

BIOGAS:

a Sustainable Lifestyle Choice



Success stories documented from the Project on
"Up-scaling Biogas Technology for Sustainable Development
and Mitigating Climate Change in Sri Lanka"



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switchasia



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Introduction

Biogas: a Sustainable Lifestyle Choice is a collection of success stories documented from the EU SWITCH-Asia initiative on “Up-scaling Biogas Technology for Sustainable Development and Mitigating Climate Change in Sri Lanka” is a joint partnership between People in Need, Cz and Janathakshan.

The project focused on up-scaling biogas technologies for sustainable development, responsible tourism, economic growth that contributed towards poverty reduction and climate change mitigation in Sri Lanka. The project targeted tourism, Small and Medium Enterprises (SMEs), households and public authorities in the country while building the technical capacity of manufacture and construction SMEs in biogas technologies.

The project also supported micro-finance institutions to develop financial schemes providing loans for biogas installations to SMEs and households. Furthermore, the training and capacity building component of the initiative aimed at assisting the local construction sector to enhance its technical and entrepreneurial competences regarding manufacturing and installation of biogas systems.

Financing for Biogas

The Project was successful in launching two financing schemes for biogas unit construction. The financial schemes were made available through the Regional Development Bank branches in North Western Province and Sanasa Development Bank branches island wide.

- **Regional Development Bank – North Western Province**

The loan scheme in place is at a 6% interest rate for cattle farmers and 6-8% for hoteliers, households, industries and piggeries.

- **Sanasa Development Bank**

With an 8% interest rate for industries and a repayment period of three years, Sanasa Development Bank offers equally competitive rates for households and hotels.

One of the success stories of an individual who obtained a loan through this scheme has been featured in the case study booklet.



BIOGAS: a Sustainable Lifestyle Choice

Case studies at a glance

- **Blue Sky Hotel - Kurunegala**

Blue Sky Hotel in Kurunegala has a 20m³ Chinese type biogas unit constructed by Isuru Bio Construction. The gas generated through the unit is used for cooking and boiling water while the slurry is utilised for the hotel's garden.

- **Wakewella Vocation Training Institute - Galle**

The Wakwella Training Institute in Galle contains a 12m³ Sri Lak Umaga biogas unit that was constructed as part of a biogas unit construction training conducted by the Project. The unit capable of holding 100kg of waste produces 6m³ of biogas that is ensure 15-20 minutes of daily cooking time.

- **Riviera Resort - Batticaloa**

Riveira Resort in Batticaloa has a 3.5 m³ Sri Lak Umaga Fibre biogas unit constructed by Sabharatnam. The gas generated through the unit is used for cooking in the kitchen while the slurry is used to make bio-char, an organic fertiliser for the hotel's ginger and coconut cultivation areas.

- **Piggery Owner Sanoj Wijethunge - Padukka**

Piggery farmer and owner Sanoj Wijethunge opted for two biogas units in succession because he was recommended biogas as a sustainable animal waste management solution by a fellow piggery farmer and owner. His two 7m³ biogas units are of the Sri Lak Umaga type and is convinced that his investment on the biogas would be beneficial to both his businesses and the environment.

- **SME Milroy Lanza - Chilaw**

Milroy Lanza is a household and building constructor located in Chilaw. After having heard of biogas technology he was keen on seeing for himself the true benefits of the technology. He along with his workers constructed a 8m³ Chinese type biogas unit in his residence is among the many other sustainable environment technologies he has in installed in his household.

- **Oak Ray Regency Hotel - Kandy**

The Oak Ray Regency Hotel in Kandy has a 70m³ (two 35m³ units) Sri Lak Umaga type biogas unit constructed by the SMEs of Eco Tech Base. The hotel is renowned for its many reception halls and large gatherings. Currently the hotel is undergoing rigorous construction to expand its kitchen to accommodate larger crowds and guests and the gas emitted from the unit is used for boiling water.

- **Sathyanandam Rajeshwari - Batticaloa**

Sathyanandam Rajeshwari is a mother, farmer and daily labourer. The 8m³ Chinese type biogas unit was constructed via a grant received through another local initiative and Project ensured technical support. Following the construction of the biogas Sathyanandam Rajeshwari states that she has more time to spend with her children as well spend the time saved on working on creating handicrafts for sale that assures her an additional income.

- **Jetwing Lake - Dambulla**

Jetwing Lake in Dambulla contains a 70 m³ biogas unit constructed by Eco Tech Base. The gas emitted from the biogas unit is used in the kitchen while the slurry is utilised as a fertiliser in the garden area.

- **Jetwing Blue - Negombo**

The Jetwing Blue hotel in Negombo is a five star hotel listed under the renowned Jetwing Group. The hotel's biogas unit is a 70m³ Sri Lak Umaga type biogas unit consists of two 35m³ units and a waste water management facility. Part of the gas emitted from the unit is used for cooking in the staff kitchen while a majority of the gas is pumped into the biomass boiler. The bio slurry is used for the 2-acre wide organic garden. The biogas unit at Jetwing Blue is one among the many sustainability initiatives the hotel has taken to reduce, reuse and restore natural resources.

- **Palmyrah House - Mannar**

Palmyrah House is an exclusive bird watching hotel located in Mannar. The 1.4m³ Chinese fibre biogas unit was constructed in 14 days primarily with the intention of managing its waste disposal concern. The hotel now has considerable annual savings for having taken initiative and shifted to a more sustainable waste management solution. The slurry generated from the unit is directed at the coconut and palm cultivation in the hotel.

- **SME Sisira Kumara - Athurugiriya**

Sisira Kumara is an exemplary biogas user. Not only does he use biogas in his household, but he also constructs fibre dome units as well as uses the slurry emitted from his biogas unit as organic fertiliser for his acre-wide paddy cultivation. Since switching to biogas he has been able to successfully reduce the usage of liquid petroleum gas in his household as well as yield the largest harvests he ever had.

- **Municipal Council - Kaduwela**

The Municipal Council in Kaduwela strongly believes in adopting sustainable environment solutions that reap long term benefits. The Municipality currently has a 100m³ biogas unit making it among the largest owned by a government entity so far. What's most interesting about this unit is the usage of gas, which is converted to energy powers low-voltage bulbs located around the garbage collection area at night time through the 5kw generator.

- **Chaaya Wild - Yala**

Chaaya Wild in Yala is located on the borders of the renowned Yala Wildlife Sanctuary. The 30m³ biogas unit was constructed as a sustainable and alternative solution to the hotel's waste management concern. The gas emitted from the unit is used in the kitchen while the slurry is used as an organic fertiliser in the garden.

- **Hotel Nivahana - Uda Walawe**

As a small-scale tourist Hotel Nivahana in Uda Walawe like many other hotels in the area and in Sri Lanka too have the similar concerns of managing waste in the area. The 2.5m³ Sri Lak Umaga fibre dome unit was constructed through a biogas unit construction training conducted by the Project. While the gas emitted from the unit is used in the kitchen, the slurry is used for the papaya garden located in the hotel's backyard.

- **LDD Wijeyadasa - Athurugiriya**

Having always used firewood from the material gathered in his garden, LDD Wijeyadasa opted for biogas in search of a cleaner cooking solution. Now with his biogas unit, not only is he able to feed up to five kilos of waste including material from the garden but also has embraced the convenience of owning a biogas unit as a sustainable solution.

- **Piggery Owner Ruwan Kumara - Kaduwela**

Ruwan Kumara is the Project's first candidate to borrow from the Regional Development Bank's loan scheme for his 1.5m³ biogas unit. The loan was granted through the 'Saubhagya' loan scheme already in place at the Central Bank. 'Saubhagya' gives out loans at the interest rate of 8% for waste management initiatives in the country.

- **Boulder Garden - Kalawana**

Among one of the first hotels to come on board the EU-funded initiative, Boulder Garden in Kalawana is a bird watchers haven. Nestled quietly between the caves leading to the Sinharaja Forest, the hotel faced much difficulty in managing their waste and convincing the Municipality collection centres to help out with waste management. Having opted for biogas now, not only is Boulder Garden able to successfully manage their waste without causing inconvenience to others, but have also been able to successfully power low-voltage dim bulbs that create a cozy atmosphere conducive to attracting a variety of birds.

- **Aloka Banadara - Kurunegala**

Having always been keen on promoting home grown local solutions, biogas came as a natural remedy to Aloka Banada and his wife. When they began constructing their house in Kurunegala they opted for a 9m³ Chinese type biogas unit to primarily manage toilet and kitchen waste. Having used the gas as an alternative to LP gas, the lady of the household claims to have received continuous gas every day and is extremely pleased with the process.



BIOGAS: a Sustainable Lifestyle Choice

Individual success stories

Managing Waste and Saving the Environment

JHM Atapattu is the General Manager at Blue Sky hotel in Kurunegala. The hotel is located at the entrance to the capital of the North Western Province making it an easy bed and breakfast option for frequent travellers.

Constantly backed by a perspective of wanting to do more for the environment and to live a healthier and greener lifestyle, a biogas unit has always been on the minds of the hotel but there was neither enough knowledge on the technology nor on where to access such information.

It was then that the hotel was approached by NERD or National Engineering Research and Development Centre and connect them with Isuru Constructors to build a biogas unit in the hotel's backyard.

The 20m³ Chinese type biogas unit took a month for construction and another two-three months for the gas to become accessible to the kitchen. Blue Sky hotel constructed the biogas unit keeping three intentions in mind: to manage waste, become more energy efficient and contribute towards a greener and healthier environment. On an average the hotel disposes around 01-02 buckets of food waste and if in the event of a wedding, 05 buckets.

The hotel has 17 rooms and three banquet halls and is very impressed with the technology and its many benefits that it has begun to convince other neighbouring hotels on the many benefits of biogas as well.



- **Type of stakeholder:** Hotel
- **Type of unit:** Chinese
- **Size of unit:** 20m³
- **Waste type:** Kitchen
- **Constructor:** Isuru Constructors
- **Slurry use:** Waste water treatment facility

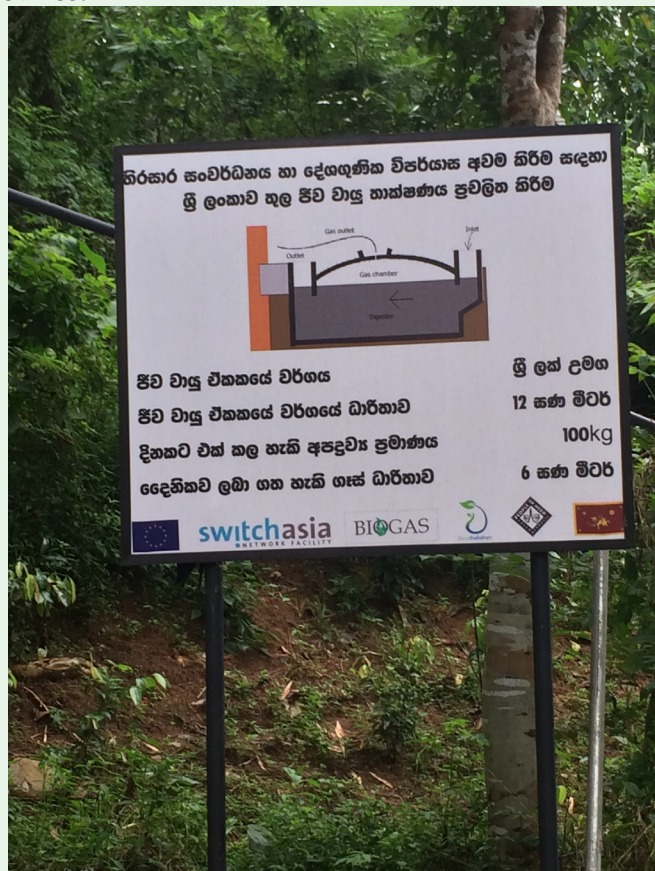
Training through Example

The biogas unit at the Wakwella Training Institute is a reputed management and development training institute in the town of Wakwella in Southern Province.

The 12m³ Sri Lak Umaga type biogas unit is capable of holding 100kg of waste a day, however the unit is still fed with the generated amount of daily waste and some garden waste, which is no more than 30kg.

The unit is able to produce approximate 6m³ of gas a day that ensures approximately 15-20 minutes of cooking time. The material for the unit was funded by the Southern Province Development Authority and technical support was through the initiative of the EU-funded project on "Up-scaling Biogas Technology for Sustainable Development and Mitigating Climate Change in Sri Lanka".

The biogas unit at the training institute was constructed as a promotional tool for biogas promotion in the district.



- **Type of unit:** Sri Lak Umaga
- **Size of unit:** 12m³
- **Waste type:** Kitchen and Garden
- **Constructor:** Unit training construction

Not One, but Two Biogas Units

The EU-funded SWITCH Asia initiative on “Up-scaling Biogas Technology for Sustainable Development and Mitigating Climate Change in Sri Lanka” aims to reach out to and promote biogas to all types of users irrespective of vocation, waste generation capacity etc. And this is precisely why piggery farmer and owner Sanoj Wijethunge opted for not one but two biogas units in his farm.



Having started his farm a few years ago, Wijethunge was aware that he needed a sustainable method to dispose the animal waste gathered in the farm. Having inquired around for a method that would not only manage the waste but also have a constructive outcome a near friend had recommended biogas as an ideal solution.

He began by constructing a Sri Lak Umaga unit of 7m³ in 2016. The unit was constructed by project trained SME Gunarathne.

However, a year later with a total of 150 animals within the farm, farmer and owner Wijethunga not only realised its value but also realised that the unit was insufficient. He then promptly called Gunarathne once more to build a second unit of 7m³.

Wijethunga notes that investing on a biogas unit to be beneficial to both his businesses and the environment. He is certain that the gas produced from the units combined would be sufficient for an entire day of gas usage. He also recommends it as a successful and sustainable waste management technique for all those in search of one.

Note:

The unit was newly installed at the time information for the case study was gathered in March 2017



- **Type of stakeholder:** Animal farmer
- **Type of unit:** Sri Lak Umaga
- **Size of unit:** 7m³ (in addition to the existing 7m³ unit)
- **Waste type:** Animal
- **Constructor:** Gunarathne

Produce and then Promote

Milroy Lanza is a reputed house constructor in the Chilaw locality. Delegating an army of twenty construction workers daily, Lanza has earned his reputation for constructing buildings and houses in the area. A member of the North Western Province Constructors Association, Lanza was one of the participants at the biogas awareness creation workshop for constructors conducted through the EU-funded SWITCH Asia initiative on “Up-scaling Biogas Technology for Sustainable Development and Mitigating Climate Change in Sri Lanka”.

Having vested an interest following the workshop, Lanza decided that he should first build a biogas unit at his household, use it to test its feasibility and success and then promote it as an upselling tool to his future clients. Lanza himself constructed the biogas unit in his household.



The 8m³ Chinese type biogas unit finds it amidst many other green and sustainable energy tools. Lanza's backyard houses a solar panel, compost bin and a makeshift rainwater harvesting system. The newly added biogas unit is connected to two toilets (as the house was under construction at the time of installation) and is also used to dispose kitchen waste.

On an average the Lanza family cooks for four household members and occasionally four-ten construction workers that resulted in the replacement of 12.5kg LPG cylinders every month. Now however, the women of the house inform us that a good deal of cooking is done using the gas generated from the unit.*

Lanza believes that there is tremendous potential biogas to develop in the country, especially in hotels where wastewater treatment is popular cause of concern. He is determined to try out and test the biogas unit installed in his household for a few months and once he is convinced by the technology is keen on promoting it to his new clients as well.

Note:

The unit was newly installed at the time information for the case study was gathered



- **Type of stakeholder:** Domestic
- **Type of unit:** Chinese
- **Size of unit:** 8m³
- **Waste type:** Human and kitchen
- **Constructor:** St Mary Constructors (By Milroy Lanza himself)
- **Slurry use:** Home garden
- **Total investment:** LKR 80,000.00

Innovative use of Bio-slurry for Vegetation

When the management of Riviera Resort in Batticaloa decided on opting for a biogas unit, it was primarily driven by the need to manage waste in their premises. While previously the waste was buried in the large resort grounds once the 12-cabin resort began gradual expansions, a more sustainable solution was required.

The 3.5m³ Sri Lak Umaga unit was constructed during a MSME training held in the Province and is fed with garden and kitchen waste. However what is most interesting is the use of slurry. The slurry is used to soak in char made from organic waste accumulated at the hotel. This char is then soaked in the slurry for about a week creating a bio-char, which is an organic nutrient to plants that is fed into the Resort's vegetable, spices and fruit cultivation patches.

The gas produced from the unit is sufficient for a one-burner stove that produces three hours of gas a day. The remaining gas requirement in the kitchen is fulfilled using LP gas and firewood. After the biogas unit, there has been a significant reduction in firewood usage.

Commenting on the success of the biogas unit, Executive Director Ebenezer Devadarshan "I would highly recommend biogas as a sustainable solution to manage waste and wastewater in hotel premises." He also went on to say that the biogas unit has also spent cut down overheads in managing hotel waste.

Note:

Documented in February 2016



Creation of bio-char

- **Type of stakeholder:** Hotel
- **Type of unit:** Sri Lak Umaga
- **Size of unit:** 3.5m³
- **Waste type:** Garden and kitchen
- **Constructor:** Sabharatnam
- **Slurry use:** Garden and cultivation through bio-char
- **Total investment:** LKR 60,000.00
- **Installation:** 2015

From Firewood Collection to Palmyrah Handicrafts

Sathyanandam Rajeshwari (31) is a mother of three. Her husband works as a labourer, and brings home the family's primary source of income. However, the family also have cattle and poultry (04 cows, 13 goats and 09 chickens) that bring their secondary income and Rajeshwari herself works as a labourer whenever time permits.



Living in the dry zone in Chenkaladi, Batticaloa, Rajeshwari once travelled nearly 10km into a nearby dense jungle area to gather firewood for cooking. Her compound comprises two houses, hers and sisters, which meant a total collection of firewood for eleven people for one week. However, as the years went by the practice proved to be more troublesome and she would find herself further in the jungle area as a result of the land reclamation that took place following the end of war.

However, starting June 2015 things changed for Rajeshwari and her family members. Having attended a workshop organised by World Vision, she became interested in biogas technology and was among the 15 cattle farmers selected to be given a biogas unit.

Now, nearly half a year later, she does not find herself wandering in the forest area looking for firewood every weekend, instead spends time with her three small children and has also picked up a new hobby that she hopes to convert into sales: weaving of Palmyrah handicrafts.

She also has a two burner biogas powered cook stove in her kitchen that makes cooking for her family cleaner and safer.

Note:

Documented in February 2016



- **Type of stakeholder:** Domestic
- **Type of unit:** Chinese
- **Size of unit:** 8m³
- **Waste type:** Animal
- **Constructor:** Trained masons
- **Slurry use:** Home garden
- **Total investment:** LKR 120,000 (Donor Funded)

Setting Examples through Effective Waste Management

KJ Hapuarachchi is an aspiring hotelier in the tourist-populated area of Udawalawe. Having begun with a restaurant in 2004, six years later he added a few rooms and is one of the many “hot spots” among the tourist attractions.

As most hoteliers in the industry, Hapuarachchi too was challenged with the difficulty of managing waste. He reveals that wet waste generation during season time could range from 25-30 kg a day and almost 2 kg of polythene. In an attempt to manage waste and find an effective and sustainable solution, the hotelier was fortunate enough to come across the Project stall at “Kedella”, a home improvement exhibition held annually.

The 2.5m³ Sri Lak Umaga fibre dome unit took one week for construction and two months until gas was made available. Prior to the unit, the kitchen would dispose wet waste into a compost bin and the compost would be used for the papaya trees grown at the back of the hotel premises.

Hapuarachchi is extremely keen and enthusiastic about using the technology. He has appointed two staff for disposing waste and maintenance of the unit and even has a scale to measure waste before feeding it into the unit.

He goes on to reveal that their total gas usage has reduced by one 12.5kg LPG cylinder a month to nine cylinders from the previous ten. He also uses the slurry produced from the unit diluted with the right quantities of water as fertiliser for papaya trees.

Note:

Documented between August 2015 and January 2016



- **Type of stakeholder:** Hotel
- **Type of unit:** Sri Lak Umaga Fibre dome
- **Size of unit:** 2.5m³
- **Waste type:** Kitchen
- **Constructor:** Masons training was conducted on location
- **Slurry use:** Papaya garden
- **Total investment:** LKR 100,000.00

“Most Harvest Gathered after using Bio-slurry”

T.R. Sisira Kumara is a man who wears many hats. He juggles two primary careers simultaneously, a fibreglass manufacturer and a farmer. Moreover, he is also involved with our EU-funded initiative on “Up-scaling Biogas Technology for Sustainable Development and Mitigating Climate Change in Sri Lanka” in the capacity of manufacturing fibreglass biogas units especially the Sri Lak Umaga fibre dome type.



Kumara has a family of three and a 2.5m³ Sri Lak Umaga fibre dome biogas unit. His unit took three days to construct and a week after, he was able to use it as an alternative to LPG in the kitchen. His unit requires 7-10 kg* of food and garden waste per day. Interestingly he himself was involved in construction along with other masons as a result of his specialisation in fibreglass production.

Before the biogas unit, his household replaced gas cylinders monthly and today** 90% of meal-preparation is done atop a biogas-powered stove.

The organic bio-slurry produced is used for the family's acre-wide farmland as a substitute to chemical fertiliser that has also resulted in a higher harvest this season with approximately 40 bushels of paddy.

Note:

*4l paint bucket = 4 kgs of waste

** Documented in October 2015



- **Type of stakeholder:** Domestic and Farmer
- **Type of unit:** Sri Lak Umaga Fibre Dome
- **Size of unit:** 2.5m³
- **Waste type:** Garden and kitchen
- **Constructor:** Stakeholder himself
- **Slurry use:** Paddy fields
- **Total investment:** LKR 80,000.00 Approx

Light Up!

Located amidst the hidden caves, jungles and beauties leading to the Sinharaja Forest Reserve, Boulder Garden Resort in Kalawana, Ratnapura is a dedicated bird watching sanctuary for avid lovers of nature. With only eight rooms and a small staff of fifteen, the hotel offers solitude, comfort and glimpse into the biodiversity Sri Lanka has to offer.



However, one of the disadvantages to being located as interior was undoubtedly the difficulty in convincing authorities to assist with waste collection. Hence having found out about biogas technology through sources and renewable energy enthusiasts, the management saw its potential and decided on constructing a 2.5 m³ biogas unit within the premises for kitchen waste management.

With two people designated for maintenance, the resort feeds between 5-10 kg of waste a day. But what's most interesting about the resort's unit is the non-traditional use of "energy". Unlike most other stakeholders, Boulder Garden converts the gas produced from the biogas units to energy to power dim-bulbs situated in the premises. The dim lights are what are often needed for the resort given its reputation for being built within nature and attracting birds and other rare species.

Interestingly enough, Boulder Garden Resort was the first hotel built under the EU-funded SWITCH Asia initiative.

Note:

* Documented between August 2015 and January 2016



- **Type of stakeholder:** Hotel
- **Type of unit:** Sri Lak Umaga Fibre dome
- **Size of unit:** 2.5m³
- **Waste type:** Kitchen
- **Constructor:** Trained masons
- **Slurry use:** Released to the forest
- **Total investment:** LKR 120,000.00

Setting Examples through Effective Municipal Waste Management

The biogas unit at the Kaduwela Municipal Council is truly one of its kind. They are not only keen on proper and efficient management of market garbage but also one tonne / per day municipal solid waste as a whole.

Co-funded by the United Nations Development Programme and the Kaduwela Municipality, technical advice from the joint partnership initiative by People in Need, Cz and Janathakshan (Gte) Ltd on "Up-scaling Biogas Technology for Sustainable Development and Mitigating Climate Change in Sri Lanka", the Sri Lak Umaga model unit at the Kaduwela Municipal Council is approximately 100m³ in size making it one of the largest units owned by a government entity so far.



What's more interesting is the use of generated gas within the biogas unit. While traditional biogas units seek to become an alternative to LP gas in the kitchen, the unit at Kaduwela will turn the municipality's waste to electricity by powering up a 5kw generator. Again, this waste electricity generation unit Sri Lanka is one of the firsts achieved in the country. With three months of construction time and seven months until it was fully functional the unit was constructed by and sub-contracted to several SMEs trained by the project as part of the project's requirement. Constructed on a 30x30 land area the total cost of the construction amounted to ten million Sri Lankan rupees.

Unit Expansion

A unit expansion plan is in the pipeline to add an additional 400m³ to the unit. This would enable the Municipal Council to process 10 tonnes of waste a day. For funding possibilities the Municipal Council has approached the UNDP for a loan.

The Kaduwela Municipal Council receives 90 tonnes of garbage a day. Of which, nearly 60 tonnes is non-degradable. Of the degradable 40t comes in as separated waste and while 20t is composted the rest goes out to open dumping.



- **Type of unit:** Sri Lak Umaga
- **Size of unit:** 100m³
- **Waste type:** Municipal waste
- **Constructor:** Eco Tech Base
- **Gas usage:** Powers low-voltage bulbs located around the garbage collection area at night time through the 5kw generator

Easy and Convenient Solution for Waste Management

LDD Wijeyadasa is a retired government servant living in Athurugiriya. He has a wife and two sons and a few years ago he decided on investing in a biogas unit.

The 2.5m³ Sri Lak Umaga biogas unit sits amidst an acre wide large garden space and Wijeyadasa informs us that it is fed with kitchen waste, grass and other waste accumulated from the garden too. Sometimes they collect up to five kilos of waste.

Prior to biogas, the kitchen was powered using firewood. Wijeyadasa explains that there was no additional cost for firewood unlike in other household as it was a readily available resource from their home garden.



The unit took four days for construction and week up until the gas was ready to be used in the kitchen. The slurry from the unit is fed back into the large garden space.

Wijeyadasa is also a farmer at heart and owns a paddy field and was recommended biogas as a sustainable waste management technology by a friend who had also invested on the same. He is a keen believer and advocate of the technology and is determined to recommend this to others interested, as it is an "easy and convenient" solution for households.

Note:

* Documented in September 2015



- **Type of stakeholder:** Domestic
- **Type of unit:** Sri Lak Umaga
- **Size of unit:** 2.5m³
- **Waste type:** Garden and kitchen
- **Slurry use:** Home garden
- **Total investment:** LKR 35,000.00

Biogas Units through Specialised Financing

Ruwan Kumara lives in Kaduwela and is a piggery-owner. Kumara's story is different to the other biogas success stories we have encountered in

our project. For his 15m³ Sri Lak Umaga type biogas unit was part-financed through a loan obtained from the Regional Development Bank (RDB) in Western Province.

At an annual interest rate of 7.8%, Kumara's loan was the first of its kind given for bio-digester construction in the EU funded SWITCH- Asia initiative on "Up-scaling Biogas Technology for Sustainable Development and Mitigating Climate Change in Sri Lanka".

The loan was granted through the 'Saubhagya' loan scheme already in place at the Central Bank. 'Saubhagya' gives out loans at the interest rate of 8% for waste management initiatives in the country.



Following the issuance of the first loan, RDB has already received three more loan requests from livestock farmers of Attanagalla. The bank has taken a special interest in providing loans to biogas units siting it as a social need to promote renewable energy options among its clientele, which will help to preserve our environment.



- **Type of stakeholder:** Domestic
- **Type of unit:** Sri Lak Umaga
- **Size of unit:** 15m³
- **Waste type:** Animal
- **Total investment:** LKR 200,000+ (part funded by RDB)

Green, Clean Energy

Located in the sunny tourist area of Negombo, Jetwing Blue is just one of the five hotels located in the area. The hotel chain complete with 26 hotels and villas across the country recently opened its latest hotel in Jaffna.

With 120 rooms and a dedicated land area for renewable energy operations situated right across the hotel (landside), the addition of the 70m³ biogas unit came as no surprise.

Constructed with the primary intention of managing waste, the hotel uses the bio-slurry for the two-acre large organic garden. Jetwing Blue's engineer reveals that the daily kitchen and toilet waste generation amounting to approximately 500 kgs.



The unit produces nearly 40m³ of gas per day. While 15-20% of the gas is used for the staff kitchen, the remaining gas is pumped to the biomass boiler, saving almost 400kg of wood a day. The total energy cost savings of the hotel amounts to approximately 3% while the return on investment being three years.

Note:

* Documented in between October 2015 – January 2016



- **Type of stakeholder:** Hotel
- **Type of unit:** Sri Lak Umaga
- **Size of unit:** 70m³
- **Waste type:** Kitchen and toilet
- **Constructor:** Eco-tech base
- **Slurry use:** Organic garden
- **Total investment:** LKR 3,000,000

Home Grown, Local Solutions

North Western Provincial Council Director of Small Industries Aloka Bandara and his wife have always been keen on promoting local technologies. Hence, building their new house in the heart of Kurunegala became an ideal opportunity for them to invest in green and local technology that they truly believed in.

Having attended an exhibition organised by the EU-funded SWITCH Asia initiative on "Up-scaling Biogas Technology for Sustainable Development and Mitigating Climate Change in Sri Lanka" in collaboration with Janathakshan, the couple was introduced to biogas technology.



This led the duo into constructing a Chinese type 9m³ biogas unit in their household in September 2015. The unit is connected to three toilets and is also fed with kitchen waste. Since then, the lady of the house claims to have received continuous gas every day and is extremely pleased with the process.

The slurry is to be used in the rooftop home garden they plan to build once the house has completed construction.

The Director and his wife are not only keen on living a greener, healthier and environmentally sustainable lifestyle but are also very pleased to have in their household their own product that is also locally manufactured.



- **Type of stakeholder:** Domestic
- **Type of unit:** Chinese
- **Size of unit:** 9m³
- **Waste type:** Human and kitchen
- **Constructor:** Gunaratna Rajapaksa
- **Slurry use:** Home garden
- **Total investment:** LKR 120,000

Bird Watching through Sustainable Tourism Practices

Palmyrah House in Mannar is not your average everyday hotel. Nestled between one of Sri Lanka's management's decision to get on board biogas technology was influenced primarily by one of the key stakeholders of the EU-funded initiative on "Up-scaling Biogas Technology for Sustainable Development and Mitigating Climate Change in Sri Lanka" after having explained the benefits of biogas technology.

Hailing from a string of bird and nature photographers, the management decided on a biogas unit for a few key reasons including the lack of a designated garbage collection procedure in place and the hotel having to spend approximately LKR 64,000 on garbage collection by the Urban Council.



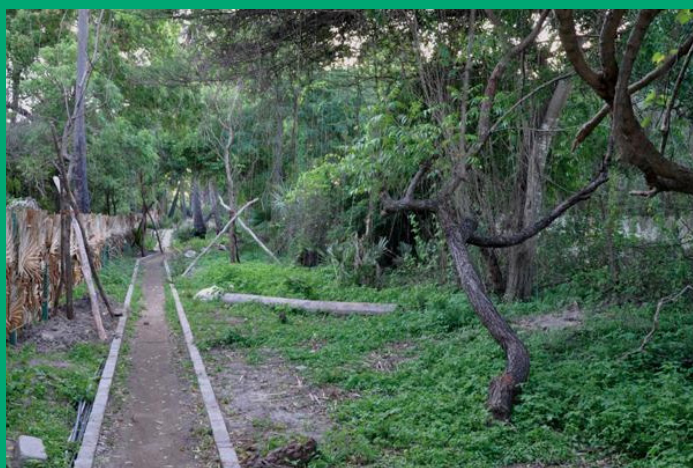
However, once a biogas system was in place the concern of waste management no longer remained an issue and the non-biodegradable waste is sent to the collection point located in the town. The hotel management however informs that the overall amount of waste leaving the hotel for disposal outside is considerably less.

The unit in Mannar is a 6m³ Chinese fibre unit constructed in 14 days. The unit is different to many of the types of biogas units constructed by the Project. One of the primary reasons for selecting the Chinese fibre type is mainly because of the high temperature in the district of Mannar. The slurry generated from the unit is directed at the coconut and palm cultivation in the hotel.

The Chinese fibre biogas unit is a pilot project for both the initiative as well as the hotel. Following its success in the drivers' quarters, the hotel intends to construct biogas units to its kitchen and new building currently under construction.

Note:

* Documented in April 2016



- **Type of stakeholder:** Hotel
- **Type of unit:** Chinese Fibre
- **Size of unit:** 6m³
- **Waste type:** Kitchen
- **Slurry use:** Coconut and palm cultivations
- **Total savings:** Over LKR 64,000 / annually

From Farming to Making Milk Toffees

A.M. Susilani Adhikari is a farmer of 52 years. Living in Wakwella, Galle she has been a cattle farmer for a while now. Before she and her husband purchased a biogas unit for their family in 2014, they would collect firewood from the dense wilderness around their household for cooking purposes. However, having gotten a biogas unit for their household, they are now able to cook for four people every day and save time with cooking and washing, "as there is no need of scrubbing out ash from the pots anymore!" Adhikari also adds that they now switch to firewood "only on days when they cook certain dishes with slow process."

However, the usefulness of their biogas unit doesn't stop there. Thank to the biogas produced by the unit, everyone in the household is able to have hot water baths daily. With the time saved from gathering firewood, cooking and cleaning Adhikari and her family has also been able to start a family side business by making and selling milk toffees.



Note:

*Documented in 2015



- **Type of stakeholder:** Farmer
- **Type of unit:** Chinese
- **Waste type:** Animal
- **Slurry use:** Garden
- **Gas Usage:** Daily meal preparation, milk toffee side business, hot water



The Project on "Up-scaling Biogas Technology for Sustainable Development and Mitigating Climate Change in Sri Lanka" is implemented by People in Need, Cz and Janathakshan (Gte) Ltd.

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