Seambiotic

Building the Algae Industry – One Country At a Time South Africa Conference

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Seambiotic's Mission

Seambiotic's vision is to become the **global** leader in development and **cultivation** of superior quality marine **microalgae** through proprietary technology using **flue gas** for three applications:



Seambiotic's Edge

- Seambiotic was the first company to cultivate marine microalgae using coal burning flue gas
 - "It was found that carbon dioxide [from flue gas] was extremely toxic Which resulted in the death of the cultures in 1 to 1.5 days" Algae Culture – from Laboratory to Pilot Plant, John S Burlew, 1953
- Cultivation uses free inputs and simple construction to drive down costs
- Ami Ben Amotz world renowned in field of microalgae cultivation
- Seambiotic's cooperative research with world's leading companies
- Successful joint venture strategy (China, Japan, and others)



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Seambiotic Microalgae Cultivation Farm Ashkelon, Israel





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Seambiotic is Already Recognized From Malaysia - look familiar?

 The company is presently consulting a listed company from Indonesia to address the technology know-how and implementation of microalgae development from the flue gas of the Group's power plants.

Itilisation of power plant resources for growing selected microalgae at a low nergy cost for valuable products and bio-fuels while providing CO2 equestering

- Low cost algae agriculture
- · All year algae production
- · Low cost flue gas, CO2
- · Low cost water source
- · Residual energy
- Arid land





Asia.

Commercialisation of haematococcus pluvialis for production of astaxanthin, the first in Malaysia and South East

The project is partly funded by Malaysian Technology Development Corporation (MTDC) for a US\$1.0 million grant and scheduled to commence in March 2009.

MALAYSIAN TECHNOLOGY DEVELOPMENT CORPORATION



http://www.sasaran.biz/group-activities.html



What about this one from Australia

🤗 wise-owl.com

13 August 2010

components to Algae.Tec's success will be its reactor system, the type of algae used and the ability to bring solar light to in the process.

Concerns may lie in the secrecy surrounding the technology used for competitive reasons, making it hard to assess the uniqueness and perceived value of its IP. In the bio-tech space, competitors maintain their edge through ownership of its IP. Commercialisation of its IP will be the key and achievement of the demonstration plant in the next 12 months will be critical to Algae.Tec's success.

Another concern is the difficulty in the scaling up of the pilot plant used in the testing to date. Volume of the testing plant totalled 76m³ with the demonstration plant is expected to be 86m³. The small increase in volume should pose little problems in the construction and testing of the demonstration plant.

Reactor System - Modular Stacking

Current growing techniques used by competitors mostly involve the use of open and closed pond systems where the algae is cultivated. The closed container system employed by Algae.Tec is the key differentiator that provides a more effective and efficient production process. The technology and process is encapsulated in a modular container similar to that of a steel shipping container.

Open Pond System



Source:

Algae.Tec Limited (ASX:AEB)



Keys to Commercialization

- Seambiotic recognizes its strength in efficient construction and deep knowledge of cultivation
- Leveraging its technology and resources require partnerships and collaborations
- Research at headquarters must be made available throughout network
- JOINT VENTURE WITH LICENSE CHOSEN AS IDEAL MODEL





Joint Venture Strategy

Seambiotic partners with local strategic partners to establish farms worldwide







Joint Venture Strategy in Practice

- First project is China
 - Strategic partner is one of China's largest electric power companies
 - License Agreement and Joint Venture Agreement signed 11/2009
 - Seambiotic receives license fee, equity stake in joint venture, key inputs into management
 - Initial 120,000 sq. m. plant, construction due to be completed Q2/2011
- Weekly conference calls, monthly visits (biological and engineering), building program for cooperation
- Construction prices being driven down





Seambiotic Algae Farm Constructions in Penglai, China







Seambiotic Algae Farm Constructions in









Seambiotic Algae Farm Constructions in Penglai, China- cont'









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Project II - Japan

- Even though Japan is birthplace of microalgae cultivation, largely abandoned for last 20 years
- Seambiotic signed license and joint venture agreement, pilot plant to be constructed in 2011 followed by commercial plant in 2011/2
- Finalizing financing from group of funds and strategic investors

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Project III – USA Corn Belt

- Bio-ethanol plants produce high concentration of CO₂
- License Agreement MOU signed to bring technology to area, funded by local entrepreneurs, local and state government, farmers wanting to make more than \$1,000 per acre revenue





The Project That is Right For You!

- Seambiotic is working with strategic partners in several other territories (Far East, Europe, Latin America) and looking forward to working in Africa.
- Commercialization requires clear plan built over period of time to scale from initial feasibility through final implementation





Ongoing Research Driving the Price Even Lower

- Seambiotic is committed to further reducing the cost price of microalgae cultivation
- Teamed up with NASA to explore ways to increase productivity
- Inviting partners to work on further price reduction technologies in cultivation or harvesting – the ponds are ready!







Markets

• The path to bio-fuel passes through a variety of key markets as prices drop:



- Key to success is market scale up as price of production falls
- Unlike bio-fuel, a cost of \$1.5 \$2 per kg in mass production opens unlimited markets
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Markets (cont.)

- Above markets not dependant on additional extraction and purification technologies
- Seambiotic also aware of additional markets which become available once prices drop and extraction technologies come online commercially
- Seambiotic is looking to partner rather than develop





Food Market Potential

There is a growing demand for health products rich in essential vitamins, amino and fatty acids, antioxidants and minerals.

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Thank You!

