Balmed®

Blockfarming

www.balmed.org

https://www.facebook.com/balmedholdingsltd

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www.youtube.com/user/BalmedGmbH

Smallholder Blockfarming

The project aims to set up 10.000 hectares of improved cocoa, coffee and cashew plantations using agro forest cultivation techniques to provide long term food security, stable income, and improved livelihoods for smallholder farmers across Africa and the Carribean. The long term goal of the company is to launch a unique product range of special chocolates and snacks made from products coming from Balmed farms.

Details of the organization:

Balmed Holdings Ltd.
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Year of establishment: 2005
Registration: C.F. 242/2005, Sierra Leone
TIN Number: 1005624-7

CONTENTS

ABREVIATIONS

A4D	Agriculture for Development
AATIF	African Trade & Investment Fund
AECF	African Enterprise Challenge Fund
B2B	Business to business
BHL	Balmed Holdings Limited
CDM	Clean Development Mechanism
CNRA	Centre National de Recherche Agronomique (Coté d´Ivoire)
COCOBOD	Cocoa Marketing Board Ghana
CRIG	Cocoa Research Institute Ghana
CRIN	Cocoa Research Institute Nigeria
ESHIA	Environmental, Social and Health Impact Assessment
FAO	Food and Agriculture Organization of the United Nations
GIS	Geoinformationsystem
GIZ	German Development Cooperation
GOSL	Govermment of Sierra Leone
GPS	Global Positioning System
HA	Hectare
ICS	Internal Control System
IRR	Internal rate of return
IUCN	International Union for Conservation of Nature
LDC	Least developed country
MAFFS	Ministry of Agriculture, Forestry and Food Security
MORINGA	Moringa Fund
NGO	Non-Government Organisation
NPV	Net present value
PSI	Private Sector Investment Programme of the Dutch Government
PV	Present value
RA	Rainforest Alliance
R&D	Research and Development
SAP	SAP AG, German software firm
UNFCCC	United Nations Framework Convention on Climate Change
UTZ	UTZ certified
WFP	World Food Programme
WHH	Welthungerhilfe

THE COMPANY


Rural community in Sierra Leone


Cocoa pod on tree at Taninawahun Farm, Sierra Leone


Balmed artisan chocolate products at the Berlin manufacture

Balmed is an agric company, based in Sierra Leone. Its main objectives are commodity trading and establishment of new treecrop plantations, focussing cocoa, coffee and cashew, under an innovative landuse model, the Blamed Blockfarming System. Furthermore the company is supporting farmers and cooperatives in farmmanagement and rehabilitation to increase output and profitability of existing farms. The firms runs a unique quality management system to guarantee premium quality to its clients.

Over the past 7 years the firm has built a close network of 20.000 cocoa and coffee farmers in Sierra Leone registered with the company. Backed by international development organisations, namely GIZ, WFP, PAGE, FAIRMATCH SUPPORT and WHH, Balmed set up a decentralised buying network as well as Fairtrade, ORGANIC, UTZ and Rainforest Alliance certification for all of its registered farmers. The company was the first one in Sierra Leone to promote a new cocoa and coffee business by improving quality and farmer capacity. In 2010, Balmed entered into a PPP with GIZ to start a pilot for establishment of new cocoa plantations using a unique landuse model, the Balmed Blockfarming System, to guarantee local ownership, income and sustainability for all stakeholders involved in the system.

During the 2011 season the company was hit by a series of unexpected financial difficulties, which led to a default of 2 bank loans given by the financiers, Triodos Bank and Rootcapital. This resulted in a dropdown in sales and turnover. In 2013 a consultant was sent on behalf of Triodos Bank to analyze the turn-around capacity of Balmed and develop a repayment startegy. His findings summarized that Balmed is a high-risk-high-reward investment case with an high development impact if implemented sucessfully. He recomended that investments made into Balmed shall target the 2 main business fields of the company: Trading and Establishment of new treecrop plantations. Despite the fact that the company defaulted given trade finance loans and could be considered as technically bankrupt, the firm´s directors and shareholders kept on investing into Balmed which allowed the firm to continue its operations on a low scale and invest simultaneously into R&D. Over a period of two years, the firm analyzed the past operations and the „mistakes“ made in the business segments and presented a new face of Balmed promoting full transperancy and accountability. The investments made into R&D payed off soon and Balmed kept its sound reputation and aquired new innovative projects and funding for the envisioned goal..

In 2012, Balmed became partner and a stakeholder in a PSI program frunded by the Dutch Government. In April 2013 Balmed officially was granted 800.000 $ grant from the African Enterprise Challenge Fund, the contract was signed end of 2013 and the firm is expecting the first payout in Q2 2014. Furthermore Balmed signed a trade finance agreement with AATIF december 2013. Balmed recently signed a MoU with the German Welthungerhilfe (A4D Agriculture for Development funded by the European Union EU) for continuation of Blockfarming and farm rehabilitation for 1.000 farmers. Balmed is implementing a newly developed GIS tracebility system in a pilot project from the german software firm SAP for digital dataflow and improved reporting. Balmed is furthermore implementing a cashless buying system, provided by UBA Bank Sierra Leone, using VISA cards to pay farmers for their products.

Through interested franchise partner the company could set up offices in Jamaica, Nigeria and Cameroon for future trading and blockfarming operations as well as a marketing and sales arm in Germany focussing on the production of high end speciality chocolates and confectionary products, with certified supply coming from own plantations. It has already started to produce its own sample products (picture left) and trial run of an online shop.

Currently the firm is conducting a ESHIA, initiated by AATIF. The firms is seeking for major investment into treecrop plantations to secure its future commodity supply as well as creating measurable development impact in its operational areas. The goal of the company is to create a Net Benefit per Household to reduce poverty in rural areas.

BALMED BLOCKFARMING SYSTEM©

Balmed´s core principles: Planting, trading and developing

The Balmed Blockfarming Sytem is an integrated SUPPLY CHAIN MANAGEMENT solution for smallholder commercialisation by promoting local landownership and social standards. - The Balmed Blockfarming System is a visionary concept for a successful business future, in the sense of social fairness and gender promotion, preservative and sustainable production methods as well as economic rentability and profitability.
Balmed is establishing treecrop plantations under a fair and sustainable land lease model to engage rural youths in farming, create long term income end employment to mitigate poverty and improve livelihoods in rural areas. Balmed develops new plantations targeting cocoa, coffee and cashew under agroforest conditions. The company is working towards achieving a Net Benefit per Household and create sustainable rural development and improved livelihoods for smallholder farmers and indigenous landowners in its operational areas.
The system is creating a **WIN-WIN** situation of all stakeholders in the value chain.

- CREATE LONG-TERM FARMER INCOME
- PROVIDE FOOD SECURITY
- CONSERVE ENVIRONMENT AND BIODIVERSITY
- ESTABLISH SUPPLY CHAINS
- IMPROVE RURAL LIVELIHOODS
- INCLUDE LOCAL OWNERSHIP
- PROMOTE TRACEABILITY & CORPORATE GOVERNANCE
- EMPOWER WOMEN AND SMALLHOLDER STAKEHOLDERS

- **CREATE SOCIAL, ENVIRONMENTAL AND ECONOMIC IMPACT**

BLOCKFARMING STAKEHOLDERS

FARMGROUP

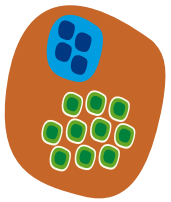
The FARMGROUP consists of farmers (workers) and landowners which are the legal land title holders. The farmgroup is responsible for cropproduction and farm management according to the companies requirements and agreements. An average farmgroup size is 42 people (32 farmers and 10 landowners). The farmgroup will directly supply the raw produce to the allocated processing center.

FARMER

The farmer (worker) is responsible for the plantation management of the cultivated plot. The farmer is entiled to 20% of the cropvalues of the produced goods. In average the farmmanagement involves ca. 55 labour days per year. The company is providing an activity plan as well as training and capacity building to fulfill the required tasks. The farmer is directly paid for the produce when supplying to the company according to the daily international price (day of supply).

LANDOWNER

The landowner is the legal and traditional (chieftancy) plot owner. The landowner share is 20% of the cropvalue of the produced group. On average a 100 acre plot of land is owned by 6-12 landowners. The landowners receive legal land documents including GPS survey of cultivated block. The landowner share is paid at the end of the season on the average international price. (LIFFE)



PROCESSING CENTER

The PROCESSING CENTER is the central commodity processing site, where farmgroups deliver their raw cocoa/coffee/cashew for further processing. The PROCESSING CENTER is managed by Balmed for the first 8 years, later on the management is handed over to the community. The PROCESSING CENTER is entitled to 18% of the cropvalue (international price) of the produced goods. On average, the PROCESSING CENTER is employing 10 - 12 permanent staff and additional 3.000 days of casual labour anually. the center is responsible for the quality management and control of the produced goods according to the requirements of the company. Due to its improved and stable commodity accesability, the Processing Centers is only producing high end quality products for international markets. The Center and its management ist dedicated to deliver Grade 1 produce.

COMITTEE

The COMITTEE acts as representative body for the chiefdom and governs the interactions of the blockfarming stakeholders in the sense of environmental, social, gender and economical issues.
The COMITTEE is entitled to 2% of the cropvalue (international price) of the produced goods.
The comittee consits of town/village representatives (towns where Balmed is doing Blockfarming, 1 representative per town/village), section representatives (all sections in the chiefdom, 2 representatives per section), chiefdom capital representative (3), Chiefdom youths leader (1), Chiefdom women leader (1). The average comittee size is 25 people. The committee has to report at least biannually to the chiefdom councilors (elders) and the paramount chief about the operations and the cooperation of the stakeholders in the chiefdom.

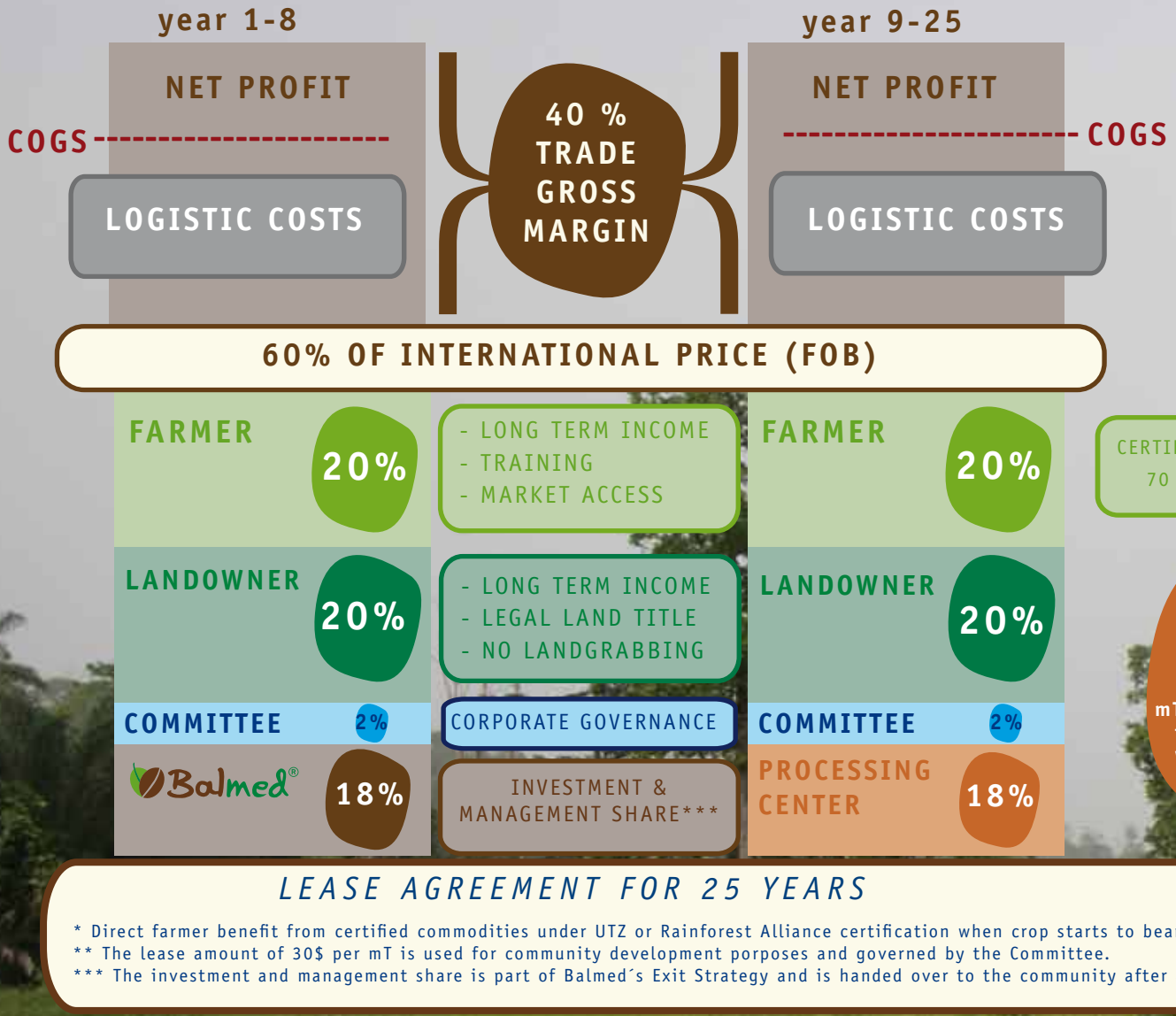
Balmed®

Balmed is the initiator and the management company for the Blockfarming System. The company will bring up the initial investment for the crop production and the farm inputs (seedlings, training, labour) to set up the Blockfarming System. Balmed withholds the full purchasing rights on the produced crop for 25 years (land lease agreement) at the agreed profit split of the Blockfarming System. The company will hand over the management of the processing center to the community after 8 years. By that time Balmed has built a well organised agriculture management system that is self sustaining and integrated in the international market supply chain of high end customers of the food and cosmetic industry.

BLOCKFARMING STAKEHOLDERS

Balmed enters into legal land lease agreements within a traditional chieftancy land tenure system. The involvement of all authorities and the close cooperation with the community encourage and strenghten the project activities. The chieftancy system is a well structured traditional ruling system with the Paramount Chief as first leader, followed by section and townchiefs and various peergroup representatives within the chiefdom. Furthermore Balmed is conducting GPS survey of the cultivated plots to aquire the full and correct land size and location; the selected plot is then officially leased from the landowner according to Sierra Leonenan land rights. The lease period is 25 years.

STAKEHOLDER BENEFITS



The Blockfarming System fully complies with international audit and reporting standards (Big Four). The clear payment structure acts as Anti Corruption and Anti Money Laundry risk management and policy tool by promoting transparency, accountability and good corporate governance. The plantations are measured by fair value and comply with the latest IFRS standard.

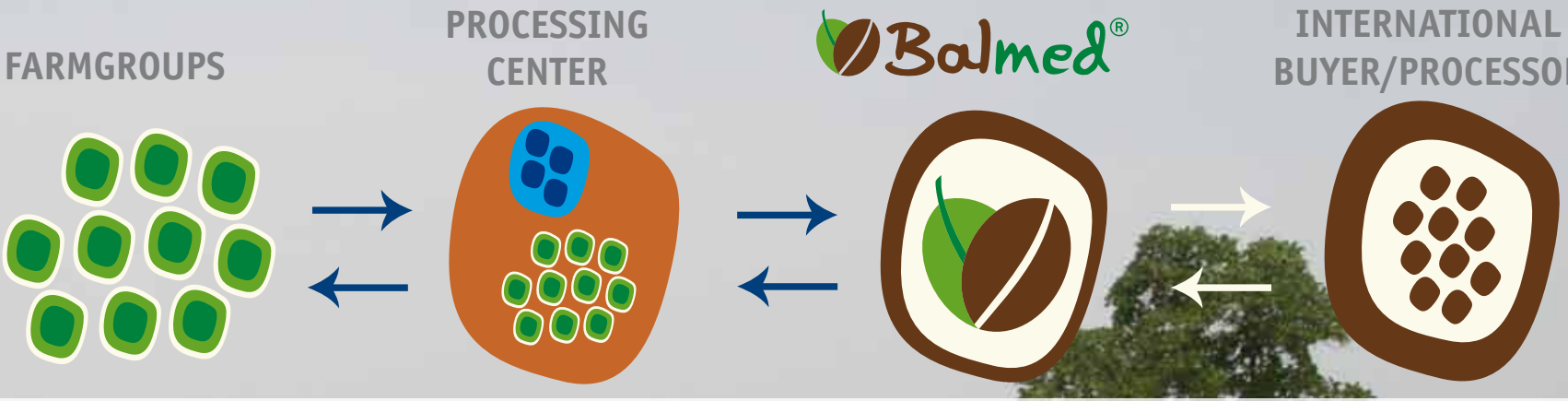
CERTIFICATION PREMIUM
70 - 100$ per mT*

Balmed pays 30$ per mT as lease payment to the community where the center is located**

* Direct farmer benefit from certified commodities under UTZ or Rainforest Alliance certification when crop starts to bear.
** The lease amount of 30$ per mT is used for community development porposes and governed by the Committee.
*** The investment and management share is part of Balmed´s Exit Strategy and is handed over to the community after 8 years.

SUPPLY CHAIN MANAGEMENT

From farm to fork. The constant supply of raw products and the quality management of the system allows Balmed to produce internationally demanded high class products for speciality markets. All stakeholders in the supply chain benefit from improved production and traceable products, which attracts higer prices on the world market.



The Farmgroup is responsible for the cropproduction and the management of the cultivated block according to the requirements and scheduled activities of the company. The farmgroups are sensitized and trained in Good Agricultural Practices and international certification. The farmgroup is supplying the harversted produce (wet cocoa/coffee beans, raw cashew nuts etc.) directly to the processing center for further processing.

The Processing Center directly receives the produced crops from the farmgroups. The Processing Center will fully manage the primary processing of the produced goods at the highest processing standard. The center only produces Grade 1 products which are sold directly to Balmed. All processing center staff are fully trained on the required tasks including documentation, monitoring and accounting. The Processing Center is the chain link between Balmed and the farmers.

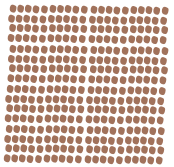
Balmed is the management company for the produced crop. It is responsible for the purchase of produce, the processing and the marketing of the products, produced by the farmgroups under the Blockfarming System as well as the monitoring and training activities in the selected communities. Through its quality management system and the steady supply of produce from contracted farms, Balmed only supplies traceable Grade 1 products to the international clients.

The International Buyer or processor is the buyer of the produced commodities. The international companies demand a high quality product, that can be traced back to farmgate level. The buyers highly demand certified commodities, which guarantee a social and environmental responsibility to the communities. The buyer therefore pay a higher price for this commodities.

THE AGRO-FOREST SYSTEM

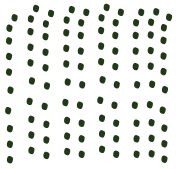
The project will establish a 10.000 ha treecrop plantations under organic agro-forest using quality grafted seedlings and other treecrops from its professional nursery. The agro-forest system is an environmental conservative crop production system that focus on ecomonic rentability and food security. The agro-forest system provides natural shade, that cocoa needs to grow well. The planted shade trees like Gliricidia, Mahogany and palmtrees grow in symbiosis with the cocoa. The foodcrops provide stable food security to the farmers. The agro-forest system does not depend on external inputs like fertilzer or pesticides. The plantations are applicable for Organic certification like UTZ or RA.
The picture on this page clearly shows a successful established agro-forest cocoa plantation under secondary forest mixed with palm trees and other food crops. The shade in a cocoa plantation is crucial for the growth of the trees; it shall be 40 - 50 % light-shade ration. The budwoodgarden will be a permanent source of quality budwood for continous nursery operations.

THE AGRO-FOREST SYSTEM



Pattern 1: Initial Shade
Botanical name: Gliricidia Sepium
Common name: Gliricidia
Spacing: 5 x 5 m, 400 trees per ha
Porpose: Shade, nitrogen fixing, firewood
Local value: 30 USD

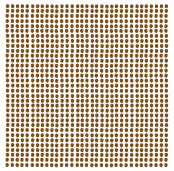
Pattern 2: Short term food crops
Botanical name: Zea mays subsp. mays, Manihot esculenta & Colocasia spp.
Common name: Maize, Cassava & Cocoyam
Spacing: Planted between lines
Porpose: Shade, food
Local value: 220 USD



Pattern 3: Mid term food crops
Botanical name: Musa spp. & paradisica
Common name: Banana & Plantain
Spacing: 10 x 10 m, 100 plants per ha
Porpose: Food
Local value: 50 USD

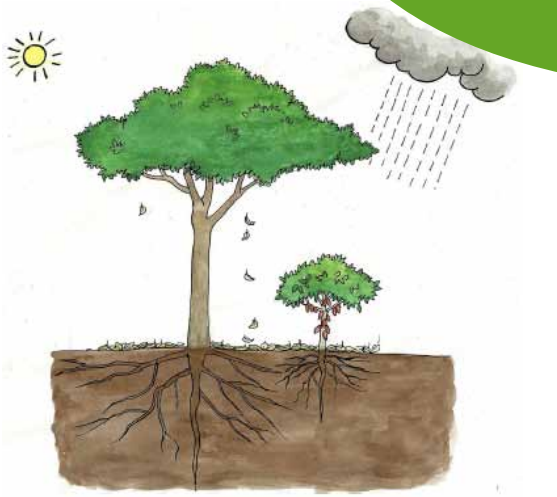
Pattern 4: Long term food crops
Botanical name: Elaeis guineensis & Cocos nucifera
Common name: Oilpalm & Coconut
Spacing: 10 x 10 m, 60 trees per ha (pattern 3+4)
Porpose: Shade, nitrogen fixing, firewood
Local value: 150 USD

Pattern 5: Timber trees (IUCN listed)
Botanical name: Kaya Ivorensis, Terminalia Ivorensis & Milicia Excelsa
Common name: Mahogany, Iroko & Idigbo
Spacing: 10 x 10 m, 40 trees per ha (patter 3+4)
Porpose: Shade, timber
Local value: 11.000 USD (after 25 years)

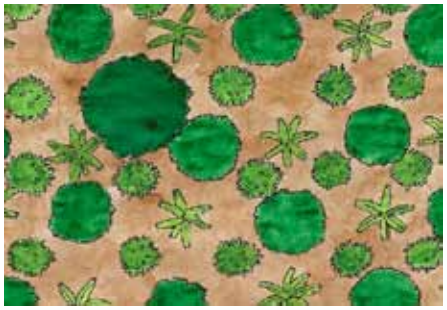


Pattern 6: Cash crop
Botanical name: Theobroma cacao
Common name: Cocoa
Spacing: 3 x 3 m, 1.111 trees per ha
Porpose: Income
Monetary value: 820 USD

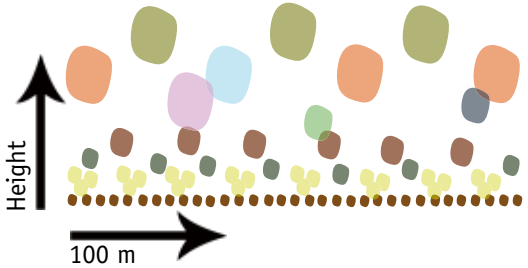
Pattern 7: Fruit trees
Botanical name: Psidium guajava, Citrus sinensis, Mangifera indica, Anacardium occidentale, Persea americana, Cola nitidia
Common name: Guava, Orange, Mango, Cashew, Avocado, Kolanut
Spacing: randomly, 20-25 trees per ha
Porpose: Long term food security, biodiversity
Local value: 40 USD



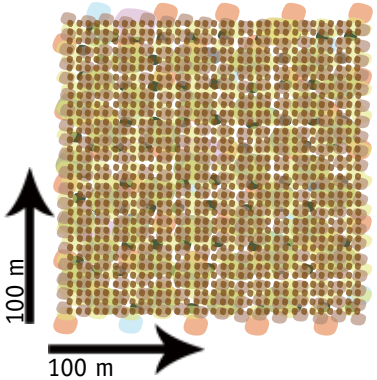
a) Leaf fall of shade trees to provide nutrients for cocoa



b) Bird view of an agro-forest system



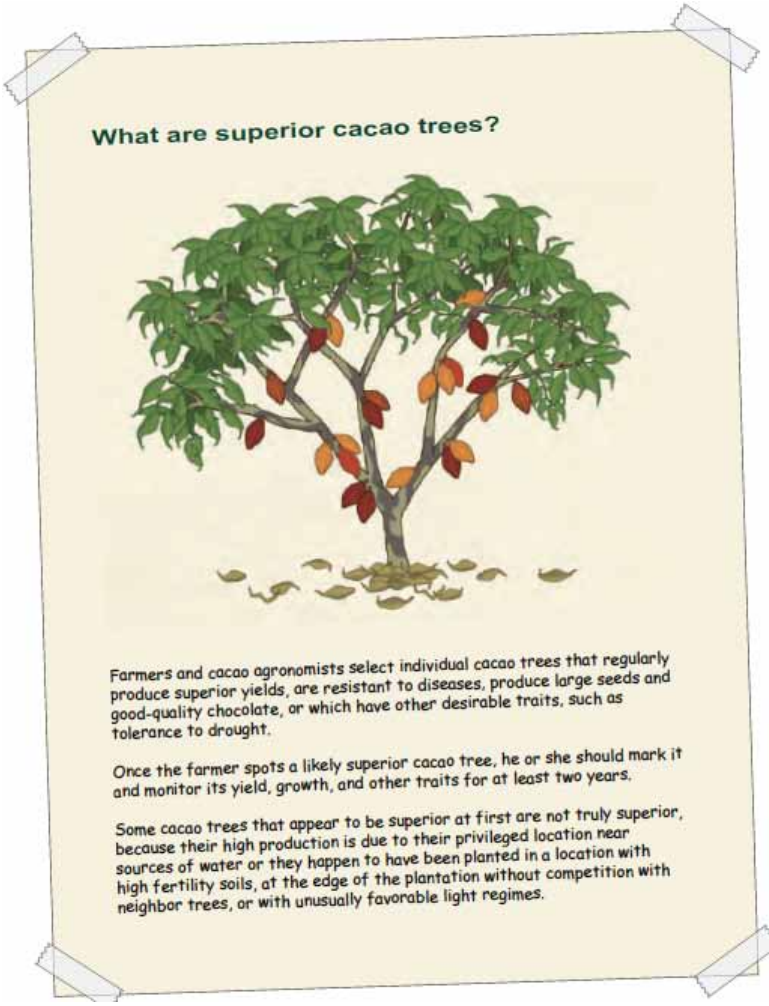
c) 1 ha agro-forest crop pattern profile



d) 1 ha agro-forest crop pattern overlay

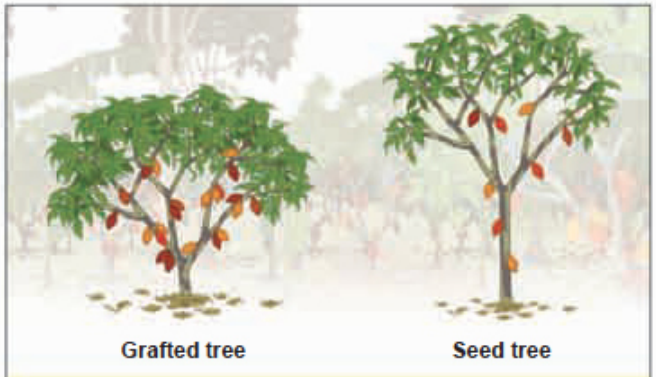
The agro-forest system is a complex eco-system that provides food security, biodiversity and afforestation of endangered timber species, listed on the IUCN list. To calculate the total annual farmer income of 1 ha cocoa agro-forest all crops need to be considered and equated against the local market price. Lets assume an income from cocoa of 820 USD (see p. 27) plus the incomes from all other patterns of total 490 USD (see graphic left), an overall farmer income of 1310 USD can be expected on an annual basis. It is assumed that 1 farmer manages minimum 1 ha, the average plotsize of landowners is 3-4 ha.
The Blockfarming System is furthermore to be considered for carbon credit schemes under the United Nations Framework on CLimate Change (UNFCCC) Clean Development Mechanism (CDM) giving additional returns to investors and benefitting global climate.

IMPROVED NURSERY



The project will set up professional tree crop nurseries, targeting cocoa, coffee and cashew. After the nursery period, the seedlings are delivered to the contracted and trained farm-groups for outplanting into th ese-lected areas. In order to optimize output and production, the project only focusses on high quality seed-lings from improved varieties. Special nursery techniques like cloning and grafting are applied to guarantee a faster return on investment as well as improved yields and therfore more income for the small scale farmers, participating in the project. To gua-rantee high quality seedlings Balmed is running a training programm on improved treecrop production, invol-ving min. 60% females.

I have found that my grafted cacao plot produces more fruits than the cacao plot planted from seed. This is because these grafted clones were selected for high production, disease resistance and good chocolate quality. All of my cloned trees produce quite well.



Grafted trees are smaller than trees from seed because they produce only branches and no chupons. Unlike chupons, branches grow outward rather than upward. This keeps the trees small. The small size and rounded form of the grafted trees make pruning, harvest and control of pests and diseases all much easier.

WHY A NURSERY WITH BUDWOOD?

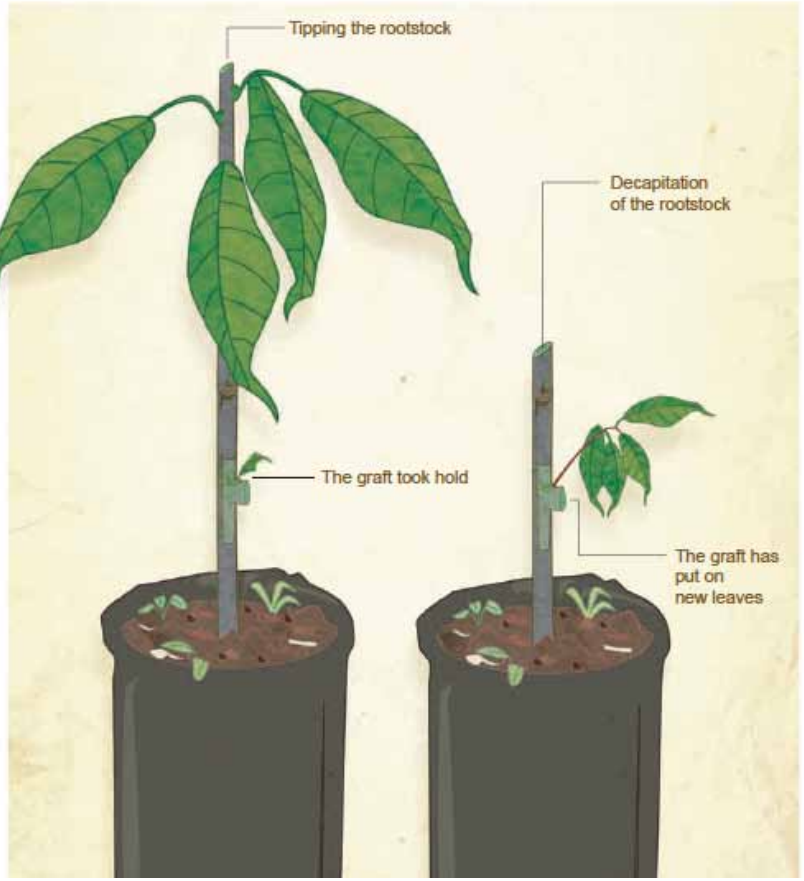
„Traditionally, the intrinsic quality of Sierra leone´s cocoa is similar to Ghana. Indeed in the nineteen eigh-ties Cadbury could substitute Sierra Leone beans for Ghana ones for manufacture their flagship Cadbury´s Dairy Milk Chocolate. As the genetic makeup of Sierra Leone´s cocoa has not changed, it follows that todays problems are post-harvest. The imperative is to maintatin the traditional potential quality, which can be achieved by using the same genetic base as it is used in cocoa seed production in Ghana.“[1] Therefore it is crucial to select high yielding and pest resistant Amazou cocoa, known as Ghana cocoa and reproduce seedlings applying grafting and cloning techniques.

[1] Lockwood, Rob; Identifying the needs of Sierra Leone cocoa improved vegetal material, p.14-15, Agriculture for Development, September 2013

Buds from preselected superior cocoa trees are grafted onto rootstocks grown from seed

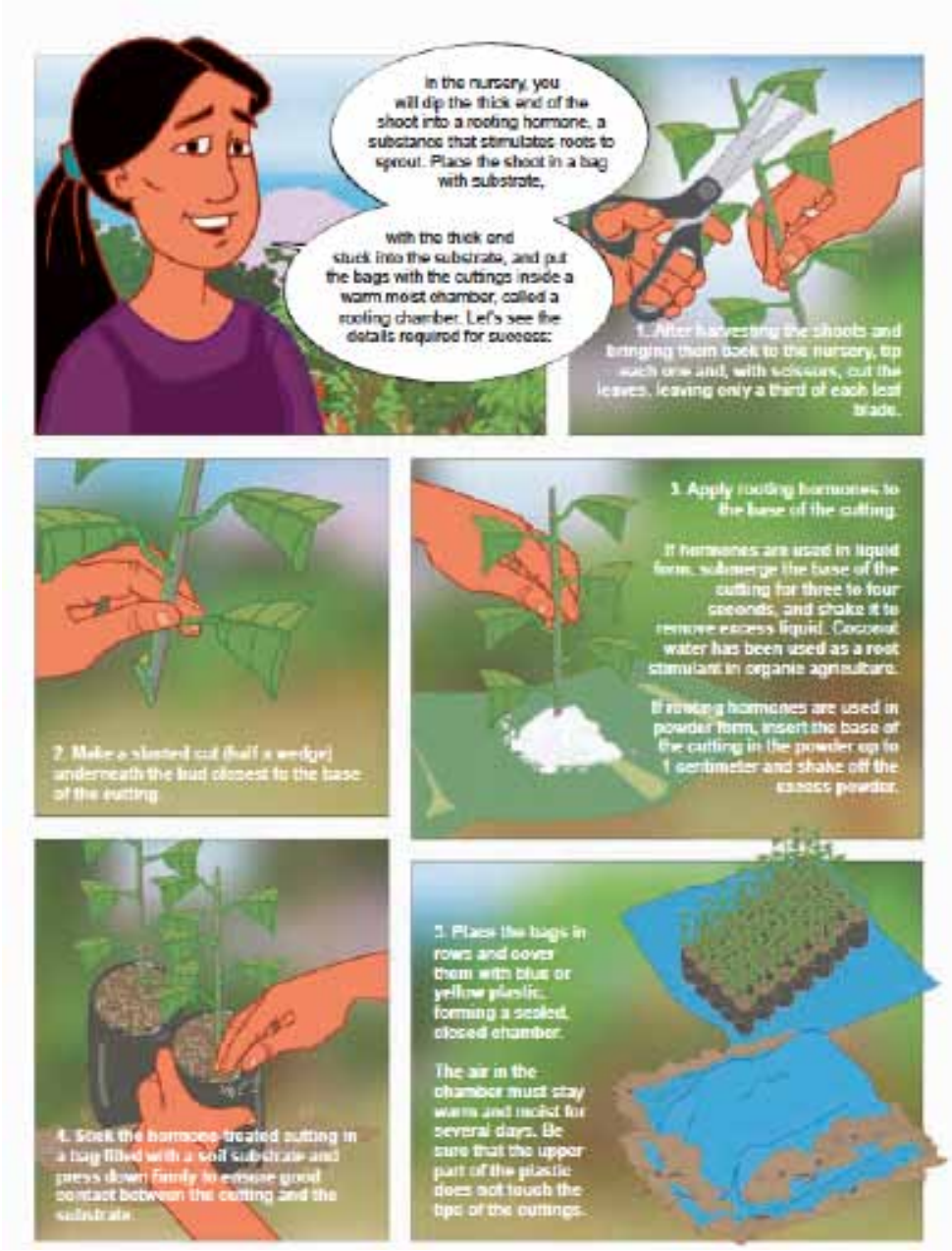
The success rate of graftings is expected to be 10% at the beginning and 70-80% once staff is fully trained and experienced.

IMPROVED NURSERY



Bud grafted onto a rootstock. The tree will carry the same genetic information as the tree the bud was taken from.

The collected budwood of the preselected superior cocoa trees will be grafted on the rootstock of the seedlings. This technology produces improved seedlings; the trees will yield earlier then seed trees and also produce higher yield. Due to the compact growth of the tree the management of the plantation will be easier then a seed plantation, as trees will stay smaller and therefore will be better accessible for pruning and harvest. It is expected that the success rate of the grafted seedlings will be 10% at the beginning but stabilze at around 70-80 % successful buddings once the nursery staff is fully trained end experienced.



Cloning technique of identified superior cocoa trees.

NURSERY LESSONS

Balmed Central Nursery in the Eastern Province, 2014

Trained nursery staff at Mobai Town Processing Center

Small, low quality polybags supplied by donor caused short tap roots, which did not survive the dry season.

Balmed started the first Blockfarming operations end of 2010 in the Eastern and Southern Province of Sierra Leone with 26 communities and 5 processing center in strategic areas. The project by that time was backed by a Public Private Partnership program from GIZ, WHH and WFP. Since that time Balmed is continuing to nurse cocoa and set up new plantations to reach its target Net Benefit per Household. The pictures on the left show the nursery, which was set up in January 2014 at the Processing Center in Mobai Town, Kailahun District, Eastern Province. The large scale nursery have been visited by several NGO´s and Government officials as a example for rural development in the cocoa sector. After the war, Balmed was the first company in Sierra Leone to promote cocoa planting, central processing and large scale nurseries.
Prior Balmed nursery operations has been done by the farmergroups themself. Balmed trained farmgroups, distributed nursery items (polybags, tools) as well as Food for Work to the various groups in order to set up nurseries and plant the cocoa later on. Although farmers received training on how to design and manage a nursery, the professional agricultural skills of the farmers were so low, that the cocoa nurseries, grown from seed, resulted also in low quality and stunnted growth. Only 30 % of the total amount of required seedlings could be produced for the set up of the plantations. To outplant the cocoa, Balmed received a Food for Work facility by WFP in december, the middle of the dry season. The combination of small polybags, which resulted in s short tap root and the outplanting during the dry season resulted in an overall survival rate of 3% of the total envisioned 1000 ha, which is equivalent to 35.000 young cocoa trees that could be identified during tree counting and plantation survey in 2013. After the conducted assessment Balmed decided to set up and manage nurseries in the various districts on its own for several reasons. Through centralized nurseries, the company is able to produce high quality seedlings as well as manage its controlled distribution and planting. Through supply of high quality seeds the company is building a strong relationship with the farmers and communities as it is a big approach towards achieving the project goal.

Low skill seed nursery done by farmers

TRAINING & EDUCATION

If you plan for a decade, plant trees.
If you plan for a century, educate people.

Training and education is the key for a successful project. Therefore Balmed is conducting trainings for its farmers on Good Agricultural Practices and farm management techniques. Together with NGO´s and donors the company is providing training for functional adult literacy courses where people have the chance to become literates. The Balmed staff itself undergoes regular training sessions for the various business operations and task within the company. Balmed applies the training of trainers system for continous skill enhancement.

CONTINOUS TRAINING AND IMPROVEMENT OF ALL STAKEHOLDERS

CERTIFICATION

International buyers and processors highly demand certified commodities from reliable and constant sources.
the Blockfarming model is applicable for Rainforest Alliance, UTZ and organic standard.
The plantations are grown under agroforest condition
without any use of fertilizers or agrochemicals.
Balmed therefore is investing in cocoa, coffee and cashew production, targeting international niche and speciality markets which attract higher prices for the commodity as well as premiums and benefits from cerrtification for the company and the community.

A farmer in the Blockfarming System© will have addtional 70 - 100$ additional annual income from certification premium.

DIGITAL DATA MANAGEMENT

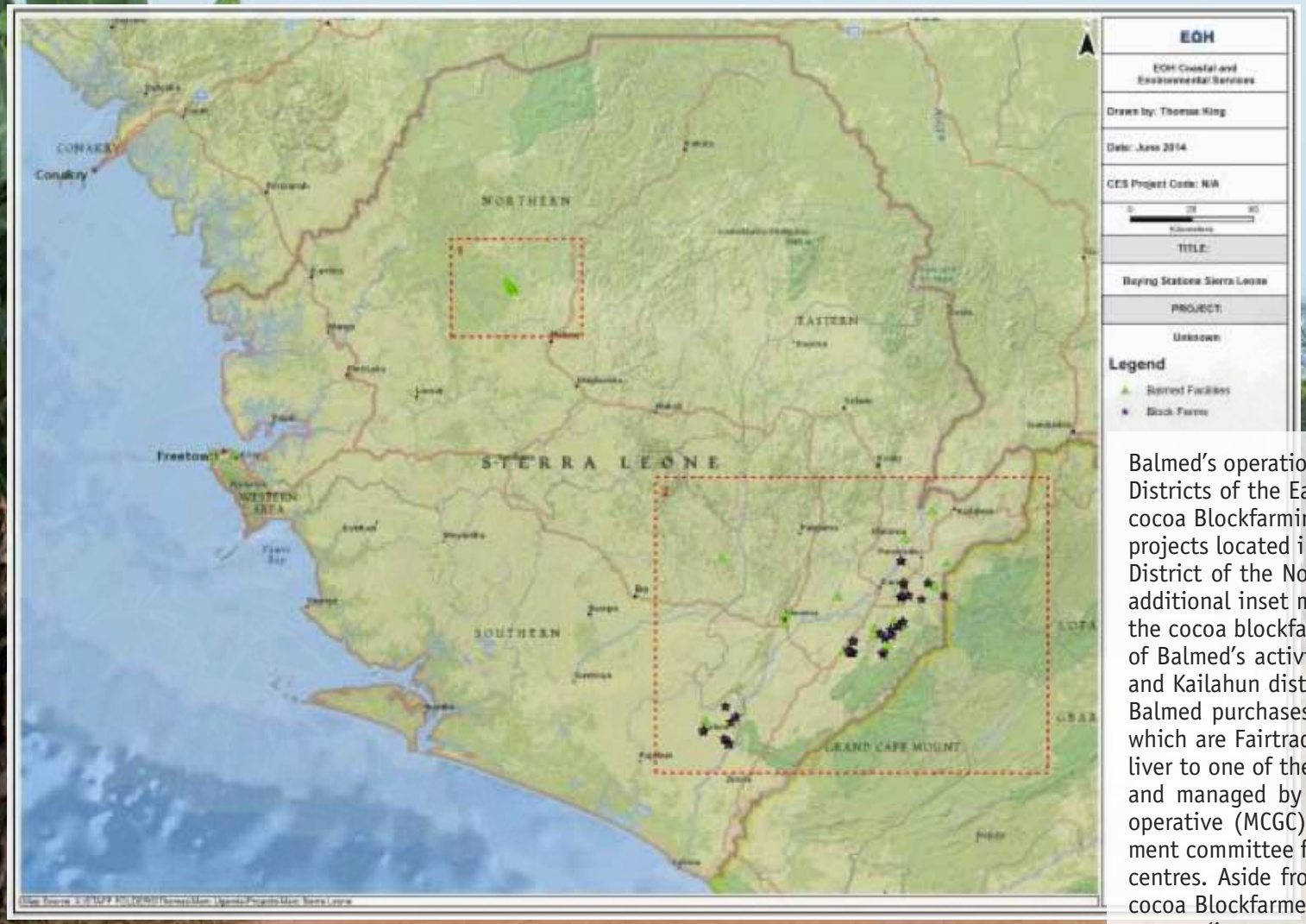
The companies goal is to establish a fully paperless and cashless datamanagement and payment system using mobile cloud technology. In collaboration with the Mobile Empowerment for Emerging Markets Department from the german based softwarefirm SAP, BALMED is implementing the above mentioned solution. The software is a precommercial pilot and will be fully operational after the pilot phase. Furthermore Balmed operates a GIS farmdatabase that provides a clear overview of all farms and buying centers of the organisation. To monitor farm conditions and ongoing work, the firm uses GPS tagged high resolution pictures, stored in a GPS database managment software.

This combination of powerful IT tools allows the firm to have an actual overview of all ongoing operations as well as the conditions of farms.

All necessary data is collected in the field and enter it in the database for improved accessability and data security.

Information is accessible worldwide through mobile cloud technology. Project pictures can be displayed on Google Maps.

PROJECT LOCATION (SL)



Balmed's operations are largely based in the Kenema and Kailahun Districts of the Eastern Province of Sierra Leone (the majority its cocoa Blockfarming operations), with it cashew nut Blockfarming projects located in proximity to the city of Makeni in the Bombali District of the Northern Province (Refer to Figure 2.1 below and additional inset maps contained in Annexure C). As noted below, the cocoa blockfarming and trading activities are the major focus of Balmed's activities, with this occurring mostly in the Kenema and Kailahun districts.

Balmed purchases its agricultural products from 14,000 farmers, which are Fairtrade and UTZ, certified (Balmed, 2012). These deliver to one of the 11 processing centres, owned by communities, and managed by Balmed or the Millennium Cocoa Growers Co-operative (MCGC). Balmed pays a fee to a community development committee for each ton of cocoa traded from the processing centres. Aside from access to these producers, Balmed managed cocoa Blockfarmer cooperatives currently comprise of 32 farming groups (in turn comprised of 164 landowners and 927 individual farmers) spread over 436 hectares of Balmed surveyed and contracted land portions. (Source, CES, SEA, 2013)

FARMER CARD

RURAL POS BANKING SOLUTION

Balmed is developing a prepaid credit card system that operates at the point of sales. Its approach is to take out all physical cash handed in the organisation and replace it through electronic payments made on the designated credits cards.

All stakeholders involved in the program (farmers, landowners and committee) receives a unique credit card where all allocated funds are transfered to. Cash can be withdrawn at the nearby cash point operated by the implementing bank. The positive effect of the project is the sustainable way of linking rural people to modern banking solutions.

HOW IT WORKS

Cashless buying system for improved risk management, tracking of sales and controlling.

1 A registered Balmed Blockfarmer with his Farmer Card, a prepaid credit card to be used at ATM machines and banks.

2 Farmer bring his cocoa pods or wet beans to the nearest Logistic Center. The buying staff enter purchase data in the SAP traceability system and send directly payment to the farmer´s card on the point of sales.

3 After he sold his cocoa to Balmed, and the Center staff has loaded his money on the card, the farmer goes to the rural community bank or any other branch to withdraw his money

4 The Farmer is benefitting from direct premiums and improved income through the sales of raw cocoa to Balmed. The card system is a unique opportunity to link rural communities to modern banking services.

PROCESS OVERVIEW

By using a prepaid credit card system, Balmed can make all transaction cashless when operating a point of sales system. Farmers and stakeholders are motivated by modern banking technology and transparent payments. The cashless system provides a unique banking solution for rural areas which creates sustainable banking structure in the area that will build up capacities in the local communities in modern business practics. Especially young people will be encouraged and attracted by the new technology.

Cardholder sells produce to the company

- Company load money on farmers card according to the value of produce
- Company send Cash-For-Work fundson farmer card

Farmer collects the money at the rural cash point, ATM or counter

Bank produces quarterly card statements for farmer

- Bank supplies detailed reports and account transactions to Balmed
- Bank provides POS system and credit cards

Company deposit trading funds at Bank

PRODUCT PURCHASES

All products purchases are transfered on the specific card of the farmgroup or individual. The cardholder can then easily withdraw the money from the nearbuy cash point.

STAKEHOLDER SHARES

The card is used for stakeholders to receive their project share of the Blockfarming System. E.g. payments to landowners or payments to the committee.

CASH FOR WORK

Work contracts given to farmgroups can easily transfered on the cards. The card can furthermore be used as a microfinance prefinance tool, where cash for work facility is given to groups in advance to conduct work.

CERTIFICATION PREMIUM

The card is designated to receive premiums from various certification schemes.

SALARIES

The card is designated to receive premiums from various certification schemes.

CREDIT CARDS

Prepaid credit cards are handed out to the various stakeholders in the buying system of the company. All payments to the stakeholders are electronically transfered on their cards on the point of sales. Funds can be withdrawn at the rural cashpoint operated by the implementing bank. Cards are given to the various group represenatives or individuals and administrated on their own.

FARMER CARD

The Farmer Card is given to a farmgroup participating in the Blockfarming System and is administrated by the elected representative of the group´s farmers. The card is ment to receive the allocated 20% share of the farmers in the Blockfarming System as well as the certification premium.

LANDOWNER CARD

The Landowner Card is handed over to a farmgroup participating in the Blockfarming system and is administrated by the elected representative of the group´s landowners. The card is ment to receive the allocated 20% share of the landowners in the Blockfarming System.

COMMITTEE CARD

The Committee Card is given to the Chiefdom Committee responsible for overseeing and representing the communities in the Blockfarming System. The Committee card is used to receive the 2% Blockfarming stake as well as the Community Contribution Fund (30 USD/mT)

VENDOR CARD

A vendor card is for groups or individuals. It can be given to trusted larger farmers, agents or whole communities (other than Blockfarmers) who supply products to Balmed.

BLOCKFARMING

The Blockfarming scenario requires 3 different cards: The Farmer Card, The Landowner Card and the Committee Card. Each Blockfarmgroup will receive 1 Farmer Card and 1 Landowner Card. The Blockfarming Committee will receive 1 Committee Card. Purchases and stakes of the stakeholders are directly loaded on the cards. A 400 ha/200 mT/1000 beneficiaries Blockfarming scenario would result in 61 cards with a total annual turnover of 278.000 USD equivalent to 4.550 USD on average per card, assuming that 20 groups (ca. 50 people/group) and 1 Chiefdom Committee are involved and the price of cocoa is 3.000 USD, the UTZ premium share for the farmers is 100 USD/mT and the Community Development Fund amount is 30 USD/mT. Each card is governed by the elected representatives e.g. Masterfarmer and Secretary holding the Farmer Card, Landowner representative holding the Landowner Card, Committee Chairman holding the Committee Card. Each sale and transaction must also be recorded in the handwritten farmbook managed by the groups and committees.

VENDOR

The Vendor scenario requires 1 credit card: The Vendor Card. The Vendor scenario adresses trustful agents, communities or individuals supplying products to Balmed. The Vendor Card is given to producer(groups) who are not part in the Blockfarming System but associated to the company.

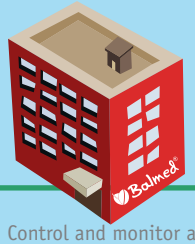
CASH & PAPERLESS WORK FLOW

Bank

Balmed account

Electronic cashflow

Head Office



Head offices sends funds to Logistic Centers payment devices electronically.

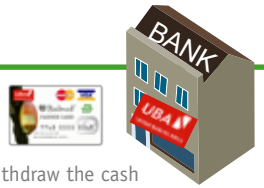
Control and monitor all purchases and work processes in real time through cloud SAP system

Payment Procedure

Center staff load cash electronically on the credit card.

Funds are received electronically on payment devices

Rural bank/Cash point

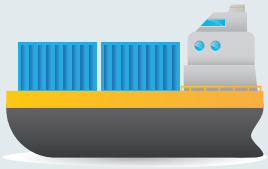


Farmer withdraw the cash with the card at the nearby rural cashpoint or any other bank on the system.

Farmer/Group

Bank pays out funds to farmers or groups. 1 group holds 1 - 2 card.

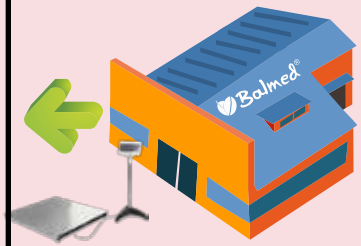
Port



Port processes shipment and issues Bill of Lading.

Warehouse

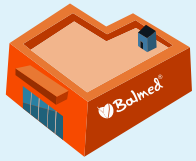
Loads container and ships goods



The Export Warehouse is final shipping stage and only receives standardized, controlled export quality from the Logistic Center. Fumigation and sealing is done here.

Logistic Center

Receives standardized bags ONLY



A Logistic Center only receives standardized bags from Processing Centers. It is export quality control point and pre-shipping stage.

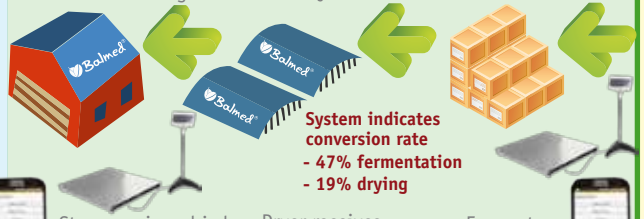
Processing Center

Process products to standardized bags

STORE
Packs dried beans to standardized bags

DRYER
Dries bulk beans from fermentary

FERMENTARY
Ferment beans



System indicates conversion rate
- 47% fermentation
- 19% drying

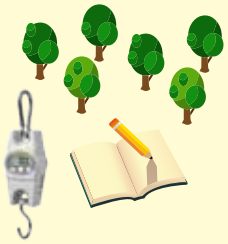
Store receives dried beans in bulk from dryer and packs products to standardized bags.

Dryer receives fermented beans from the Fermentary and dry in bulk

Fermentary receives wet beans from the Transporter

Farmgate: POS

Deliver products to farmgate

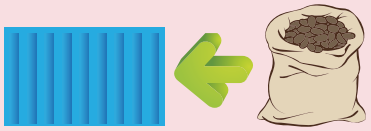


Transporter capture weight and price in SAP system; purchase is noted and stamped in farmbook of group.

Dataflow in SAP

7. Clearing & Export

6. Ship to port in container



200 bags = 12,5 mT = 1 x 20 ft container

5. Ship to warehouse

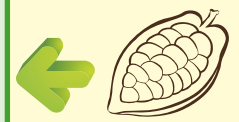
4. Packaging

3. Drying

2. Fermenting

Conversion rate wet cocoa: 66 % weightloss

1. Buying



Buying of wet cocoa beans/pods from farmers

- Load from Warehouse to Truck
- Offload at Port

- Load from Logistic Center
- Offload at Warehouse

- Load from Processing Center
- Offload at Logistic Center

- Load from processing site (inhouse)
- Offload at store (inhouse)

- Load from farmgate
- offload at Processing Center

DEVELOPMENT IMPACT

SHORT TERM
1-3 years

- Create employment in rural areas
- Engage women in professional jobs
- Create income for farmers
- Establish long term food security
- Promote & engage modern agriculture and international business
- Build professional capacity for expansion and upscaling of project

MEDIUM TERM
4-10 years

- Increase income through improved farm techniques
- Create sustainable markets for long term international business
- Establish and strenghten value chains
- Provide secure income for farmer, landowners and staff
- Deliver highly demanded premium products to international markets
- Professionalized agriculture techniques

LONG TERM
11-25 years

- Revival of the Sierra Leonenan Cocoa Industry
- Visible and measurable development impact
- Crowding-In and replication of the models in other countries
- More investors making direct investment in cocoa production in Sierra Leone
- Add value to the commodity by in-country processing to semi-finished products
- Sierra Leone to be reknown as high quality cocoa producer

VERY LONG TERM
26-50 years

- Re-establishment of primary rainforest
- Farmers and company enter the 2nd generation of collaboration
- Visible and measurable development impact

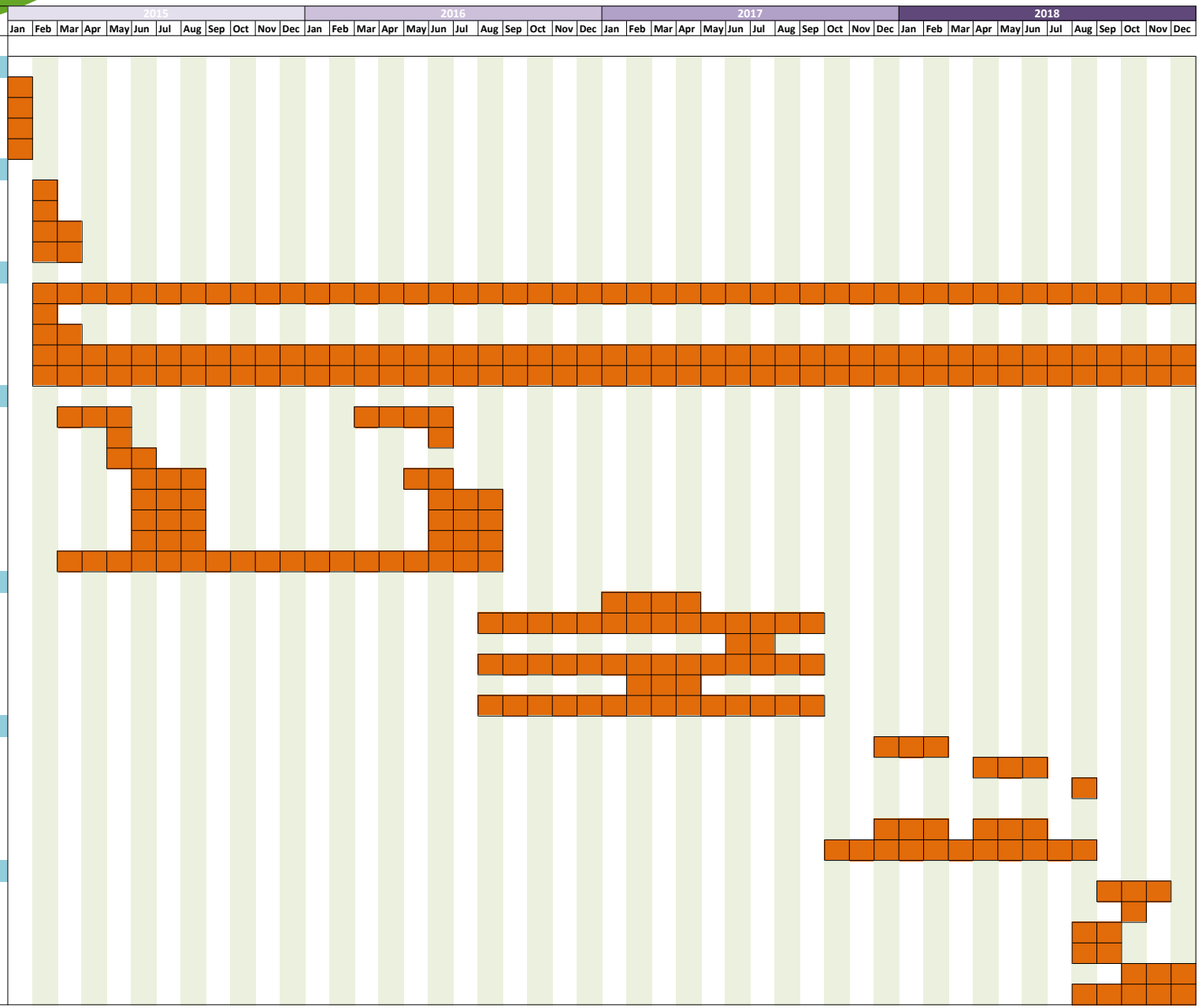
The value of the company is not the commodity it produces, neither the fixed assets it holds; It is the intelectual property that is created within the country of origin.

ORGANOGRAMM

The company´s organizational chart clearly reflects the various departments necessary for the management of the Blockfarming System. The system is designed as a management tool for smallholder commercialisation and crop production applicable for franchising partners who wants to implement the system.

ACTIVITY PLAN

Blockfarming: Cocoa	
Task & Activities	***Responsibility***
Sensitization	
Information on the system	BHL
Information on the responsibilities	BHL
Explanation of the operation	BHL
Monitoring	BHL
Contracting	
Data collection	BHL
Evaluation survey	BHL
Signing of contracts and agreements	BHL/Group
Monitoring	BHL
Nursery	
Training on nursery	BHL
Input tools: Nursery	BHL
Nursery set-up	BHL/Group
Nursery Management	BHL/Group
Monitoring	BHL
Outplanting	
Training on outplanting	BHL
Input tools: Outplanting	BHL
Brushing of acreage	BHL/Group
Shade management/initial planting	BHL/Group
Outplanting	BHL/Group
Input: Cash for work	BHL
GIS positioning	BHL
Monitoring	BHL
Follow up	
Pruning	BHL/Group
Underbrushing	BHL/Group
Replanting of dead seedlings	BHL/Group
Input: Cash for work	BHL
Handout of legal documents	Solicitor/BHL
Monitoring	BHL
Finalization	
1. Underbrushing	BHL/Group
Shade management	BHL
Assessment	BHL/Group
Pruning: Formative	BHL/Group
Input: Cash for work	BHL
Monitoring	BHL
Harvest	
1st underbrushing	BHL/Group
Shade management	BHL
Forecast	BHL/Group
Pruning: Formative	BHL/Group
Harverst	BHL
Monitoring	BHL



Crop	Cocoa
Hectares	40
Farmers	235
Landowners	35
Exchange rate SLL - USD	4300

COST FOR 40 HECTARE COCOA PLANTATION

40 hectares or equivalent to 100 acres is the average size of a Balmed Blockfarm in the rural communities.

A **Costs for land aquisition and legalisation**

Item	Description	Qty	Unit	Unit Cost	Total cost (SLL)	Total cost (USD)
Farmer Training	service	1	bulk	2520000	2.520.000	586
Land documentation and acquisition	service	200	bulk	22.000	4.400.000	1.023
Land survey (GOSL)	service	40	bulk	90.000	3.600.000	837
Lawyer legalisation	service	6	bulk	1.250.000	7.500.000	1.744
GIS Survery	service	40	bulk	95.000	3.800.000	884
Total						**$ 5.074,42**

B.1 **Nursery (local variety/improved technique) - tools/materials (excluding labour)**

Items	Description	Qty	Unit	Unit Cost (SLL)	Total cost (SLL)	Total cost (USD)
				SLL	SLL	USD
Spade	Metal (Steel)	5	p c s	45.000	225.000	52
Wheel Barrow	Heavy Duty	5	pcs	150.000	750.000	174
Head Pan	Metal	15	p c s	30.000	450.000	105
Digging Fork	Metal	5	p c s	35.000	175.000	41
Shovel	wooden metal	5	p c s	35.000	175.000	41
Measuring Tape	100 m	5	Rolls	40.000	200.000	47
Garden Line	Medium	5	Rolls	20.000	100.000	23
Sieve	Wooden + Met	1	Pcs	90.000	90.000	21
Watering Can	Rubber	10	pcs	50.000	500.000	116
Polythene Bags	XL size	250.000	Pcs	170	42.500.000	9.884
Pick Axe	Metal	5	Pcs	35.000	175.000	41
Bucket	Metal	10	pcs	35.000	350.000	81
Barrel (250 L)	Rubber	10	pcs	150.000	1.500.000	349
Water Hose	Rubber	5	Rolls	205.000	1.025.000	238
Bailing Machine	Metal	1	pcs	4.300.000	4.300.000	1.000
Saw	Metal	3	pcs	90.000	270.000	63
Jute bags	Jute	40	pcs	17.000	680.000	158
Solar plastic	plastic	1	Rolls	1.941.500	1.941.500	452
Hammer	Metal	3	pcs	30.000	90.000	21
Nails	Metal	1	pkt	90.000	90.000	21
Scissors	Metal	4	pcs	25.000	100.000	23
Grafting knife	Metal	40	pcs	45.000	1.800.000	419
Grafting equipment	Mixed	1	bulk	6.000.000	6.000.000	1.395
Rooting hormone	Powder	2	kg	1.200.000	2.400.000	558
Local contruction material (bamboo, palm leaves, wood)	Local	1	bulk	8.000.000	8.000.000	1.860
TOTAL					**242.300.000**	**$ 17.182,91**

Tools like cutlass, hoes, pick axes or baskets you can be produced locally, will be given contracts to the communities for manufacturing. Experience have shown that farmers knows their tools best and the local blacksmith in the village produces according to their requirements. E.g. tools supplied by the PSI project were low quality, farmers refused to work with them and preferred to use their own tools, which had a far greater quality. Cutlasses were of poor quality, unable to cut down bushes. Furthermore the polybags supplied by donors are not suitable for the nursery porpose as there are to short, which does not allow the cocoa to develop a long enough tap root necessary to survive the dry season. Tools supplied by donors are often low quality, as contracts are given to agencies who have little affinity with the requirements and are often profit- rather then outcome oriented. Therefore Balmed desided to outsource the local tools to the communities, which creates extra income and procure quality tools on its own.

B.2 **Seed/Seedlings**

Items	Description	Qty	Unit	Unit Cost (SLL)	Total cost (SLL)	Total cost (USD)	Amount planted per ha
Theobroma cacao	pods	10000	pcs	500	5.000.000	1163	1111
Elaeis guineensis (Oilpalm)	heads	100	pcs	6.000	600.000	140	50
Cocos nucifera (Coconut)	nuts	500	pcs	1.000	500.000	116	10
Gliricidia sepium (Mother of Cacao)	sticks	10000	pcs	1.000	10.000.000	2326	625
Carica papaya (Papaya)	seed	400	pcs				20
Persea americana (Avocado)	seedlings	400	pcs				4
Cola nitida	seedling	400	pcs				6
Colocasia spp. Cocoyam	root	2000	pcs				50
Mangifera indica Mango	seedlings	100	pcs				4
Zea mays subsp. mays	bags	40	pcs	130.000	5.200.000	1209	10000
Musa spp.	suckers	6000	pcs	1.000	6.000.000	1.395	150
Musa paradisica	suckers	6000	pcs	1.000	6.000.000	1.395	150
Manihot esculenta (Cassava)	sticks	5000	pcs	100	500.000	116	100
Terminalia Ivorensis	seedlings	0	pcs	1.000	0	-	
Khaya Ivoriensis	seedlings	2500	pcs	1.000	2.500.000	581	40
Milicia Excelsia	seedlings	0	pcs	1.000	0	-	

$	**8.441,86**

B.3 **Logistics & Equipment**

Items	Description	Qty	Unit	Unit Cost (SLL)	Total cost (SLL)	Total cost (USD)	
				SLL	SLL	USD	
Super No 1 Bike	Bike	2	p c s	6.300.000	12.600.000	2.930	
Pick Up Truck	Car	1	p c s	65.000.000	65.000.000	15.116	
Rooting house	metal/plastic	1	pcs	15.000.000	15.000.000	3.488	
Stationaries	n.a.	1	bulk	12.000.000	12.000.000	2.791	
Solar Power System	Power	1	pcs	3.450.000	3.450.000	802	
TOTAL					**426.300.000**		**$ 25.127,91**

C. **Costs for outplanting of cocoa seedlings and intercrop - tools/equipment**

Item	Description	Qty	Unit	Unit Cost	Total cost (SLL)	Total cost (USD)	
Hoe	Wood/Metal	60		40.000	2.400.000	558	
Spade	Wood/Metal	60		50.000	3.000.000	698	
Pick axe	Wood/Metal	60		40.000	2.400.000	558	
Felling Axe	Local Made	60	Pcs	50.000	3.000.000	698	
Pruning Saw	Imported	60	pcs	120.000	7.200.000	1.674	
Cutlass	Local Made	235	Pcs	40.000	9.400.000	2.186	
Bucket	Metal	60		20.000	1.200.000	279	
Basket	Local Made	60	Pcs	10.000	600.000	140	
Head Pan	Metal	60	Pcs	20.000	1.200.000	279	
Rain Gear	Plastic	235	Pcs	40.000	9.400.000	2.186	
Rain Boots	Plastic	235	Pcs	100.000	23.500.000	5.465	
Jute bags	Jute	60	Pcs	17.000	1.020.000	237	
Rubber tank	Plastic	60	Pcs	20.000	1.200.000	279	
Power saw (kit)	Metal	3	Pcs	13.760.000	41.280.000	9.600	
Protective gear	Made	3	Pcs	250.000	750.000	174	
Total							**$ 25.011,63**

E.

Management costs						TOTAL	
	PER MONTH	YEAR 1	YEAR 2	YEAR 3	YEAR 4		
Business fees (registration, taxes)	***100***	1.200	1.200	1.200	1.200	4.800	
Fuel		3.600	3.600	2.400	2.000	11.600	
TOTAL						**$**	**16.400,00**

Labour cost: Nursery	SLL	USD	Days	Staff	TOTAL	
Costs	12.000	2,79	365	15	**$**	**15.279,07**

Labour costs payment scheme:

Labour cost per day per woman/man	SLL	USD
Casual labour: Nursery	12.000	2,79
Casual labour: Outplanting	15.000	3,49

Labour costs: Outplanting (Farmer)

Labour cost per hectare	# days per hectare in year				cost per hectare in year				
	1	2	3	4	1	2	3	4	TOTAL
Land clearing (initial)	30				104,65	0,00	0,00	0,00	
Brushing	10	10	10	10	34,88	34,88	34,88	34,88	
Shade Management	10	5	5		34,88	17,44	17,44	0,00	
Lining	7				24,42	0,00	0,00	0,00	
Pegging	2				6,98	0,00	0,00	0,00	
Digging Holes	25	15			87,21	52,33	0,00	0,00	
Planting	35	20			122,09	69,77	0,00	0,00	
Weeding	5	10	10	10	17,44	34,88	34,88	34,88	
Pruning (formative)			20		0,00	0,00	69,77	0,00	
Pruning (sanitative)				20	0,00	0,00	0,00	69,77	
						0,00	0,00	0,00	
Total labour cost per hectare	124	60	45	40	432,56	209,30	156,98	139,53	**938,37**
Total labour cost per acre	50	24	18	16	175,05	84,70	63,53	56,47	379,75
TOTAL per year					**$ 17.302,33**	**$ 8.372,09**	**$ 6.279,07**	**$ 5.581,40**	**$ 37.534,88**

GRAND TOTAL	**$**	**150.052,67**
GRAND TOTAL/hectare	***$***	***3.751,32***
GRAND TOTAL/acre	***$***	***1.518,10***

The project require an initial investment of 120.000 USD in the first year, including all management costs and hardware, follwed by annual managment costs of 10.000 USD for the next 3 years. After 4 years, farmer capacity has been built and the system will run on a sustainable basis. By that time farmers will have income from the intercrops as well as from the cocoa, reaching its peak after 7-8 years from the project start date.

COCO-NOMICS

Valutation of Cocoa plantations

as of 30 June 2013

cash flow figures			
output		1	mT/ha
cash inflow	*LIFFE* price	3210	USD/mt
	Sierra Leone Discout	0	USD/mt
	sales price	3210	USD/mt
cash outflow	payment to farmer	642	=20% of sales price
	payment to landowner	642	=20% of sales price
	payment to community	642	=20% of sales price
	cost for maintanance already inculuded in the payments mentioned above; use of fertilizer not necessary		
		1926	
cash flow per year		1284	USD/mT
cash flow per year per *ha*		**1284**	**USD**

plantation schedule		age in years
Jan-Mrz 2016	40 ha	2

yield assumptions for cocoa trees

estimated useful life of the plant (resp. number of periods to dicount) in years: *25*

discount rate (resp. "return") assumption for an investment in a bearer biological asset in a developing country: *10%*

no cash outflow for transportation to market, as traders come to the farm to buy cocoa

Current value of a 1 year old plantation:

not relevant

Current value of a 2 year old plantation:

year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
percentage of ordinary output ("yield assumptic	0	0	13	33	68	92	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
cash flow	-3700	0	166,9	423,72	873,1	1181,3	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284	1284
Number of remaining years (used to discount)		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
present value of the cash flows in USD	0,00	151,75	350,18	655,99	806,83	797,26	724,78	658,90	599,00	544,54	495,04	450,03	409,12	371,93	338,12	307,38	279,44	254,03	230,94	209,94	190,86	173,51	157,73	143,39	
sum of the present values in USD per *ha*	9300,69																								
Current amount of ha in resp. year:	40																								
Internal Rate of Return (IRR)	20%																								

Current value of the 2 year old plantation in USD: $ 372.027,62

Investing in cocoa plantations will secure the future supply of cocoa to international markets. It is a real investment opportunity, considering the fact that climate changes and lack of investment capital in main production countries will create a supply deficit in the near future. To determine the value of a cocoa plantation the full 25 year period of the lease is to be considered. In this scenario a discounted cashflow model (DCF) is used to get a realistic figure of the present value of a plantation. A 10% discount rate for developing countries is calculated in the model. The model hence does not calculate the incomes from the intercrops and also the value of the timber trees. Assuming that after 25 years, the 40 planted timber trees have reached size and would give 2 cubic meter each resulting in 80 cubic meter with an international value of currently 600 USD per cbm, resulting in an overall value of 48.000 USD per ha. As we can see, the project will capitalize the funds fully resulting in an PV of 9.300 USD, which equates an NPV of 5.600, giving an IRR of 20%.

Annual income from cocoa per farm-group in the Balmed Blockfarming System

Total land offered acres	**100**
Landowner "PK Allieu" 20ac	20%
Landowner "Community" 20ac	20%
Landowner "Mohamed" 25ac	25%
Landowner "Momoh" 20ac	20%
Landowner "Sam" 15ac	15%
Number of Farmers	25
Intl. Price (FOB)	$ 2.300,00
Premium for Farmer	$ 70,00
Share Landowners	20%
Share Farmers	20%
Estimated production in tons	21,7

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9
Yield assumption	**0%**	**0%**	**0%**	**13%**	**33%**	**52%**	**68%**	**92%**	**100%**
Farmer Income per farmer	$ -	$ -	$ -	$ 59,81	$ 151,81	$ 239,22	$ 312,83	$ 423,24	$ 460,04
Landowner PK Allieu: 20ac	$ -	$ -	$ -	$ 259,53	$ 658,81	$ 1.038,13	$ 1.357,55	$ 1.836,69	$ 1.996,40
Landowner Community: 20ac	$ -	$ -	$ -	$ 259,53	$ 658,81	$ 1.038,13	$ 1.357,55	$ 1.836,69	$ 1.996,40
Landowner Mohamed: 25ac	$ -	$ -	$ -	$ 324,42	$ 823,52	$ 1.297,66	$ 1.696,94	$ 2.295,86	$ 2.495,50
Landowner Momoh: 20ac	$ -	$ -	$ -	$ 259,53	$ 658,81	$ 1.038,13	$ 1.357,55	$ 1.836,69	$ 1.996,40
Landowner Sam: 15ac	$ -	$ -	$ -	$ 194,65	$ 494,11	$ 778,60	$ 1.018,16	$ 1.377,52	$ 1.497,30

Annual income from coffee per farm-group in the Balmed Blockfarming System

Total land offered acres	**100**
Landowner "PK Allieu" 20ac	20%
Landowner "Community" 20ac	20%
Landowner "Mohamed" 25ac	25%
Landowner "Momoh" 20ac	20%
Landowner "Sam" 15ac	15%
Number of Farmers	25
Intl. Price (FOB)	$ 1.900,00
Premium for Farmer	$ 70,00
Share Landowners	20%
Share Farmers	20%
Estimated production in tons	21,7

	Year1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9
Yield assumption	**0%**	**0%**	**0%**	**13%**	**33%**	**52%**	**68%**	**92%**	**100%**
Farmer Income per farmer	$ -	$ -	$ -	$ 50,78	$ 128,90	$ 203,11	$ 265,61	$ 359,35	$ 390,60
Landowner PK Allieu: 20ac	$ -	$ -	$ -	$ 214,40	$ 544,24	$ 857,58	$ 1.121,46	$ 1.517,26	$ 1.649,20
Landowner Community: 20ac	$ -	$ -	$ -	$ 214,40	$ 544,24	$ 857,58	$ 1.121,46	$ 1.517,26	$ 1.649,20
Landowner Mohamed: 25ac	$ -	$ -	$ -	$ 268,00	$ 680,30	$ 1.071,98	$ 1.401,82	$ 1.896,58	$ 2.061,50
Landowner Momoh: 20ac	$ -	$ -	$ -	$ 214,40	$ 544,24	$ 857,58	$ 1.121,46	$ 1.517,26	$ 1.649,20
Landowner Sam: 15ac	$ -	$ -	$ -	$ 160,80	$ 408,18	$ 643,19	$ 841,09	$ 1.137,95	$ 1.236,90

Annual income from cashew per farm-group in the Balmed Blockfarming System

Total land offered acres	**100**
Landowner "PK Allieu" 20ac	20%
Landowner "Community" 20ac	20%
Landowner "Mohamed" 25ac	25%
Landowner "Momoh" 20ac	20%
Landowner "Sam" 15ac	15%
Number of Farmers	25
Intl. Price (FOB)	$ 950,00
Premium for Farmer	$ 70,00
Share Landowners	20%
Share Farmers	20%
Estimated production in tons	32

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Yield assumption	**0%**	**0%**	**10%**	**25%**	**45%**	**60%**	**75%**	**90%**	**95%**	**100%**
Farmer Income per farmer	$ -	$ -	$ 33,28	$ 83,20	$ 149,76	$ 199,68	$ 249,60	$ 299,52	$ 316,16	$ 332,80
Landowner PK Allieu: 20ac	$ -	$ -	$ 121,60	$ 304,00	$ 547,20	$ 729,60	$ 912,00	$ 1.094,40	$ 1.155,20	$ 1.216,00
Landowner Community: 20ac	$ -	$ -	$ 121,60	$ 304,00	$ 547,20	$ 729,60	$ 912,00	$ 1.094,40	$ 1.155,20	$ 1.216,00
Landowner Mohamed: 25ac	$ -	$ -	$ 152,00	$ 380,00	$ 684,00	$ 912,00	$ 1.140,00	$ 1.368,00	$ 1.444,00	$ 1.520,00
Landowner Momoh: 20ac	$ -	$ -	$ 121,60	$ 304,00	$ 547,20	$ 729,60	$ 912,00	$ 1.094,40	$ 1.155,20	$ 1.216,00
Landowner Sam: 15ac	$ -	$ -	$ 91,20	$ 228,00	$ 410,40	$ 547,20	$ 684,00	$ 820,80	$ 866,40	$ 912,00

COCOA: INCOME CALCULATION FOR THE BLOCKFARMING COMMUNITY

Community	Mobai	
Acerage Blockfarming in acres	1000	
Expected yield in tons from the blockfarms in mT	217	
Additional cocoa from other areas delivered to the center in mT	40	
Lease payment per mt in USD $	$	30,00
Premium payment to farmers per ton	$	70,00
Intl. Price	$	2.300,00

	Sales Income	Cert-Premium	Total income	Remarks
Blockfarms income for the community	**$ 299.460,00**	**$ 15.190,00**	**$ 314.650,00**	= 60 % of intl. Price (FOB) + Certification premium
Expenses for purchase of cocoa (Blockfarms)				
Payout to landowners	$ 99.820,00		**$ 99.820,00**	= 20 % Share
Payout to farmers	$ 99.820,00	$ 15.190,00	**$ 115.010,00**	= 20% Share
Total payout to farmers and Landowners			**$ 214.830,00**	
Expenses for the processing center and plantations				
Liason Committee Share 2% of Intl. Price	$ 9.982,00			= payments to committee
Farm management	$ 20.000,00			= 15 $ per acre, farm maintenance
Salaries for 10 permanent staff	$ 24.000,00			= 200 $ per staff per month
Salaries 30 casual labourers	$ 16.200,00			= 3 $ per labourer per day (180 days per year)
Trading Management (jute bags, labels, solar plastic)	$ 12.850,00			= 50 $ for total amount of tons processed
Center management (fuel, bikes, trucks, maintenance, supplies)	$ 12.000,00			= 1000 $ per month
Total expenses of center per year			**$ 95.032,00**	
Regular cocoa income for the community	**$ 64.400,00**	**$ 2.800,00**	**$ 67.200,00**	= Cocoa from existing plantations @ 70% of intl. Price
Expenses for purchase of cocoa (Existing plantations)				
Payment to farmers (60% of intl. Price FOB)	**$ 55.200,00**	**$ 2.800,00**	**$ 58.000,00**	= 60 % of intl. Price (FOB) + Certification premium

Income (Blockfarms + existing plantations)	Expenses	Profit without lease payment	Balmed Lease payment for center	TOTAL ANNUAL PROFIT FOR THE COMMUNITY
$ 381.850,00	**$ 367.862,00**	**$ 13.988,00**	**$ 7.710,00**	**$ 21.698,00**

COFFEE: INCOME CALCULATION FOR THE BLOCKFARMING COMMUNITY

Community	Potoru
Acerage Blockfarming in acres	1000
Expected yield in tons from the blockfarms in mT	217
Additional cocoa from other areas delivered to the center in mT	40
Lease payment per mt in USD $	$ 30,00
Premium payment to farmers per ton	$ 70,00
Intl. Price	$ 1.900,00

	Sales Income	Cert-Premium	Total income	Remarks
Blockfarms income for the community	**$ 247.380,00**	**$ 15.190,00**	**$ 262.570,00**	= 60 % of intl. Price (FOB) + Certification premium
Expenses for purchase of coffee (Blockfarms)				
Payout to landowners	$ 82.460,00		**$ 82.460,00**	= 20 % Share
Payout to farmers	$ 82.460,00	$ 15.190,00	**$ 97.650,00**	= 20% Share
Total payout to farmers and Landowners			**$ 180.110,00**	
Expenses for the processing center and plantations				
Liason Committee Share 2% of Intl. Price	$ 8.246,00			= payments to committee
Farm management	$ 15.000,00			= 15 $ per acre, farm maintenance
Salaries for 8 permanent staff	$ 19.200,00			= 200 $ per staff per month
Salaries 30 casual labourers	$ 16.200,00			= 3 $ per labourer per day (180 days per year)
Trading Management (jute bags, labels, solar plastic)	$ 12.850,00			= 50 $ for total amount of tons processed
Center management (fuel, bikes, trucks, maintenance, supplies)	$ 9.600,00			= 800 $ per month
Total expenses of center per year			**$ 81.096,00**	
Regular coffee income for the community	**$ 53.200,00**	**$ 2.800,00**	**$ 56.000,00**	= Coffee from existing plantations @ 70% of intl. Price
Expenses for purchase of coffee (Existing plantations)				
Payment to farmers (60% of intl. Price FOB)	**$ 45.600,00**	**$ 2.800,00**	**$ 48.400,00**	= 60 % of intl. Price (FOB) + Certification premium

Income (Blockfarms + existing plantations)	Expenses	Profit without lease payment	Balmed Lease payment for center	TOTAL ANNUAL PROFIT FOR THE COMMUNITY
$ 318.570,00	**$ 309.606,00**	**$ 8.964,00**	**$ 7.710,00**	**$ 16.674,00**

CASHEW: INCOME CALCULATION FOR THE BLOCKFARMING COMMUNITY

Community	Yifin	
Acerage Blockfarming in acres	2000	
Expected yield in tons from the blockfarms in mT	640	
Additional cashew from other areas delivered to the center in mT	40	
Lease payment per mt in USD $	$	20,00
Premium payment to farmers per ton	$	70,00
Intl. Price	$	950,00

	Sales Income	Cert-Premium	Total income	Remarks
Blockfarms income for the community	**$ 364.800,00**	**$ 44.800,00**	**$ 409.600,00**	= 60 % of intl. Price (FOB) + Certification premium
Expenses for purchase of cashew (Blockfarms)				
Payout to landowners	$ 121.600,00		**$ 121.600,00**	= 20 % Share
Payout to farmers	$ 121.600,00	$ 44.800,00	**$ 166.400,00**	= 20% Share
Total payout to farmers and Landowners			**$ 288.000,00**	
Expenses for the processing center and plantations				
Liason Committee Share 2% of Intl. Price	$ 12.160,00			= payments to committee
Farm management	$ 20.000,00			= 10 $ per acre, farm maintenance
Salaries for 10 permanent staff	$ 24.000,00			= 200 $ per staff per month
Salaries 30 casual labourers	$ 16.200,00			= 3 $ per labourer per day (180 days per year)
Trading Management (jute bags, labels, solar plastic)	$ 34.000,00			= 50 $ for total amount of tons processed
Center management (fuel, bikes, trucks, maintenance, supplies)	$ 12.000,00			= 1000 $ per month
Total expenses of center per year			**$ 118.360,00**	
Regular cashew income for the community	**$ 26.600,00**	**$ 2.800,00**	**$ 29.400,00**	= Cashew from existing plantations @ 70% of intl. Price
Expenses for purchase of cashew (Existing plantations)				
Payment to farmers (60% of intl. Price FOB)	**$ 22.800,00**	**$ 2.800,00**	**$ 25.600,00**	= 60 % of intl. Price (FOB) + Certification premium

Income (Blockfarms + existing plantations)	Expenses	Profit without lease payment	Balmed Lease payment for center	TOTAL ANNUAL PROFIT FOR THE COMMUNITY
$ 439.000,00	**$ 431.960,00**	**$ 7.040,00**	**$ 13.600,00**	**$ 20.640,00**

Balmed®

FARMER BENEFIT BLOCKFARMING

Crop	*Cocoa (Theobroma cacao)*	
Est. yield per acre in kg	217	
World Market Price	$	2.300,00
Certification Premium	$	70,00

VALUE PER ACRE		AVERAGE FARMSIZE IN ACRE		BLOCKFARMING SHARE		CERTIFICATION PREMIUM		FARMER BENEFIT PER YEAR
$ 499,10	x	4	x	20%	+	$ 60,76	=	$ 460,04

1.978.172 SLL

Additional daily income

$ 1,26

Effective income for farmer per day (@70 labour days)

$ 6,57

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year8	Year 9	Year 10
0%	0%	0%	13%	33%	68%	92%	100%	100%	100%
$ -	$ -	$ -	$ 59,81	$ 151,81	$ 312,83	$ 423,24	$ 460,04	$ 460,04	$ 460,04

Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
$ 460,04	$ 460,04	$ 460,04	$ 460,04	$ 460,04	$ 460,04	$ 460,04	$ 460,04	$ 460,04	$ 460,04

Year 21	Year 22	Year 23	Year 24	Year 25
100%	100%	100%	100%	100%
$ 460,04	$ 460,04	$ 460,04	$ 460,04	$ 460,04

![Balmed logo]

Balmed Holdings: Blockfarm locations

Country	Province	District	Chiefdom	Section	FARM ID	Community	GPS location Longitude	Latitude	[illegible]	[illegible]	Farmers	[illegible]	[illegible]	[illegible]	# Trees	[illegible]	[illegible]	[illegible]	Type of [illegible]	[illegible]
Sierra Leone	East	Kailahun	Dea	Bahoilo	BHL-BFG-010	Lagor	W10 36.594	N7 57.755	13,5	5,5	33	8	58	741	55	136	10	3	Logging/Mahless mixed rainforest. Common tree species found within the forests include Lophira alata, Heritiera utilis, Piptadeniastrum africanum, Parkia bicolor, Parinari excelsa, Brachystegia leonensis, and Lopora guineensis, Ceiba pentandra, Khaya ivorensis, Afzelia africana, Terminalia ivorensis. Food trees: Elaeis guineensis, Cocos nucifera, Psidium guajava, Citrus sinensis, Mangifera indica, Anacardium occidentale, Persea americana, Cola nitida	Zea mays subsp. mays, Manihot esculenta & Colocasia spp., Musa spp., Musa paradisiaca
				Sakiema	BHL-BFG-020	Sakiema 1 ([illegible])	W10 39.933	N8 00.543	4,9	2,0	26	9	55	490	102	251	10-15	5		
				Sakiema	BHL-BFG-024	Sakiema 2 ([illegible])	W10 39.933	N8 00.543	23	9,3	25	5	50	850	56	89	8-9	6		
				Dodo	BHL-BFG-016	Gobara	W10 41.383	N7 57.046	6,4	2,6	23	3	23	421	66	163	10	4		
			1	3	4	3			47,8	19,4	105	25	128	2,482	52	128				
			Mandu	Lower Kaiwa	BHL-BFG-002	Levuma	W10 45.542	N7 57.787	Included in Dalor		44	5	49	1.402			0	0		
				Upper Kaiwa	BHL-BFG-025	Dalor	W10 45.542	N7 57.787	23,3	9,4	29	3	32	1.612	119	500	10	2		
				Upper Kaiwa	BHL-BFG-021	Hotala 1	W10 44.500	N7 57.700	25,4	10,3	29	3	32	720	60	149	10	3		
				Upper Kaiwa	BHL-BFG-012	Hotala 2	W10 44.500	N7 57.700	Included in Hotala 1		18	3	21	830			0	3		
				Lower Kaiwa	BHL-BFG-011	Kaiwa	W10 45.964	N7 57.550	56,6	22,9	60	3	63	2.051	50	125	15	7		
				Upper Kaiwa	BHL-BFG-023	Daoduyema	W10 45.446	N8 00.575	30,4	12,3	20	5	25	945	31	77	25	10		
			1	2	6	5			185,7	94,8	200	22	222	8,140	61	152				
			Malema	Pelegbembiyima	BHL-BFG-026	Mjabama	W10 49.843	N7 45.424	79,3	32,1	50	20	70	0	0	0	0	0		
				Upper Sand	BHL-BFG-019	Jomma	W10 48.237	N7 49.180	38,6	15,6	29	7	56	1.167	53	81	12	6		
				Upper Sand	BHL-BFG-018	Jojoma	W10 46.416	N7 51.091	40,2	16,3	29	8	37	812	20	50	10	7		
				Lower Sand	BHL-BFG-015	Tandomavahun	W10 48.191	N7 50.520	38,1	15,4	46	4	50	3.734	97	240	10	3		
				Lower Sand	BHL-BFG-009	Njeihun	W10 49.445	N7 48.594	21,6	8,7	33	8	41	2.613	121	299	10	3		
				Lower Sand	BHL-BFG-017	Njorgowahun	W10 50.491	N7 49.575	22,7	9,2	29	8	37	1.327	58	142	15	2		
				Upper Sand	BHL-BFG-008	Bpangjema 1 (Faiyeama)	W10 45.585	N7 51.800	Included in Faiyeama		31	5	36	730			0	0		
				Upper Sand	BHL-BFG-001	Bpangjema 2 (Faiyeama)	W10 45.585	N7 51.800	43,6	17,6	33	8	38	1.182	43	107	15	7		
			1	3	8	7			284,1	115,0	277	68	345	11,562	41	101				
			Upper Bambara	Maosoma	BHL-BFG-007	Kamoo	W10 46.092	N8 05.464	49,2	19,9	35	10	45	1.187	24	60	10	11		
			1	1	1	1			49,2	19,9	35	10	45	1.187	24	60				
			Njawei	Nyeama	BHL-BFG-014	Nyeama	W10 56.559	N7 47.684	27,3	11,0	29	4	33	0	0	0	0	0		
			1	1	1	1			27,3	11,0	29	4	33	0	0	0	0	0		
			Luawa	Luawa	BHL-BFG-027	Luawa Baoma			0	0	33	6	36	0	0	0	0	0		
			1	1	1	1			0	0	39	6	45	0	0	0	0	0		
		Kenema	Giema	Mendekelema	BHL-BFG-AMS-031	Mendekelema 1 (FS)	W10 57.618	N7 45.682	239	96,7	35	12	47	797	8					
				Mendekelema	BHL-BFG-AMS-032	Mendekelema 2 (FS)	W10 57.618	N7 45.682	19,9	8,1	35		25	139	58					
					2	1			258	105	60	12	72	1.106	11					
	South	Pujehun	Barri	Dakona	BHL-BFG-012	Tambahun	W11 23.525	N7 25.541	87,8	35,5	49	8	57	734	21					
				Kanjai	BHL-BFG-005	Boma	W11 23.259	N7 29.822	12,6	5,1	29	6	35	1.559	102					
				Jurgba	BHL-BFG-004	Vanima	W11 24.867	N7 33.590	24,6	10,0	27	6	33	1.107	111					
				Pelley	BHL-BFG-006	Pelewahun	W11 29.442	N7 28.090	67,5	27,3	42	5	47	820	10					
				Kanjai	BHL-BFG-003	Nyamyahun	W11 22.152	N7 32.073	34,9	14,1	32	7	39	720	51					
				Uheba	BHL-BFG-013	Konia	W11 24.583	N7 26.216	46	18,6	56	3	59	762	41					
			1	3	6	6			[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]					
		TOTAL							1.0[illegible]	[illegible]	[illegible]	[illegible]	1.1[illegible]	[illegible]	[illegible]					
		TOTAL [illegible]																		

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Pictures:
Coverpage: Baindu Sandy, Nursery staff of Mobai Town nursery
p. 2: Cocoa tree, Taninawahun Farm, Malema Chiefdom, Kailahun District, 7°50'31" N 10°48'18" W
p. 11: Community meeting, Taninawahun Farm, Malema Chiefdom, Kailahun District, 7°51'3" N 10°48'24" W
p. 12/13: Rice and Agroforest, Kuiva Farm, Mandu Chiefdom, Kailahun District, 7°57'41" N 10°45'52" W
p. 14: Training in the field, Vaama Farm, Barri Chiefdom Pujehun, 7°33'24" N 11°24'22" W
p. 15: Cocoa agro-forest, Gobaru Farm, Dea Chiefdom, Kailahun District, 7°57'3" N 10°41'22" W
p. 20: Cocoa agro-forest, Gobaru Farm, Dea Chiefdom, Kailahun District, 7°57'3" N 10°41'23" W
p. 26: Mountain view over rainforest, Lowoma Farm, Mandu Chiefdom, Kailahun District, 7°57'39" N 10°45'35" W; Office staff using SAP app, Kenema Headoffice
p. 27: Main road in Mobai Town, Mandu Chiefdom, Kailahun District, 7°59'42" N 10°45'18" W
p. 28: Balmed store in Mobai with cocoa bags ready for loading, Mobai, Mandu Chiefdom, Kailahun District
p. 42: African big eyed tree frog

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