

¹ Morphallaxis: regeneration of a part or organism from a fragment by reorganization without cell proliferation (Allaxis: Greek for change/exchange).

Logo design inspired by NZ's Human Rights Commission's Diversity Fern

1.0 Executive Summary

Morphallaxis will be a future market leader engineering company specializing in design consultancy and manufacturing of automated biodigesters (aka Allaxis) for living in greener, sustainable urban living. Our design of Allaxis is based on the concept of zero-waste and organic living through its biodigester and vertical gardens. The design of the basic Allaxis implementation is geared towards apartment buildings and bigger complexes but is applicable in most environments where the community shares infrastructure. The design is free for anyone to use to promote an affordable yet efficient approach to greener living with Morphallaxis corporation providing as much or as little assistance as required. The founders of Morphallaxis are a global group of highly skilled engineers majoring in biomass technologies and talented marketers who are passionate about making a change for the better.

1.1 Background and Mission

Interest in biomass power is on the rise with massive government investment in green infrastructure and renewable energy taking place in developed countries.² Although the primary driver to consider biomass power has been its potential to lower heating and power production costs, the anticipation of global carbon credit markets and renewable power mandates is spurring a new wave of investment in this sector. These facilities can generate electricity at any time, unlike most other renewable sources of energy.³

Morphallaxis has a vision to enhance the living quality of the urban community through its customised design and implementation of automated biodigesters (a wing of biomass) in high-rises and other major complexes. People living in apartments in the cities make up a large percentage of the urban community and they are ideally suited to make use of our technology. Our main clientele will be developers, government agencies and global organisations.

² http://www.biomassmagazine.com/article.jsp?article_id=2455

³ <http://www.globalbioenergy.org>

The savings and benefits from using our technology are passed down from them to the residents.

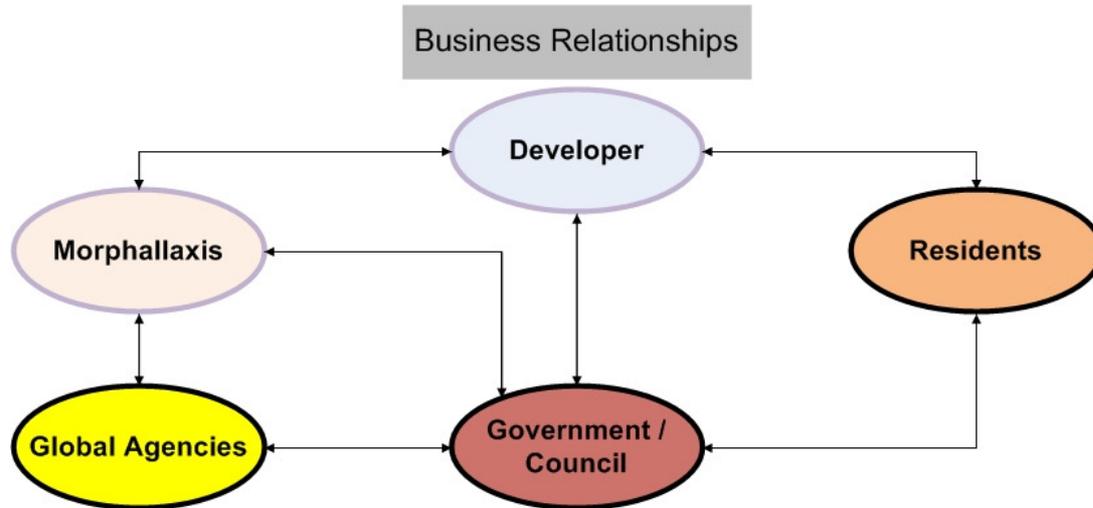


Figure 1: The working relationship model of Morphallaxis

1.2 The 3-R Factor to Success – Reduce, Recycle and Reuse

Morphallaxis believes in the 3-R (Reduce, Recycle and Reuse) approach as a key to everyone's success:

- **Reduce** amount of waste generated by household thus saving money and earth's resources, carbon emissions from the use of non-renewable energy (transportation to landfill), and taxes through incentives and subsidies for eco-friendly homes.
- **Recycle** food scraps and turning them into renewable energy.
- **Reuse** effluent as organic fertilizers.

2.0 Company Location and Target Market

Morphallaxis will establish the business in the Vancouver because it is the "greenest" city in Canada⁴ and it has a committed volunteers and government officials implementing the "Greenest City Action team". Canada is a member nation of the United Nations and has signed the Kyoto Protocol.⁵

Living "green" has become a trend amongst city dwellers. We have chosen to lease our office space in Richmond, Vancouver because it is close to the airport, and railway station (encouraging our employees to use public transport) while having harbor views. Most businesses situate themselves within Vancouver or its surrounding areas (Richmond, Victoria, Burnaby etc.) making it very convenient (and eco friendly with less commute) to reach us. Our target market, city dwellers are very much interested in educating themselves as well as their peers about the advantages of living green.

⁴ <http://vancouver.ca/ctyclerk/newsreleases2009/NRgreenestcity.htm>

⁵ <http://www.un.org/apps/news/story.asp?NewsID=5712&Cr=kyoto&Cr1=protocol>

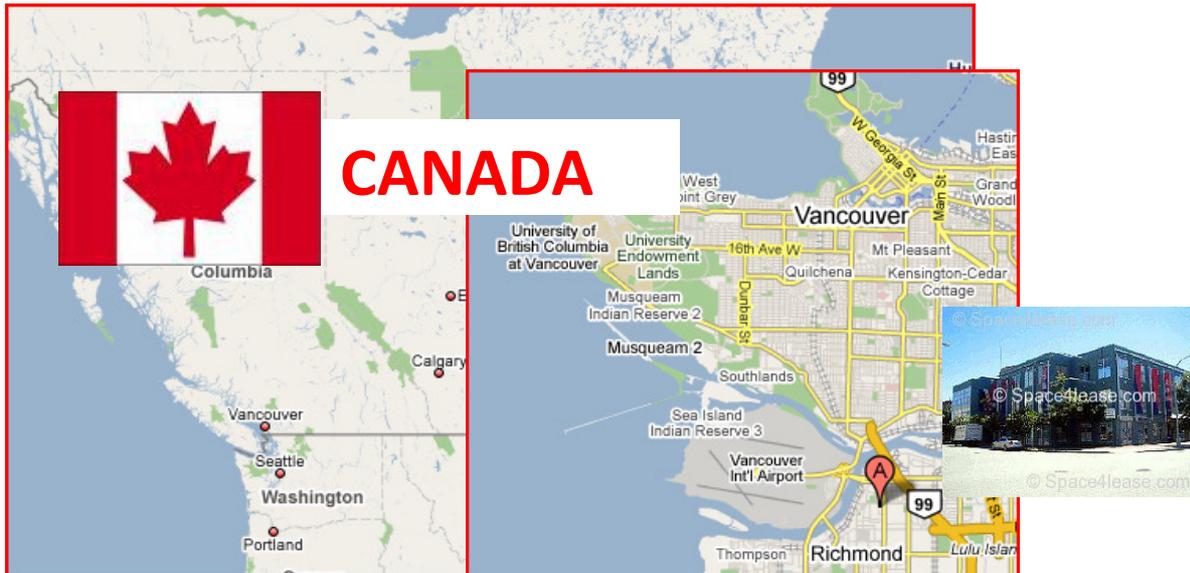


Figure 2: Headquarters of Morphallaxis

There are approximately 475,000 tonnes of waste deposited into the landfill in Vancouver per year.⁶ On average, 20% of household waste is comprised of kitchen waste and another 20% is garden waste.⁷ We believe that installation of Allaxis in buildings will reduce the amount of waste generated by each household by at least 25% with further savings from reduced council fees, tax rebates and a feeling of being able to help preserve the environment and save the earth.

The provincial government has made it a point to endorse greener initiatives from both businesses and home owners. We will be targeting developers (for both commercial and residential) to help endorse the use of our Allaxis. As well, we will be approaching government agencies (federal and municipal) to promote our consulting expertise but most importantly, our technology. With government support through tax rebates and subsidies, it is highly advantageous for city dwellers to use the technology and services that Morphallaxis has to offer. The “Natural Resources Canada’s CanmetENERGY” offers grants through the “Leadership in ecoInnovation Incentive” program.⁸

Many conferences and seminars are held in the city of Vancouver; both open to the public as well as invitation-only that educates attendees about the benefits of green living. Morphallaxis will establish a presence at these trade shows or even hold one specifically for government agencies by offering our product to them to be used by developers, businesses and home owners who are interested in taking part in the ecoACTION program⁹ or upgrading to ensure their facilities and

⁶ Vancouver Landfill Facts & Figures. 18 Feb. 2009. 2 Apr. 2009
<<http://vancouver.ca/engsvcs/solidwaste/landfill/facts.htm>>.

⁷ <http://www.wasteonline.org.uk/resources/InformationSheets/WasteDisposal.htm>

⁸ http://canmetenergy-canmetenergie.nrcan-rncan.gc.ca/eng/about_us/ottawa/funding/incentive_program.html

⁹ Government of Canada. EcoENERGY for Renewable Power. 20 Feb. 2009. 30 Mar. 2009
<<http://www.ecoaction.gc.ca/ecoenergy-ecoenergie/power-electricite/index-eng.cfm>>.

homes are most cost efficient and use less energy. An example of such a conference would be Hydrogen + Fuel Cells 2009 (HFC2009), one of the leading international conferences for the fuel cell and hydrogen industry.¹⁰

There are a large number of grants and incentives available to the public (large corporations, SME's as well as home owners who are interested in energy conserving upgrades¹¹). The EcoEnergy Retrofit program (one of many grants of this type) will only be running until March 31st, 2011.

Primarily, we would offer our products to government agencies and developers but are not limited to them. For example, we would also approach financial institutes who offer loans specifically to customers who present a business plan for the construction or renovation of buildings, homes and all facilities for greener living.¹²

2.1 Competition

Morphallaxis's competitors consist of companies pursuing other renewal energy technologies such as solar and wind. As we will be the pioneer of this biodigester in an urban setting, our technology will actually supplement these green technologies and work together towards a sustainable urban environment.

2.2 Pricing Strategy

Morphallaxis's income generation model is based on the following:

- Sale of our highly popular, compact and efficient Allaxis and field replaceable parts.
- Customisation of our free designs to meet a client's specific need. For example, our service design engineers are hired as consultants to customise our free implementation design to suit an existing building.
- Managing the initial outfit and maintaining the equipment placed through Service Level Agreements (SLA) with clients.

Each Allaxis unit will be priced at \$ 8,500 while design consulting fees should be based on \$5,000 per day for project consulting, and \$ 10,000 per month and up for retainer consulting. Design research reports will be priced at \$ 5,000 per report and the quality of the report will of course be of top standard. The cost of sales is targeted to be between 15% and 20% of sale price. Morphallaxis will offer multiple service standard SLA contract to its client and the contract is renewed on a yearly basis. These multiple service standards are:

¹⁰ Natural Resources Canada. [EcoENERGY Retrofit Grants and Incentives](http://www.oeenrcan.gc.ca/corporate/retrofit-summary.cfm?attr=0). 11 Dec. 2008. 30 Mar. 2009 <<http://www.oeenrcan.gc.ca/corporate/retrofit-summary.cfm?attr=0>>.

¹¹ Natural Resources Canada. [EcoENERGY Retrofit Grants and Incentives](http://www.oeenrcan.gc.ca/corporate/retrofit-summary.cfm?attr=0). 11 Dec. 2008. 30 Mar. 2009 <<http://www.oeenrcan.gc.ca/corporate/retrofit-summary.cfm?attr=0>>.

¹² HSBC . [HSBC Global Climate Change Fund](http://www.hsbc.ca/1/2/en/personal/investing-retiring/investing-in-mutual-funds/global-climate-change-fund). 30 Mar. 2009 <<http://www.hsbc.ca/1/2/en/personal/investing-retiring/investing-in-mutual-funds/global-climate-change-fund>>.

- **No Support contract:** 1 year warranty to cover unexpected part failures due to manufacturing error, any other parts and labor charged according to market rates.
- **Basic Support @ \$1,500 p.a.:** Phone support but all parts and labor charged (at a discount of 10% with 1 free visit per year) and performed during normal business hours.
- **Standard Support @ \$2,000 p.a.:** Phone cover, free scheduled maintenance (every 6 months). All other parts and failures as per Basic Support.
- **Gold Support @ \$2,500 p.a.:** All parts and maintenance covered, business hours work only.
- **Platinum Comprehensive Service) @ \$3,000 p.a.:** 24hr/7days cover.

3.0 The Allaxis Design and Implementation

Food scraps generated by the household is channelled through the food waste disposers that is connected to the waste water pipelines. A backflow preventer is set into the pipelines to stop the waste or odors from travelling back up into the apartments. This is followed by finer processing of the waste into a temporary holding unit. Any harmful substances are tested for and any acidity imbalances are corrected at this point before the waste is evenly distributed into the biodigester itself. The methane gas produced is fed into the main gas valves of the building. The gas pipes are simultaneously used by the inhabitants for heating and cooking. The effluent from the biodigester is a very good source of organic fertilizer and is pumped back up and into the vegetable gardens that are built vertically on each floor.

An economy of scale is achieved in a multilevel apartment that has many inhabitants and encourages an environmentally friendly society where output of waste and dependence on traditional methods of power production are reduced while encouraging planting of vegetables or other greenery resulting in the added benefit of encouraging healthy diet.

The general design of an Allaxis installation is shown in the following diagram:

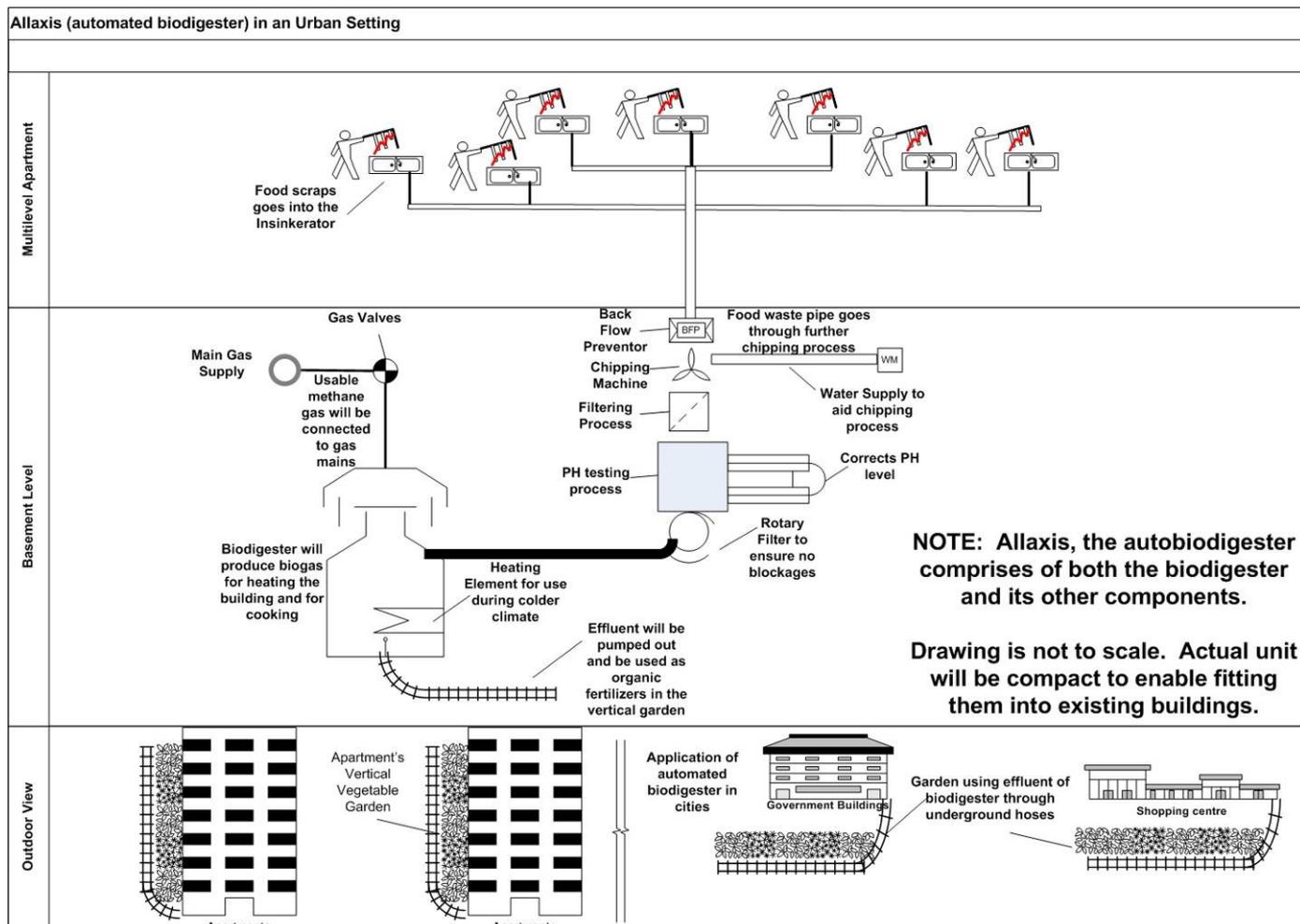


Figure 3: Implementation of Allaxis in an Apartment Setting

4.0 Financial Funding and Assumptions

The directors of the company will have a start up capital of \$50,000 with a bank loan for an additional \$100,000. Additional funding and grants (at zero interest) of \$ 500,000 for establishing a manufacturing plant are obtained through the following sources:

Canada's ecoENERGY for Biofuels program ¹³	\$ 150,000
Community Development Block Grant (CDBG) ¹⁴ from the City of Vancouver	\$ 250,000
Small Business Finance Centre ¹⁵ for start-up companies including tax breaks	\$ 100,000

Morphallaxis plans to maintain a conservative financial strategy, based on developing capital for future growth. This will encourage customers to invest in the technology by alleviating any fears of being left without support in the future. Our financial assumptions

¹³ <http://oee.nrcan.gc.ca/transportation/ecoenergy-biofuels/about.cfm?attr=16>

¹⁴ <http://www.cityofvancouver.us/cdbg.asp?menuid=10461&submenuID=18584&year=59151>

¹⁵ <http://www.grants-loans.org/programs.php>

include a 45-day average debt collection, sales on invoice basis, 35-day average for payment of invoices and a bank loan interest rate of 8%.

Pro-forma Income Statement		2009	2010	2011	2012	2013
(in thousands)		(,000)	(,000)	(,000)	(,000)	(,000)
Sales		\$ 700	\$ 1,050	\$ 1,700	\$ 3,000	\$ 4,800
New Sales (equipment and consulting)		\$ 600	\$ 750	\$ 1,000	\$ 1,500	\$ 2,000
SLAs Maintenance - (exponential growth)		\$ 100	\$ 300	\$ 700	\$ 1,500	\$ 2,800
Cost of Sales		\$ 140	\$ 189	\$ 289	\$ 450	\$ 720
Gross Margin		\$ 560	\$ 861	\$ 1,411	\$ 2,550	\$ 4,080
Gross Margin Profit		80%	82%	83%	85%	85%
Operating Expenses:						
Marketing & Public Relations	10%	\$ 48	\$ 65	\$ 106	\$ 173	\$ 245
Travel	5%	\$ 24	\$ 33	\$ 53	\$ 87	\$ 122
Payroll Expense	25%	\$ 119	\$ 164	\$ 265	\$ 434	\$ 612
Miscellaneous	10%	\$ 48	\$ 65	\$ 106	\$ 173	\$ 245
Leased Equipment	3%	\$ 14	\$ 20	\$ 32	\$ 52	\$ 73
Utilities	20%	\$ 95	\$ 131	\$ 212	\$ 347	\$ 490
Insurance	20%	\$ 95	\$ 131	\$ 212	\$ 347	\$ 490
Rent	8%	\$ 38	\$ 52	\$ 85	\$ 139	\$ 196
Total Operating Expenses		\$ 476	\$ 654	\$ 1,058	\$ 1,734	\$ 2,448
Profit Before Interest and Taxes		\$ 84	\$ 207	\$ 353	\$ 816	\$ 1,632
Interest Expense	8%	\$ 7	\$ 15	\$ 15	\$ 10	\$ 10
Taxes Incurred		\$ -	\$ -	\$ -	\$ -	\$ -
(assumes 0 taxes for 1st 5 years)						
Net Profit		\$ 77	\$ 192	\$ 338	\$ 806	\$ 1,622
Net Profit / Sales		11%	18%	20%	27%	34%

Figure 4: Projected Profit and Loss for the 5 Years

5.0 Conclusion

Morphallaxis believes that the company helps create a sustainable living in the urban setting through its product and services. This waste-to-energy trend can definitely be set by urban communities that are looking for new ways to live green. The abundance of food waste in the city can be easily converted into renewable energy and will help the community prosper.

We believe that our business model works because it creates a positive flow-on effect for every party. Our free design encourages others to embrace the technology because the design can be applied to existing infrastructures along with new developments. Our close relationship with global and government agencies will help them realize their vision to create a cleaner, sustainable city. Developers who receive grants and subsidies from their local council through our involvement get cash injections and potentially cheaper rates for their projects while improving their reputation as modern and environmentally responsible. This will entice buyers and investors interested in the future savings from a reduction in waste generated, tax subsidies from the government as well as the “feel good factor” of being able to produce their own organic vegetables and do their part to live in an ecologically responsible and sustainable way.