Aotea Global

Sustainable Solutions

Introducing

Aotea Holistic Solutions & Programmes

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"THINK HOW MUCH MORE RURAL PEOPLE COULD CONTRIBUTE TO GLOBAL FOOD SECURITY, PEACE AND STABILITY IF THEY HAD THE RESOURCES TO IMPROVE THEIR FARMS AND BUSINESSES AND TO PROSPER, NOT JUST SURVIVE."
ALVARO LARIO - PRESIDENT OF IFAD | HTTP://BIT.LY/3J5DTBA

Image © Robert Kiama - Aotea Global Country Representative for Kenya

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Image ©IFAD/Rindra Ramasomanana

PROBLEM STATEMENT AND INTRODUCTION

Sub Saharan Africa has suffered for decades from a myriad of problems which are, with correct investment and management, solvable. Indeed, as an example, Zimbabwe was once the "Breadbasket of Africa" and provided electricity and food to surrounding countries whilst benefitting from extensive product exports, high quality of living and security. This provides good evidence that the land is rich, and capable of supporting the population and surrounding nations. If investment can be secure, as outlined within this document, it should be possible to return to the previous state.

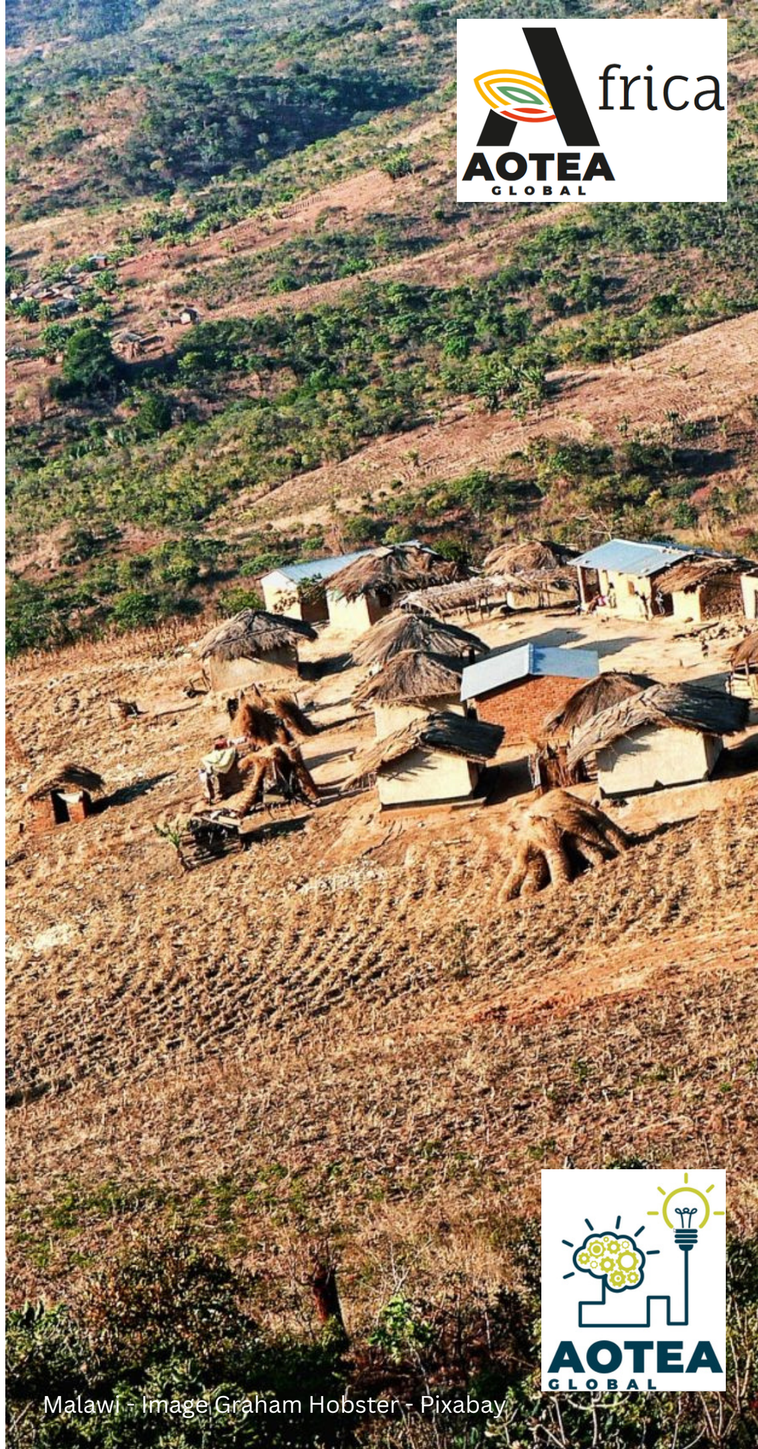
The current problems are largely interwoven and as such require an approach that is holistic rather than being dealt with individually.

We have indentified four categories of interconnected problems which we focus on in this document. We have developed our programmes of improvement to address Food Security, Health & Wellbeing, Environmental Improvements & Economic Security.

This document shows the interrelationship of the problems and the proposed solutions to such.

Unfortunately the problems in the region have had a huge impact on the environment, which in turn is affecting the people as well as eco-systems:

- **Soil depletion** – caused by no crop rotation due to survival farming of same crops.
- **Deforestation** – caused by lack of power to obtain charcoal for cooking, industrial uses, etc.
- **Water shortages** – caused by falling aquifer levels, poor catchment and storage, inefficient farming.



Malawi - Image Graham Hobster - Pixabay

INTERRELATIONSHIP OF PROBLEMS & CAUSES - 1

The problems in Sub-Saharan Africa are interrelated and self compounding, each year becoming worse and further affecting each other. These problems stem from behavioural, economic, political and cultural aspects. It is possible to modify the behavioural and economic aspects and ultimately influence the cultural and political aspects of the root causes of the problems by jump-starting the four elements we have identified; Food Security, Health & Wellbeing, Ecology and Economy.

SUB-SAHARAN AFRICA HAS A QUARTER OF THE WORLD'S ARABLE LAND BUT ONLY PRODUCES 10 PER CENT OF ITS AGRICULTURAL OUTPUT.

https://www.ifad.org/thefieldreport/

The problems are here listed in reverse order from the solutions we propose as the problems stem from Economic issues, affecting the Ecology, in turn affecting Health & Wellbeing and Food Security. In order to resolve the issues this process must be reversed;

- Provide enough food by increasing the growing seasons and improving soil quality in sustainability through multiple crops, increased yield and cash crops for sale.
- Availability of adequate food and cash crops, particularly those that replenish the soil, lead to improved health (bolstered by purified water).
- With better health and available food and money from cash crops, locals will be less likely to partake in de-forestation (fuel sources provided by another aspect of this programme) which has a positive ecological and economic impact.
- In turn, cash crops allow for purchasing of fuel rather than resorting to deforestation but also providing raw materials missing from local industries (textiles are one of note) and certain cash crops can be used for soil improvement both from being grown and from processing into fertiliser.

Thus the circle continues; fertilising the soil, another year of exports and food, better health, better financial security, direct improvements to the eco-system.

INTERRELATIONSHIP OF PROBLEMS & CAUSES - 2

Economy

Lack of investment has led to fuel and power shortages, particularly in the rural areas, meaning that villages can't pump water from sources to where it is needed, which directly impacts **food** and **health**; water is the source of life. Lack of investment also means lack of potable water, impacting health. Lack of cash crops, due to lack of water, means less or no raw materials for industry thus impacting **economy**. Lack of availble reusable fuel sources affects the **ecology**.

IN SUB-SAHARAN AFRICA, ECONOMIC GROWTH FROM AGRICULTURE IS 11 TIMES MORE EFFECTIVE AT REDUCING EXTREME POVERTY THAN ANY OTHER SECTOR.

https://www.ifad.org/thefieldreport/

Ecology

Inefficient water collection and usage combined with increasingly lower aquifers causes water shortages which affect the **ecology**, **economy**, **food** and **health**. Soil depreciation due to chemical fertilisers, intensive and monocrop farming results in lower quality and quantity of food, affecting **food** and **health security**. Deforestation results in lower rainfall, soil erosion, vastly negative ecological impact and the potential for desertfication affects **health**, **food**, **ecology** and **economy**.

Health

Lack of good food and potable water negatively affects health which in turn reduces productivity of people, leading to a financial drain on the local **economy**. Poor sanitation also reduces peoples ability to keep disease at bay. When working solely towards survival, the environment takes a back seat in people's thinking, meaning that they take what they most easily can from the land, often reducing it to dust and desert which in turn affects the **ecology**, **food**, **health** and **economy**.

Food

Lack of water due to absence of fuel and power for water pumping reduces the available growing seasons of crops which directly affects **health** and the **economy**. The unavailability of raw materials from cash crops directly affects the economy by limiting industries and reducing available export products.

AOTEA'S HOLISTIC AND CYCLIC APPROACH

Aotea believes that the problems must be addressed holistically and with a renewable cyclic approach. As such there are several elements proposed, which interact with one another to resolve the stated issues in a renewable and continuous, ever improving manner.

This whole process starts with water; nothing can be changed and no problem resolved unless a firm starting point is addressed; the ability to reliably deliver water to where it is needed. Due to the poor power and fuel availability and with our over-riding drive for carbon neutrality we recommend the use of eco-friendly solutions such as pumps that utilise solar or, even better, the natural kinetic energy of running water itself. The use of solar powered pumps can raise issues in terms of cost, chemical batteries, and the easy theft of parts, so we use kinetic pumps wherever possible.

The starting point of all of these improvements is the Rural Revitalisation Programme; this incorporates water delivery, as stated above, water collection and efficient usage, seeds, fertilisers, efficient irrigation, some purification (not using chemicals and generally not using power), thus greatly extended growing seasons and yield, leading to food security and cash crops which can be used for soil improvement, export and revitalisation of local industries.

Following the successful beginning of the above programme the Industrial Hemp Programme can be initiated. Relying upon the infrastructure provided by the Rural Revitalisation Programme, hemp can be one of the cash crops grown. Hemp products can be used for soil improvement, production of fertiliser and feed, fuel briquettes and bio fuel. This can greatly reduce deforestation and can be used to revitalise local industries.

The Water Hyacinth Programme can be started at any time and offers ecological and economic gains. We propose a joint removal and processing programme using the harvested Water Hyacinth. We can transform it into much needed organic fertilisers, animal feed and bio fuels, thus feeding back into the previous programmes.

ALL THE COMPONENTS OF OUR PROGRAMMES WORK TOGETHER, BUT CAN ALSO WORK INDEPENDENTLY.

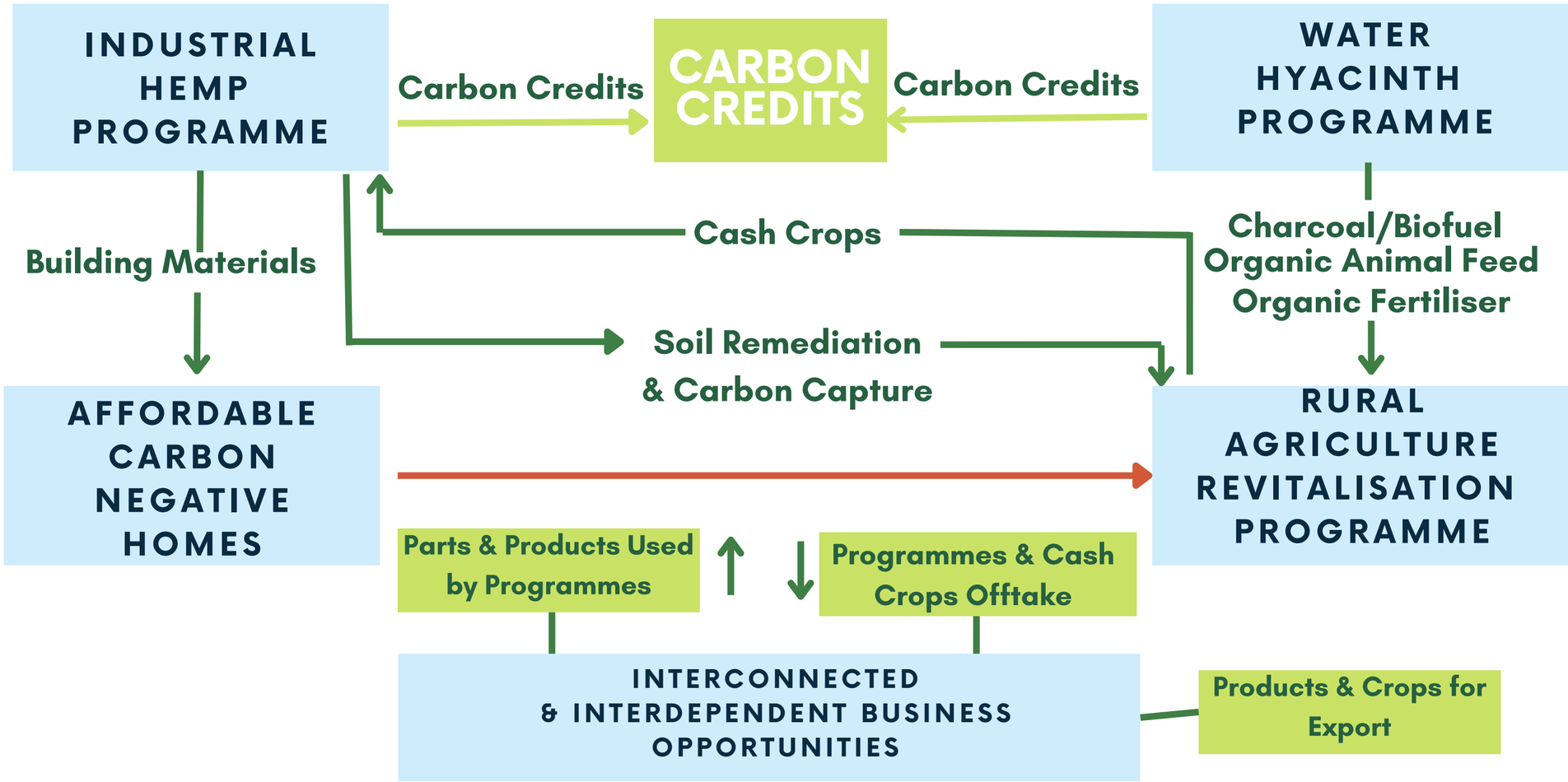
- SOIL REGENERATION
- WATER FOR CROPS
- WATER FOR ANIMALS
- CLEAN DRINKING WATER
- ORGANIC FERTILISER
- ANIMAL FEED
- FUEL FOR COOKING
- FUEL FOR INDUSTRY
- CROPS FOR TRADE
- BUILDING MATERIALS FOR HOMES

OUR MODULAR APPROACH MEANS THAT PRESSING PROBLEMS CAN BE DEALT WITH EFFICIENTLY, WITH FURTHER IMPROVEMENTS ADDED LATER.

OUR HOLISTIC STRATEGY

"In nature everything is connected, everything is interwoven, everything changes with everything, everything merges from one into another."

German dramatist and thinker Gotthold Lessing 1729-1781



FOOD SECURITY

"AT LEAST ONE IN FIVE AFRICANS GOES TO BED HUNGRY AND AN ESTIMATED 140 MILLION PEOPLE IN AFRICA FACE ACUTE FOOD INSECURITY, ACCORDING TO THE 2022 GLOBAL REPORT ON FOOD CRISES 2022 MID-YEAR UPDATE."

WORLD BANK - OCTOBER 2022 | BIT.LY/3YSIEAJ

- **Sustainability**
- **Cash Crops**
- **Extended Growing Season**
- **Soil Improvement**
- **Organic Fertiliser**
- **Increased Yields**

- Aotea Eco Pumps - fuel/power free 24/7 water delivery
- Water Efficiency & Storage (drip feed, catchment)
- Industrial Hemp as a Cash Crop and for Soil Improvement.
- Organic Fertiliser from Water Hyacinth
- Organic Animal Feed from Water Hyacinth

HEALTH & WELLBEING

"IN SUB-SAHARAN AFRICA, ONLY 24% OF THE POPULATION HAVE ACCESS TO SAFE DRINKING WATER, AND 28% HAVE BASIC SANITATION FACILITIES THAT ARE NOT SHARED WITH OTHER HOUSEHOLDS."
UN WATER DEVELOPMENT REPORT 2019 | BIT.LY/42376B7

"IN 2021, AFRICA WAS HOME TO 95% OF MALARIA CASES AND 96% OF MALARIA DEATHS. CHILDREN UNDER 5 ACCOUNTED FOR ABOUT 80% OF ALL MALARIA DEATHS IN THE REGION."
WORLD HEALTH ORGANISATION | HTTP://BIT.LY/3YMJRTL

- **Potable Drinking Water (WHO Level)**
- **Adequate Nutritious Food**
- **Malaria Control**
- **Scaleable Waste Water Treatment**

- Aotea Eco Pumps (fuel/power free 24/7 water delivery to convenient points)
- Water Purification Products (no chemicals or power required)
- Food security improves physical & mental health
- AoteA Mosquito Traps control malaria
- Scaleable natural waste water treatment using controlled reed/water hyacinth beds

ENVIRONMENTAL IMPROVEMENTS

"THE PRIMARY CAUSE OF SOIL DEGRADATION IN SUB-SAHARAN AFRICA IS EXPANSION AND INTENSIFICATION OF AGRICULTURE IN EFFORTS TO FEED ITS GROWING POPULATION. EFFECTIVE SOLUTIONS WILL SUPPORT RESILIENT SYSTEMS, & MUST CUT ACROSS AGRICULTURAL, ENVIRONMENTAL, AND SOCIOECONOMIC OBJECTIVES."

COLUMBIA UNIVERSITY EARTH INST. | HTTPS://BIT.LY/3YZ3QBF

- **Carbon Capture**
- **Soil Regeneration**
- **Productive Lakes & Waterways**
- **Reducing Deforestation**

- Water Hyacinth harvesting & Industrial Hemp provide significant atmospheric carbon reduction
- AoteA Self Powered Water Pumps deliver tonnes of water 24/7/365 with no fuel or carbon emissions
- Every crop of Industrial Hemp feeds the soil with 4 tonnes of root fibre per hectare
- Water Hyacinth harvesting clears blocked waterways, reduces evapotranspiration, benefits fish stocks, wildlife, water transport & recreation
- Biofuels Processing from Water Hyacinth & Industrial Hemp for industrial & domestic use will greatly reduce deforestation

ECONOMIC SECURITY

"SUB-SAHARAN AFRICA, HOME TO MORE THAN 1 BILLION PEOPLE, HALF OF WHOM WILL BE UNDER 25 YEARS OLD BY 2050, IS A DIVERSE CONTINENT OFFERING HUMAN AND NATURAL RESOURCES THAT HAVE THE POTENTIAL TO YIELD INCLUSIVE GROWTH AND ERADICATE POVERTY IN THE REGION. - WORLD BANK"

WORLD BANK | HTTP://BIT.LY/3T4EN1U

- **Crops For Domestic & Export Markets**
- **Carbon Credits**
- **Products for Exports**
- **Foreign Exchange**

- Aotea Eco Pumps – Fuel/Power free 24x7 water delivery
- Water efficiency and storage (drip feed, catchment)
- Rural revitalisation (smallholder in a box) for multiple cash crops & growing seasons
- Industrial Hemp for oil, fibre & 25,000+ products
- Hemp fibre to revitalise Textile Industries
- Hemp based carbon negative building materials
- Increased agricultural yields boost exports

RURAL AGRICULTURE REVITALISATION PROGRAMME

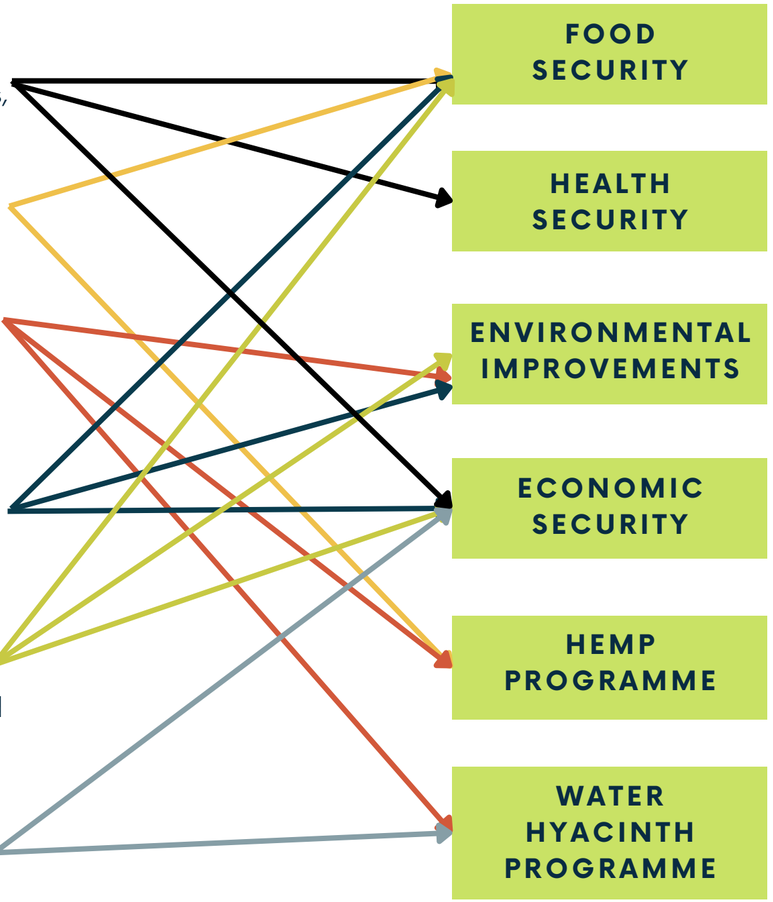
The Rural Agriculture Revitalisation Programme provides smallholders with all the important elements required for success.

Unused marginal land can be converted to food and cash crop producing land through the cultivation of a combination of Industrial Hemp and Nitrogen fixing cover crops, while putting carbon back in the ground.

ELEMENTS FOR SUCCESS

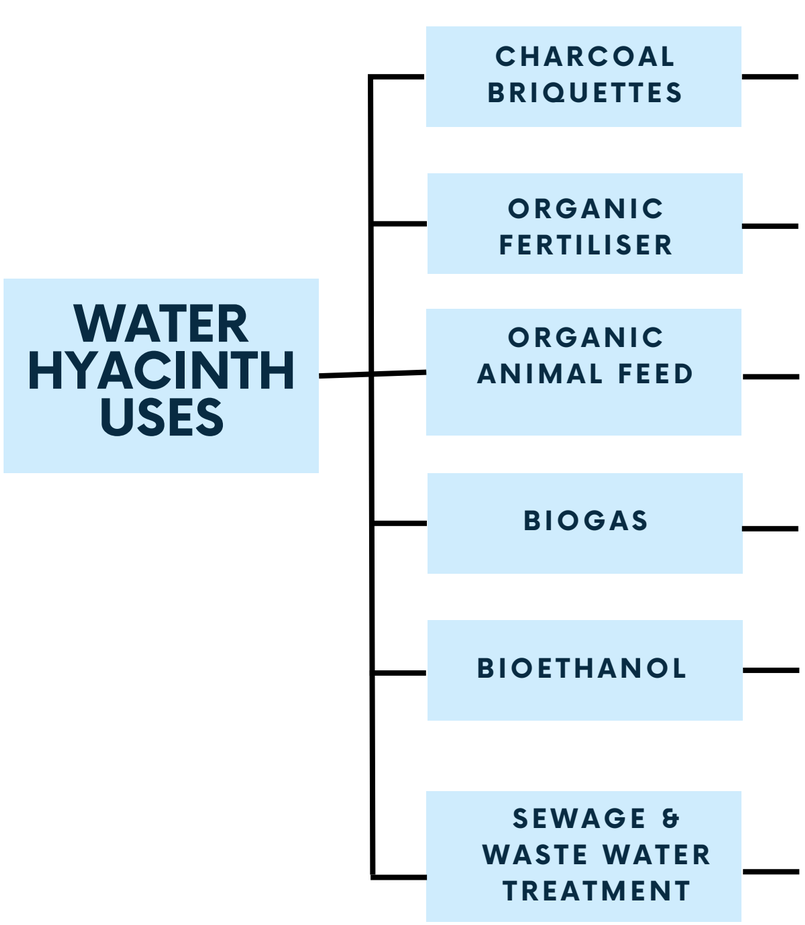
- ECO WATER DELIVERY
- IRRIGATION & WATER EFFICIENCY
- WATER PURIFICATION
- SUBSISTENCE CROPS & CASH CROPS
- SEED PRODUCTION
- FERTILISER PRODUCTION

- An AoteA ECO Water Pump can deliver up to 25,000 litres of water every 24 hours, over 20 kilometers, 365 days a year for up to 30 years, using no fuel, electricity or manual labour
- Aotea Drip Feed Irrigation Kits are a perfect fit for our smaller ECO Pumps and together are an ideal way to deliver precisely the right amounts of water to crops up to one hectare.
- Clean, safe drinking water is essential for good health. Our Ultra Violet LED driven units purify water to WHO standards
- Our Industrial Hemp programme will add four tonnes of root fibre to every hectare for each crop. With the addition of organic fertilisers, good irrigation & water management, the soil is brought to life, full of nutrients & microorganisms. Smallholders can not only feed their families, there will be good surplus to sell as cash crops
- We are working with Invegrow, Malawi based hemp seed producers. We will also collaborate with seed trade associations and alliances, and will assist growers to trade seeds through our Climate Crisis Toolkit.
- We can convert Water Hyacinth into both pelleted and liquid fertiliser. Pre mixed with biochar, it enriches the soil and nurtures the microorganisms essential for good growth

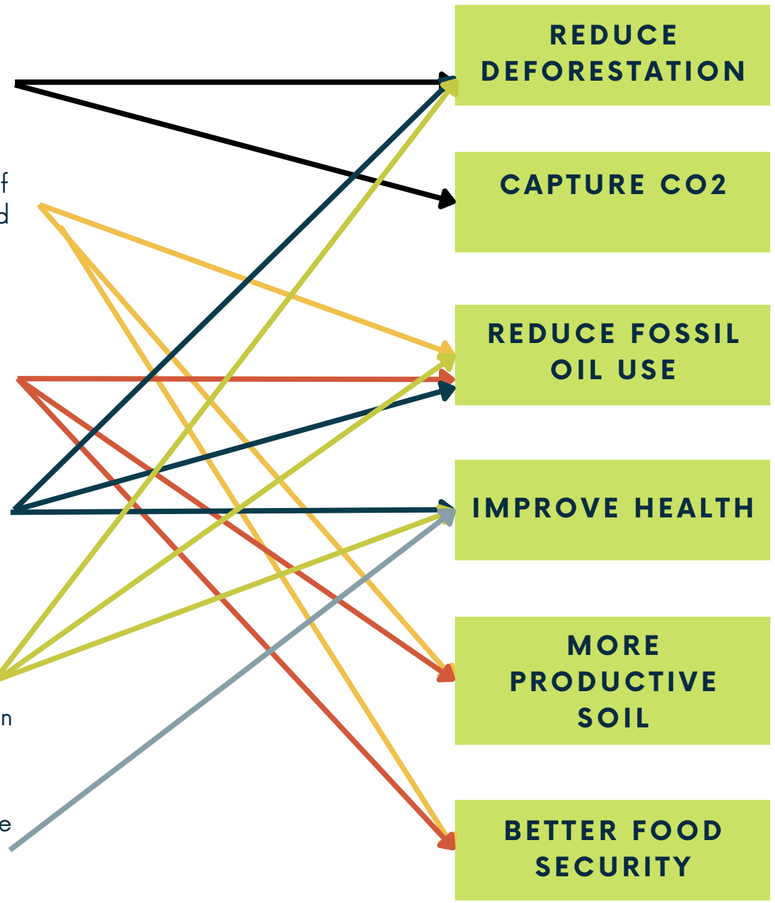


WATER HYACINTH PROGRAMME

Water Hyacinth is a huge problem in bodies of water in equatorial regions around the world.
It can completely cover lakes and wetlands, outcompeting native aquatic species, reducing oxygen levels for fish, and creating an ideal habitat for disease-carrying mosquitoes.
Large infestations of water hyacinth can prevent river transport, fishing, damage bridges, and clog dams.
We can turn it from a problem into a valuable resource



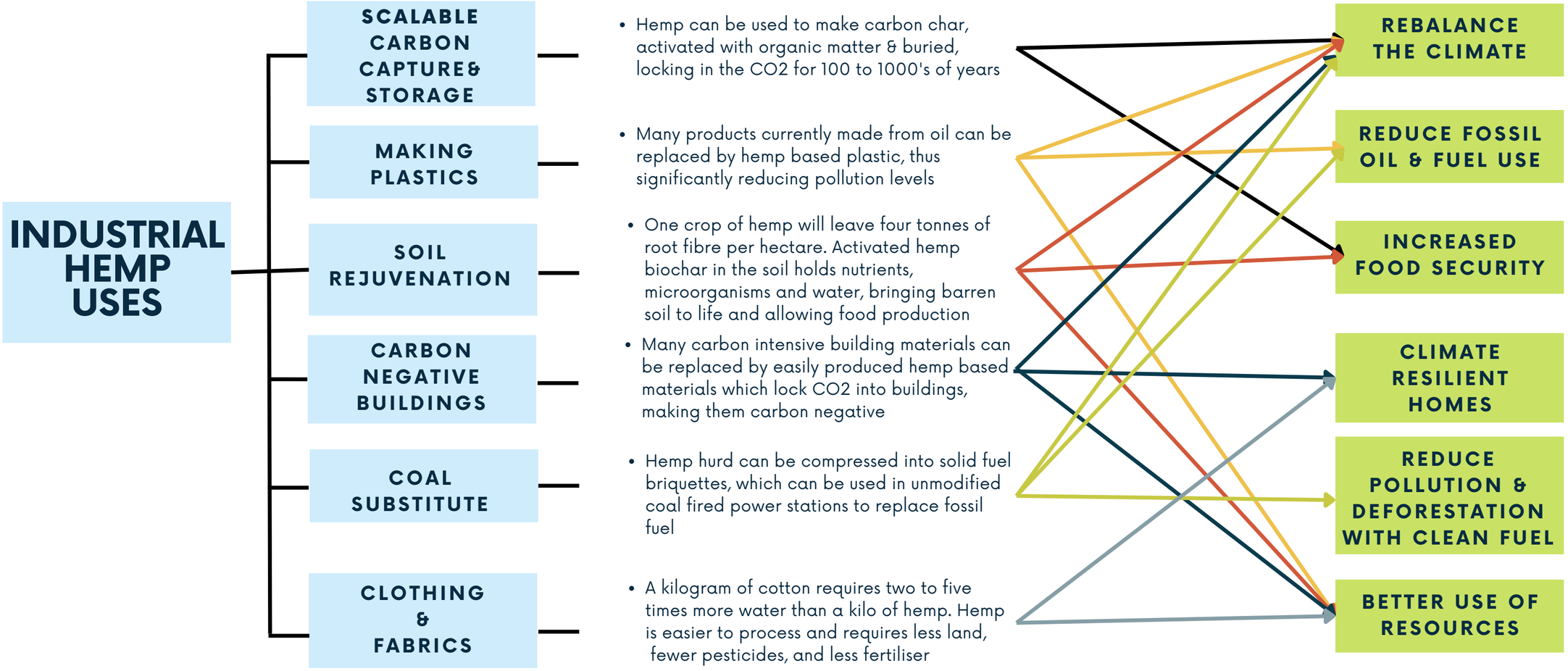
- Water Hyacinth can be converted into effective fuel by harvesting, chopping, drying and pyrolising the weed to make charcoal briquettes
- Once processed as compost, the high levels of phosphorus, nitrogen and potassium contained in Water Hyacinth mean that it can be converted to good quality Organic Fertiliser.
- The green parts of the plant, which contain high rates of mineral content, can be made into animal feed when mixed with brans and husks to add more carbohydrates.
- Fermentation in a biogas digester then produces methane, to be used as a fuel for cooking and/or industrial processes - including generating electricity to process animal feed and fertiliser.
- More than 200 litres of cellulose based ethanol can be made from one tonne of Water Hyacinth fibre. It makes an ideal clean burning liquid fuel for cooking stoves.
- Water Hyacinth is increasingly used for waste water treatment. One hectare of treatment area is enough for 1000 people



INDUSTRIAL HEMP PROGRAMME

Industrial hemp has been scientifically proven to absorb more CO2 per hectare than any forest or commercial crop and is therefore the ideal carbon sink. One hectare of industrial hemp can absorb about 18 tonnes of CO2.

- *Industrial Hemp will grow on land that is otherwise completely unproductive.*
- *It is the most efficient, scaleable and affordable way to capture CO2 from the atmosphere.*



TIMELINE

Phase 1: Complete

- Director funded: $500,000 USD
- Companies established in Zimbabwe, Malawi, Tanzania, Zambia, Kenya, Mozambique
- National Teams formed
- Contacts at Government & Presidential level made
- Demo sites build and shown

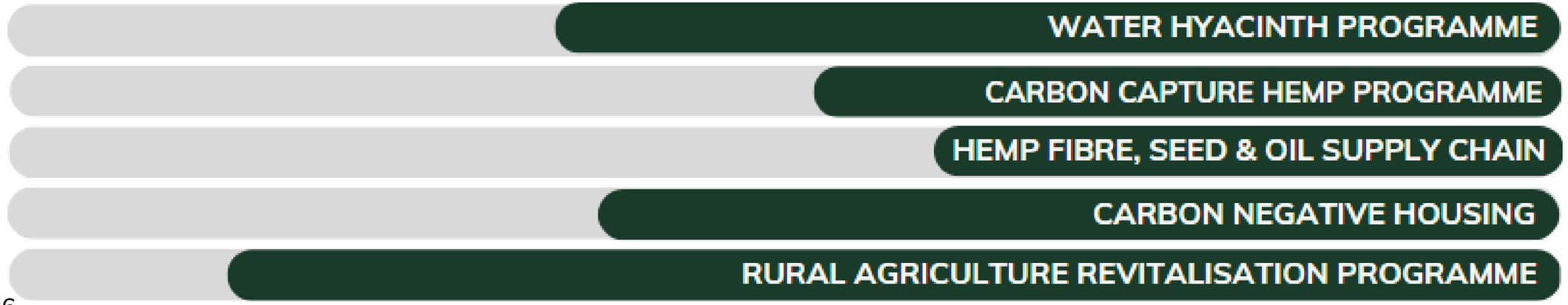
CURRENT POSITION

Phase 2: Initiation

- Seeking funding $7,000,000 to $20,000,000 USD
- 300 farms across countries
- Establish Joint Ventures
- Build Supply Chains
- Confirm Models
- Continue to Extend Regions
- Engage Local Banks

Phase 3: Future Action

- Water Hyacinth Programme
- Carbon Capture Industrial Hemp Programme
- Hemp Fibre, Seed & Oil Supply Chain
- Affordable Carbon Negative Housing
- Rural Agriculture Revitalisation Programme



SOCIAL ENTERPRISE AND EMPOWERMENT

One of Aotea's key Goals is the empowerment of people local to each country in which we operate. This is achieved by our training keen and able individuals, small business owners, and rehabilitating low level ex-criminals, or those at risk of becoming so, in our products and services, helping them to start and manage their own Aotea business and become part of the Aotea family.

This enables people to become self sufficient with a viable business and a future of their own making. We train, support and assist with practical, legal and contractual aspects of their businesses and provide them with the initial opportunities.

Local Aotea companies are wholly owned by local entrepeneurs. It is Aotea's mission to pass on as much success as possible to local people, helping them drive their local economy and personal welfare. As we bring in more initiatives, products and services we will continue to take these people with us on our journey.

Image © Robert Kiama - Aotea Global Country Representative for Kenya

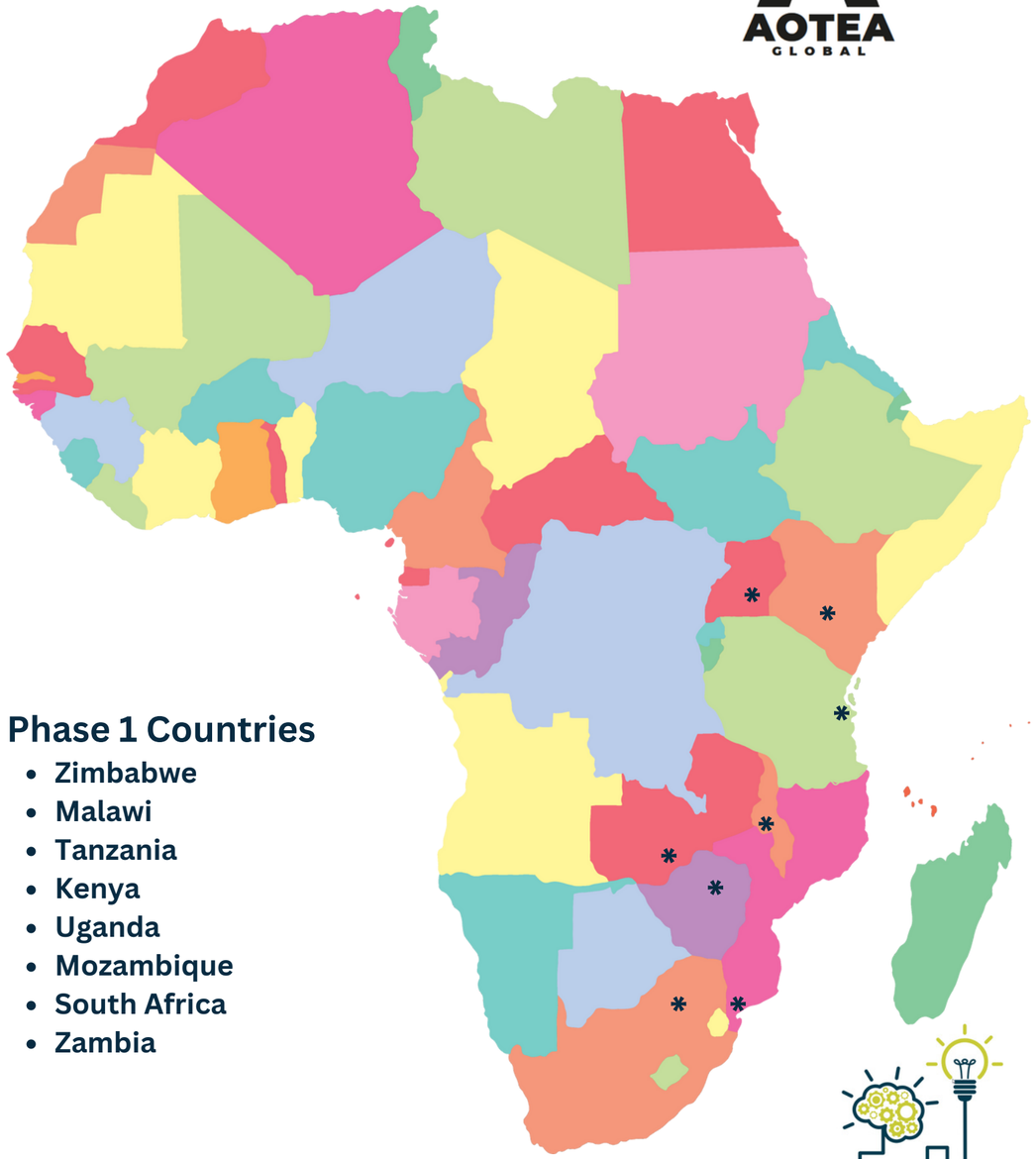
PHASE 1: COMPLETED

Phase 1 was a Director funded investigation and initiation prompted by contacts and colleagues of ours who have similar goals and views on finding something that would benefit the environment and people in the most eco-friendly and sustainable way possible, with the view to improve the eco-systems long term for the benefit of all. The Directors investment was approximately $500,000 US.

The initial five year, in region investigation, found that fuel and electricity were scarce in the region and this was causing significant problems for rural and even semi-rural areas, particularly in the form of water delivery and cooking. We identified water delivery technologies that require neither fuel nor power and can deliver significant quantities of water over large distances and to heights. These solve a lot of the initial problems we identified and when coupled with water efficient irrigation and storage proved a significant solution. We also discovered that potable water is an issue throughout the region.

Subsequent research identifed other problems and solutions, for which we have defined the programmes discussed in this document and realised how each affects the other and can alleviate the others.

Phase 1 has resulted in locally owned Limited Companies established under the Aotea banner, utilising Aotea systems and branding but each owned fully by local people we have vetted and trained.



Phase 1 Countries

- **Zimbabwe**
- **Malawi**
- **Tanzania**
- **Kenya**
- **Uganda**
- **Mozambique**
- **South Africa**
- **Zambia**

PHASE 1: ZIMBABWE

Our demo site has been running for 3 years. This constitutes a kinetic ram pump which takes water from a perennial stream up a hill to a holding tank and a drip feed irrigation system. Last season it enabled the farm to grow 12,000 cabbages in one growing season. If this were optimised, as recommended by Aotea, it could quadruple its yield, but as this is a demo site only, it is not fully optimised. This site was designed to run for 6 months to demonstrate the technology but has been running in place for 3 years.

In terms of Phase 3 industrial revitalisation we have access to textile factory owners who are ready to restart closed factories once cash crop raw materials are available; this will create a lot of jobs and exports. We also have pipe and tank extrusion experts who are ready to engage with us to manufacture pipes, fittings and tanks for the Programme, potentially using cash crop offtake from the programme in the form of hemp based plastics. These can then be sold throughout the region powering both the Zimbabwe economy and also the Aotea Programmes.

We have the ability for a Presidential level meeting and have already met with Ministers and the Speaker of Parliament.

Progress:

- Agreement for mutual working with Department of Irrigation and Zimbabwe Prison and Correction Service. We have an agreement for mutual working to train and engage, enable and empower ex-criminals and those at threat of falling into crime in our solutions in order to help them either gain work with our partners of setup their own partner companies.
- We have access to several hundred thousands of acres of land on which we can grow Industrial Hemp; this is expected to be taken up in Phase 3 of our programme timeline.
- We have agreements with local banks who can source foreign exchange for us to take out of the country to buy parts, goods and repay loans for farmers (phase 3). We also have local banks who will work with us to enable their customers in rural areas to correctly manage their finances and assist us with future offtake of cash crops.
- We are also in partnership with the Church of Zimbabwe with a view to aid 10,000 smallholders as part of the Rural Revitalisation Programme mostly as Phase 3.
- Our current team in Zimbabwe consists of 10 people in their own local owned companies working under our banner.

PHASE 1: MALAWI

A kinetic ram pump was setup and demonstrated to various Government departments and NGOs to great effect.

We have worked closely with NGOs in Malawi with a programme which will be funded as part of Phase 2 to supply potable water and irrigation to 15 villages near the Mozambique border; this is under the Rural Revitalisation Programme. It was initially intended to test micro-hydro generators as part of the water supply; the water is lifted by the ram pumps to a head, flows down through the micro-hydro unit and is then used for treated potable .drinking water and drip feed irrigation

In Malawi we have people ready to work with us who are experts in seed oil processing and have access to factories which we can utilise. This gives us the starting market for certain cash offtakes to render oils which we can replicate using their expertise across the region providing quality cooking oils for export.

Progress:

- Several wheel pumps have been setup in rivers in Malawi irrigating banana plantions and have proven a great success.
- We have agreements local banks who will work with us to enable their customers in rural areas to correctly manage their finances and assist us with future offtake of cash crops.
- The current team in Malawi consists of 6 people.
- We have already met several Ministers and the President's wife as well as senior advisors. We are able, and indeed have been invited, to meet the President to discuss our programmes.

FOOD & ECONOMIC SECURITY

In just two of the eight African Nations we operate in, Aotea has agreements to grow crops on 242,800 hectares of unused arable land.

Two crops of Industrial Hemp, and a cover crop between, in the first year of our Industrial Hemp Programme at that scale would capture about 8.74 Million Tonnes of CO2, and would add almost two million tonnes of fibre to the soil.

Result, living soil that will support food crops and cash crops and a reduction in atmospheric CO2.

PHASE 1:
Kenya | Mozambique | Tanzania

KENYA

Five people work with us in Kenya and this is mostly planning projects for Water Hyacinth and Industrial Hemp.

The local company has started working with Government over reclamation of Hyacinth and processing the offtake; this is simply awaiting the funds to start. We have a large network of Hemp experts who already advise us and some of these are in Kenya ready to work with us once we are in a position to start.

MOZAMBIQUE

Demo site is in progress and training has been undertaken for the 10 members of the Aotea company there. The demo site is farm a 1 hectare farm which can be expanded to 10 hectares in Phase 2.

Several NGO and Government projects are in conversation with us to become part of Phase 2, once funding is secured.

Mozambique are also early engagers in Hemp, and Water Hyacinth, and are seeking funds for our water purification solutions due to the recent cyclones there causing Cholera, Typhoid etc.

TANZANIA

Tanzania has a small Aotea presence of only 3 people, one of whom is a Lawyer called to the Bar of Tanzania in Dar es Salam.

PHASE 1:
South Africa | Uganda | Zambia

SOUTH AFRICA

Our team in South Africa has just started with us and we are training staff in kinetic water pump site location and design.

A new company Aotea Global SA has been established and our team of five people have started conversations with Government and NGO's, etc.

UGANDA

Our Uganda Team has just started with us and are undergoing training in site location and design.

The Aotea Global Uganda company has been set up and talks with Government and NGOs has started.

ZAMBIA

The Zambian team has just started with Aotea and are now fully incorporated, with four members in the team so far.

The team is already working on water delivery to four farms, Our ram pumps which will use Kinetic Energy alone to deliver up to 25,000 litres of water every twenty four hours to each of the farms.

PHASE 2: FUNDING STAGE

Phase 2 will utilise the findings, successes, infrastructure and contacts started and set up in Phase 1 and will expand upon them and consolidate several things:

- Enlarge the existing in country teams and provide more training.
- Create and provide a fully functional and robust support function and network.
- Install the Rural Revitalisation Programme into 200 or 300 farms throughout the region (the number of farms we can approach depends on the amount of funding, in the form of donations, that we are able to receive.
- Enable the farms to grow food and cash crops over several years and ensure that profits are reused for their own future improvements.
- Build robust models for the offtake of cash crops for export and input into the Programme (fertiliser as an example), ensure markets for cash crops and other products.

The benefits above are outlined in this document but to summarise, the farms enabled as part of Phase 2 will be benefitting from increased yield of food crops plus cash crops for sale either nationally, export for foreign exchange or for sale back into the programme. They will also receive potable water.

Benefits to the programme will be reusable processes for the offtake, sale and reuse of products leading into a repeatable business model for Phase 3.

Initiation of the Water Hyacinth Programme with the view of utilising the final products as fertiliser cooking fuel and tobacco/tea curing fuels for sale or donation depending upon circumstances.

Benefits will include removal and control of the invasive plant, reduction in deforestation and soil improvement.

Expansion into other countries in the region in the form of demo sites.

After 2 years of Phase 2 we will initiate the growing of Industrial Hemp as a cash crop.

We estimate that Phase 2 will require between $7,000,000 and $20,000,000 USD in donations, not loans, depending upon how many farms the sponsor wishes to enable and how much they would wish to improve the environment and earn Carbon Credits or other eco credentials and will run for 3 to 4 years before completion.

PHASE 3:
FUTURE – NEXT 3 TO 4 YEARS

Phase 3 will follow on from Phase 2 once Phase 2 has built proven, reusable and robust relationships, processes, markets and teams and has shown succesful crops for several years.

Essentially Phase 2 is the proving ground for the final Programme, building a repeatable model, whilst also providing significant benefits to the teams, farmers and everyone involved in the initial kick-start. Even if Phase 3 never starts those who benefitted from Phase 2 can continue to work and roll-out the model but at a much slower pace and only by selling the solutions, whereas Phase 3 is designed to expediate the roll-out of the Progammes for the greater benefit of the environment and local people across Africa.

Phase 3 will introduce a more business orientated model allowing for some re-investment from Aotea. Donations will always be acceptable although it is likley these will be targetted at specific projects in the region. Other funding will be sought in the form of loans to farmers; these loans to farmers will be repaid through the processes and relationships refined in Phase 2 thus ensuring that ROI is met in a reasonable time.

Funding in the form of donations and loans to farmers will enable us to greatly expand the suite of programmes to more countries and more farmers in the region; in Zimbabwe alone there are an estimated 10,000 farmers who would benefit from being part of the programme.

Phase 3 will also see the revitalisation of related industries such as pipe and tank extrusion, textiles, oils, hemp housing materials, other hemp industries. We also have agreements to take certain products we use and licence their manufacturing in Africa, relocating it from China, again meeting African Union requirements and creating jobs and revenue for the region.

Phase 3 will also see the greater roll-out of Water Hyacinth harvesting and control and the growing of Industrial Hemp on a massive scale across the region for which we already have land and permission, just not the infrastructure yet to enable it.

The culmination of the Industrial Hemp Programme will result in the world's largest Carbon Capture Programme to date

LAND HUSBANDRY & STEWARDSHIP

One of the main problems with donation based projects in Africa is not following up with support, mentoring and management.

Aotea intends to be present throughout the cycle of production ensuring, with the assistance of local co-operatives and local banks, that the equipment is maintained via this support network. We will also be involved in the off-take of crops to ensure that everything is kept working, in place and maintained. We would consider removing support from anyone who are in conflict with Aotea's principles.

One of the main advantages of being a part of the community is that we can encourage and ensure Land Husbandry and Stewardship as part of the agreements and follow up mentoring with farmers and villages.

- **Encourage the planting and care of trees and shrubs; we would sell or donate the bio fuels for cooking and curing obtained from Hemp and Water Hyacinth.**
- **Schedule regular visits to ensure husbandry is being taken seriously.**
- **Encourage the recipients to patrol their areas to ensure that non-participants don't pillage the new growth.**
- **Encourage participation with a series of benefits, e.g. lower costs for seeds and fertiliser etc., and increased payment for high performance whilst ensuring quality.**
- **Teaching smallholders sustainable techniques such as coppicing, composting, etc.**

INDUSTRIAL HEMP FOR ATMOSPHERE & SOIL

Growing Industrial Hemp is the simplest and most cost effective way of capturing CO2, is completely scaleable and just about anyone can do it. That's why Hemp is a vital part of our programmes.

- There are more than 202 million hectares of uncultivated arable land in Africa.
- One hectare of industrial hemp can absorb about 18 tonnes of CO2 in less than 120 days.
- *That's over 3.6 Billion tonnes of CO2.*

Hemp stalks can be used to make carbon char, activated with organic matter and buried in the ground, locking in the CO2 and significantly boosting food crop yields during crop rotation.

Hemp can be used to make over 25,000 different products, via greatly varying levels of manufacturing sophistication. The economies of participating nations will grow, as they process the hemp into increasingly more value added products for export.

Many products which are currently made of oil based plastic can be replaced by hemp based plastic, thus significantly reducing pollution levels. According to the OECD, only 9% of all plastics ever made have been recycled.

Carbon intensive building materials can be replaced by easily produced hemp based materials which lock CO2 into buildings, making them carbon negative.

Less Drought
Such large scale plant coverage on previously uncultivated ground will increase precipitation in the water cycle, bringing rain and helping to re-balance nature and the climate.

Food Security
Food crops will be more abundant because soil quality and resilience will greatly improve due to increased presence of nutrients and micro organisms, and superior water retention.

Political Stability & Migration
The food security, economic and political stability which would ensue from a successful large scale operation would reduce or even stop human migration caused by duress, and could result in many migrants returning to their homelands and their families, with real hope for a better future.

Economic Benefits
Growing industrial hemp makes total financial sense, to subsistence farmers and larger growers alike.

INTERCONNECTED & INTERDEPENDENT BUSINESS OPPORTUNITIES

The following are further business opportunities of which Aotea is already in discussion with experts and owners, which can be realised as part of Phase 3 and onwards. Each of these opportunities are part of the Aotea cyclical and inter-related programmes and *for* each we already have experts, owners and other participants who are ready to join us in re-establishing these businesses, by either providing items to other Aotea programmes or utilising off-take from those same programmes:

- **Textiles** - We already have relationships with factory owners who are closed due to lack of raw materials; our hemp fibre programme can work to fill that gap.
- **Oils - Cooking/Other** - We have relationships with owners of seed processing plants who will join us once we start to provide the raw materials from hemp or sunflower seeds.
- **Pipe Extrusion & Tank Moulding** - We have experts ready to join us to start this aspect of the business which would see our plants providing our own products to our rural programmes.
- **Core Product Manufacturing** - We have the agreement with some of our vendor partners to move their production naway from China and into our own factories under licence in Africa, thus we will be manufacturing the main core components for each programme ourselves.

Each of these has already been investigated to the point where obtaining rights, licences and factory buildings are a simple matter of proving we are ready to proceed. Several African Governments have offered us land for the projects, as they see the opportunity for job creation.

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