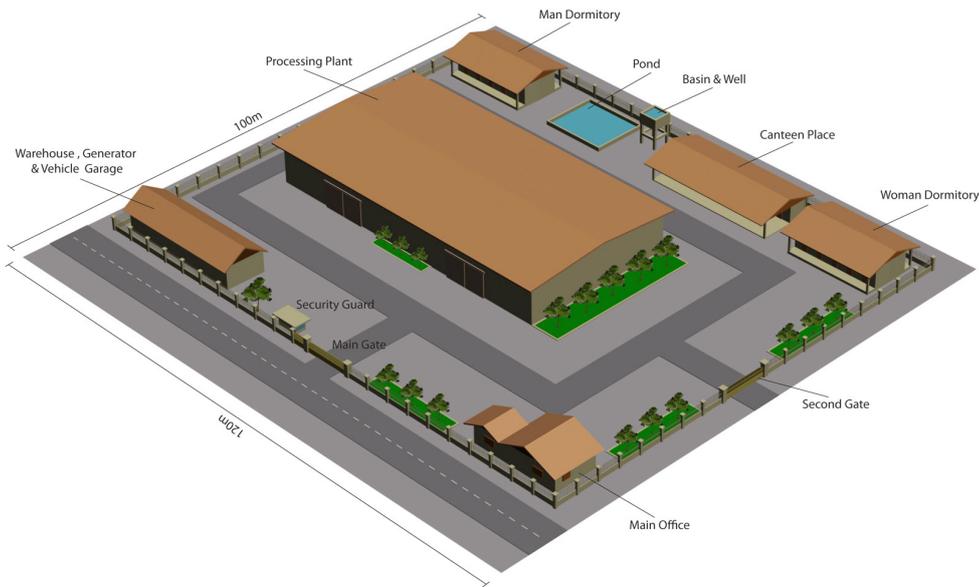
14.1.2. Raise the awareness of the farmers associations

In order to raise the awareness from the farmers associations, we will:

- set up a model farm on 1 hectare as a demonstration plot for the farmers associations
- we will invite the farmers associations to visit our model farm
- we will work in a close-tie with the provincial agriculture department to get their support on our contract farming
- we will encourage the farmers near by our crops farms to grow castor bean on a trial basis

“China is becoming a national leader in green technology, China can hope to the less developed ASEAN member countries transfer green technology to increase agricultural production. Cambodia has great potential in many areas, agriculture, agro-industry and other fields need to be further developed, contains a large number of investment opportunities.”

**Prime Minister
Hun Sen of Cambodia,
Address at the opening
ceremony of the
China-ASEAN Business
and Investment
Summit,
Oct. 21, 2011**



**View of the office, warehouse, processing plant and dormitory
Phase 1: 2012-2015**



**View of the office and oil refinery
Phase 2: 2016-2021**

14.1.3. Research and Development Unit

The Research and Development unit will have an annual budget of 1 million USD. The Research and Development unit will be our innovative arm that help Adalidda Castor to be in the top 10 regional biofuel supply chain firms in the Asean countries. The Research and Development unit' missions are:

- Develop new variety of castor that can increase the yield
- Develop new castor cultivation technique
- Develop new application from Castor through innovation and bio-technology
- Study new trend in renewable energy technology that we can develop, implement and market

The Research and Development unit will work in close-ties with the bio-technology firms around the globe.

14.2. Phase 2 (2016-2021)

The objective for this phase is to increase the capacity of our processing plant.

14.2.1. Increase the capacity of our processing plant

At full capacity, our annual production of castor bean is estimated to 90,000 MT. Therefore it is critical to improve the capacity of our processing plant. After the expansion, we should be able to produce 40,000 MT of Castor Oil per year (8h per day, 300 days per year).

14.2.2. Expansion of the Office Space, warehouse and biomass plant

The expansion will help our company to improve our supply chain and production.

The cost to implement the phase 2 is estimate to 6,000,000 \$ USD funded by the cash-flow generated from 2013 to 2015. In the financial projection, we budgeted this expense for 2015.

15. SOCIAL ACTIVITIES

Adalidda Castor will dedicated 1% of its gross revenue to the social activities for the benefit of its employees. The fund dedicated to the social activities will be managed by Adalidda Foundation, a local NGO.

Adalidda Foundation Budget projection (1% of gross salary)

	1	2	3	4	5	6	7	8	9	10
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Budget	4,656	87,807	111,834	164,138	202,421	258,375	278,525	300,184	320,281	341,940
Total	4,656	87,807	111,834	164,138	202,421	258,375	278,525	300,184	320,281	341,940

Adalidda Foundation will manage 2 activities:

1. Agro-tourism
2. Community Center

15.1. Agro-tourism

Siemreap city is the home of Angkor temple. The number of tourists visiting Angkor temple is estimated to 4 million in 2011. This number is estimated to reach 10 million by 2020. We oversee the potential to develop an agro-tourism farm on the site.

On 2 hectares land, Adalidda Foundation will establish an Organic Agriculture farm which include:

1. Fish feed-stock
2. Fresh water lobster feed-stock
3. Vegetable farm
4. Fruit farm

Adalidda Foundation will propose a half-day excursion to its organic farm to tour operators and individual tourists. The half-day excursion will include:

- Visit to the organic fruits and vegetables farms
- Visit the fish and freshwater lobster feed-stocks
- Lunch with meals using the farms products

Individual tourists can participate to the farms activities like sowing, harvesting, feeding fishes, feeding feshwater lobsters, etc...

The Organic Agriculture farm will employe in priority workers from the family of our employees. The profit generated by this activity will be used to fund the social activities for the benefit of our employees families.

Box 5: Agrotourism

The concept of agrotourism is a direct expansion of ecotourism, which encourages visitors to experience agricultural life at first hand. Agrotourism is gathering strong support from small communities as rural people have realised the benefits of sustainable development brought about by similar forms of nature travel. Visitors have the opportunity to work in the fields alongside real farmers and wade knee-deep in the sea with fishermen hauling in their nets.

Source: <http://www.ecotourdirectory.com/agrotourism.htm>

Box 6: What is Organic Farming?

Organic farmers use quality compost, cover crops (such as nitrogen-rich alfalfa) and crop rotation to nourish soil naturally, and to allow it to rest and regenerate. Plants grown in healthy soil are better able to feed and protect themselves from pests and disease, which means they won't require heavy applications of fertilizers and pesticides. The expression, "Feed the soil, not the plant" is a familiar refrain among organic farmers. Organic farmers are also careful about how they store and compost animal wastes, in order to safeguard air and water systems. They tailor their crops according to climate and soil, to optimise the natural growth cycle. Organic farmers also promote biodiversity, by growing a variety of crops, rather than one single crop. Through all of these methods, organic farmers prevent soil erosion, conserve energy, and help protect local wildlife, stream banks and watersheds. They help protect the global environment, as well: organic farming can greatly reduce the amount of greenhouse gases, such as carbon dioxide, that contribute to global warming. Organic farming helps prevent topsoil erosion, improves soil fertility, protects groundwater and conserves energy.

Source: <http://www.certifiedorganic.bc.ca/aboutorganic/whatis.php>



Vegetable farm



Fruits farm



Agrotourists



Fish feed-stock



Freshwater lobster

15.2. Community Center

Adalidda Foundation will use the profit generated from the Agrotourism activities for the benefit of our workers families:

- loan without interest
- scholarship for the children
- medical care
- english course
- sport activities
- internet lab
- etc...



Internet Lab



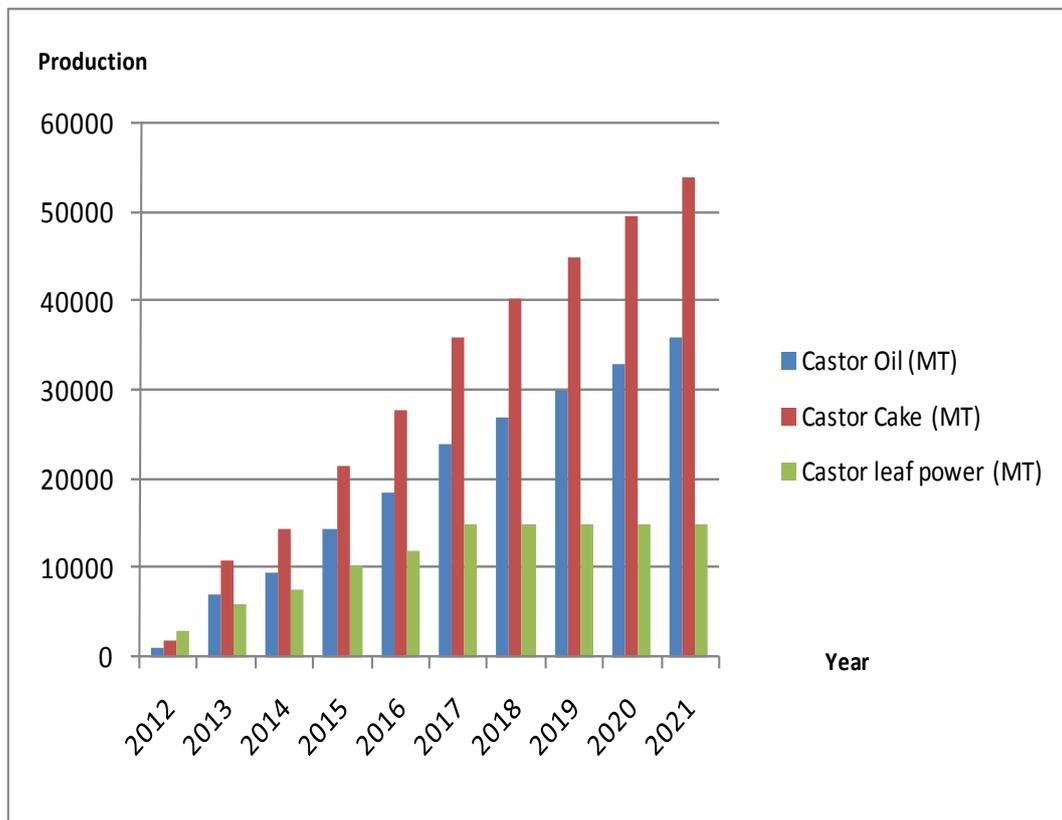
Children plays football

16. FINANCIAL ANALYST

Production in MT

Year	1	2	3	4	5	6	7	8	9	10
Cator bean	3,000	18,000	24,000	36,000	46,500	60,000	67,500	75,000	82,500	90,000
Castor Oil	1,200	7,200	9,600	14,400	18,600	24,000	27,000	30,000	33,000	36,000
Castor Cake	1,800	10,800	14,400	21,600	27,900	36,000	40,500	45,000	49,500	54,000
Castor leave powder	3,000	6,000	7,500	10,500	12,000	15,000	15,000	15,000	15,000	15,000

Assemption: The average yield of the castor bean is 1.5 MT per hectare per harvest (base on Kaiima , with a good irrigation system, the average yield is 3 MT per hectare per harvest).



Financial Projection

In the first year, we need 6 months to set up the infrastructure: road, clear land, irrigation system, well, etc...

Our production in the first year operation will be minimal therefore the lost will occurred. Except for the first year, this venture is always profitable. At full capacity, our annual profit is estimated to 23 million USD per year. Our blended IRR is 40%.

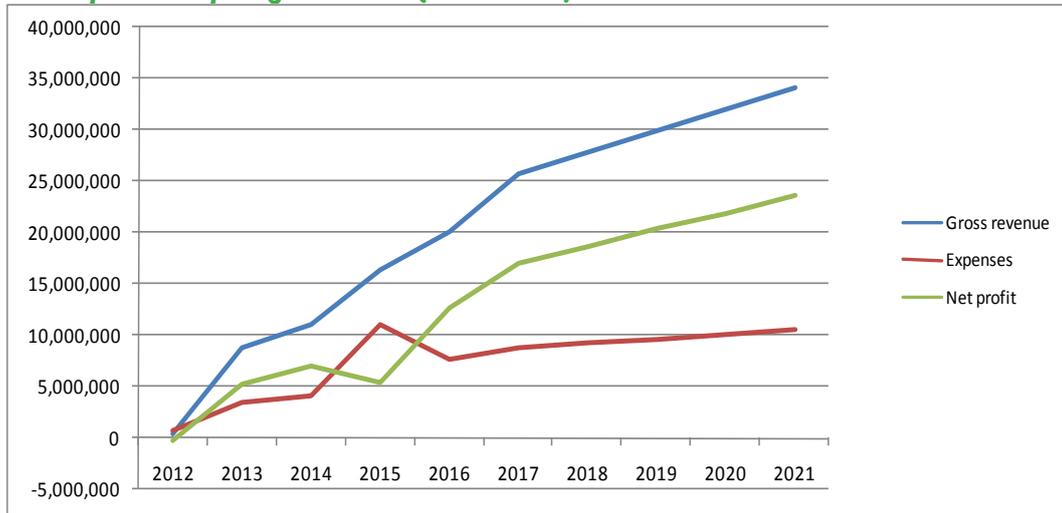
Financial assumption

1. The purchase price of the fresh castor from the farmers associations is fixed at 300 USD per MT.
2. The price of the castor oil is fixed at 1,900 \$ USD per MT (in November 2011, the market price is around 2,000 USD per MT).

Please refer to the Excel file: Adalidda Castor-Financial Projections.xls for more detail information.

	1	2	3	4	5	6	7	8	9	10
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Gross Revenues (in USD)										
Castor Oil+Castor cake	450,594	8,750,735	11,145,932	16,361,297	20,182,127	25,762,546	27,777,484	29,943,400	31,953,088	34,119,004
Castor leaves powder	15,000	30,000	37,500	52,500	60,000	75,000	75,000	75,000	75,000	75,000
Total	465,594	8,780,735	11,183,432	16,413,797	20,242,127	25,837,546	27,852,484	30,018,400	32,028,088	34,194,004
General Expenses and Overheads										
Management and Administration Salaries	384,360	672,818	682,852	698,915	908,434	914,444	920,754	927,379	934,336	966,725
Operating Expenses	141,600	1,209,120	1,329,120	8,560,800	3,156,000	3,156,000	3,156,000	3,156,000	3,156,000	3,156,000
Depreciation	218,673	393,585	319,354	266,814	228,214	198,944	176,145	157,971	143,182	130,924
Social Activity (1% of the previous year annual profit)	-	4,656	87,807	111,834	164,138	202,421	258,375	278,525	300,184	320,281
Total General Expenses and Overheads	744,633	2,280,180	2,419,133	9,638,364	4,456,786	4,471,809	4,511,275	4,519,875	4,533,702	4,573,930
Earnings Before Interest and Taxes	(279,039)	6,500,555	8,764,299	6,775,433	15,785,341	21,365,736	23,341,209	25,498,525	27,494,385	29,620,074
Net Interest Expense	-	-	-	-	-	-	-	-	-	-
Pretax Income	(279,039)	6,500,555	8,764,299	6,775,433	15,785,341	21,365,736	23,341,209	25,498,525	27,494,385	29,620,074
Corporate Income Tax	4,656	1,244,303	1,752,860	1,355,087	3,157,068	4,273,147	4,668,242	5,099,705	5,498,877	5,924,015
Net Profit	(283,695)	5,256,252	7,011,439	5,420,347	12,628,272	17,092,589	18,672,967	20,398,820	21,995,508	23,696,059
Profit Margin %										
Pretax Margin %	-11.0%	42.9%	43.4%	22.4%	40.3%	42.3%	41.1%	40.4%	39.6%	39.1%
Net Profit %	-11.2%	34.7%	34.7%	17.9%	32.3%	33.8%	32.9%	32.3%	31.7%	31.3%

Net profit projection (in USD)



By 2015, we will increase the capacity of our processing plant and biomass plant. We had budget an expense of 6 million USD for this expansion. This budget is funded from the cash generated from 2013 to 2015. Therefore, in the graph above, we can note an increase in expense and less net profit for 2015.

17. ECONOMIC BENEFIT

- This project will provided technology transfer on modern crop farms management to farmers in Cambodia.
- Our Research and Development Unit will developed new products and bring innovation to the biofuels supply chain.
- At full capacity, Adalidda Castor will provided direct employment to 719 people. Through contract farming on 20,000 hectares land, we estimate that at least 20,000 household in Cambodia will benefit from the contract farming.
- We budget 3% of our gross salary for the capacity building of our employees. Therefore our people are expected to be of high competency.
- We budget 1% of our gross salary for the social activity for the benefit of our employees families therefore 719 families will benefit from basic health care, professional skills courses, etc...

18. CONCLUSION

This business plan presented our overall vision for the development of a profit generated biofuels supply chain firm in Cambodia. We believe that this project will demonstrated that we can combine corporate citizen values with economic development for the benefit of the company shareholders and for the benefit of Cambodian people.

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