

**EcoOdyssey:**

**Bangladesh's Green Tomorrow**

**with MBGC Marvels**

**SDG 11.1 what get by MBGC ? (Mini Bio Gas Continuous)  
Digester - MBGC toward SDGs/UN 11.1**  
(By 2030, ensure access for all to adequate, safe and affordable  
housing and basic services and upgrade slums)

## Summary

Index 1 .....	4
Title: "EcoOdyssey: Bangladesh's Green Tomorrow with MBGC Marvels" .....	5
Benefits after Applying MBGC in Bangladesh .....	19
J W T .....	40
Bibliography/Conclusion .....	40
Digester from MBGC (source) : .....	41
Summary – Applications (to SDGs) .....	43
IASR International Application Status Report .....	49



## Index 1

1. Visions of Sustainability: Fictional Narratives for a Bangladesh Audience
  - 1.1. Characters
  - 1.2. Story
  - 1.3. Conclusion
  - 1.4. Appeal from JWT Green Patent
  - 1.5. Word of encouragement
2. Benefits after applying MBGC in Bangladesh
  - 2.1. Environmental Impact Assessment
  - 2.2. Economic Benefits of adopting MBGC Tech
  - 2.3. Cultural Integration
  - 2.4. Encouraging Innovation Ecosystems
  - 2.5. Capacity Building
  - 2.6. Assessing Effect
  - 2.7. MBGC Education and Awareness
  - 2.8. Conclusion

## **Title: "EcoOdyssey: Bangladesh's Green Tomorrow with MBGC Marvels"**

### **Green Horizons: Transforming Bangladesh through Sustainable Innovation**

#### **Characters**

##### **Amina, the Ingenious Businesswoman**

Background: Amina is a young businesswoman who owns a small recycling company. She is from a busy metropolitan neighbourhood in Dhaka. She thinks trash has the potential to be an extremely useful resource.

Amina views every object that is thrown away as an opportunity to build something new. Those around her are inspired by her inventive spirit and tenacity.

##### **The Urban Farmer, Raju**

Context: Raju, a Bangladeshi farmer from a small community, uses sustainable farming methods. His goal is to demonstrate that agriculture can thrive without negatively impacting the environment.

Viewpoint: Raju thinks that profitable and sustainable agriculture are both achievable. Farmers in the area get interested in his tactics.

### **Maya the Environmentally Aware Student**

Context: Maya, a Chittagong-based high school student, is an enthusiastic environmental conservationist. She is spearheading several ecological efforts at her school through the eco-club.

Maya envisions a more environmentally conscious Bangladesh where people work together to preserve the environment. Her deeds encourage her peers to take more environmental awareness.

### **The Sceptical Landlord, Mr. Khan**

Background: In a Dhaka neighbourhood, Mr. Khan owns rental homes. He is dubious about implementing sustainable practises because he fears they will be expensive and unworkable.

Viewpoint: Mr. Khan stands for the difficulties in persuading certain stakeholders of the advantages of sustainability. His path entails a change in perspective.

### **The government official, Farida**

Background: Farida is a devoted government employee who works for the Environment Ministry. She is committed to drafting laws that support environmentally friendly behaviour across the country.

Viewpoint: In Farida's Bangladesh, sustainable development is actively encouraged by policy. Bureaucratic obstacles stand in the way of her efforts, but she doesn't waver.

### **Kamal, the Astute Technocrat**

Background: Based in Dhaka, Kamal is a young engineer creating cutting-edge environmentally sustainable solutions. He thinks technology has the ability to promote sustainability.

Viewpoint: Kamal is determined to use cutting-edge inventions to completely transform Bangladesh's approach to solving environmental problems.

### **The community organizer, Fatima**

Context: Fatima, a village leader in a coastal community, is battling the consequences of climate change. She promotes sustainable alternatives and plans workshops on resilient practises.

Viewpoint: In light of the issues associated with climate change, Fatima's experiences underscore the critical necessity for community-driven initiatives.

### **Ali, the Supporter of Renewable Energy**

Background: Ali is an enthusiastic supporter of renewable energy alternatives and teaches at a college in Rajshahi. He informs his pupils about the possibilities presented by renewable energy sources.

Perspective: By making renewable energy the standard, Ali hopes to lessen Bangladesh's reliance on conventional, environmentally damaging forms of electricity.

### **Story**

The city skyline was visible to visionary entrepreneur Amina as she stood in the busy centre of Dhaka. Gigantic towers embellished with tumbling vertical gardens created an amazing scene against the dawn sky. Amina had never imagined how much her recycling business had developed. Now every thing that was thrown away had the possibility of something new. She turned garbage into treasure by being creative and inspiring others around her.

Raju, the urban farmer, stood amid his verdant, sustainable crops in a little coastal community. He was aware that agriculture might flourish without endangering the



ecosystem. Raju painted the surrounding farms with a tapestry of green by encouraging them to adopt sustainable practises through his creative skills.

Maya, the passionate environmentalist, was the leader of her school's eco-club in the historic city of Chittagong. Her vision was a Bangladesh where communities united to protect the environment. Maya's passion rippled through her peers, igniting a wave of environmental awareness that washed over the city, leaving behind a legacy of green transformations.

The committed government employee, Farida, made her way through the maze of bureaucracy with her resolve and a desk full of colourful potted plants. She promoted ecological activities and pushed for laws that gave sustainability first priority. Farida understood that real transformation meant modifying the system's fundamental components.

The clever technocrat Kamal toiled diligently in his workshop, where creativity and environment merged. The exchange of ideas and discussions demonstrated how technology and the environment work well together. Kamal thought that Bangladesh's environmental situation might be drastically changed with the use of technology.

Community activist Fatima struggled against climate change's unrelenting consequences in the seaside resort. She organised her neighbourhood, encouraging eco-friendly behaviours and holding resilience-focused courses. Fatima's village stood as a beacon of hope, demonstrating the power of community-driven initiatives in the face of adversity.

Ali, the proponent of renewable energy, enlightened receptive minds about the limitless possibilities of renewable energy sources in Rajshahi. His university's campus served as a living example of how renewable energy may be integrated and provided hope for a more environmentally friendly future. He hoped that Bangladesh's dependency on traditional, environmentally damaging energy sources would be lessened through Ali's lectures.

The unconvinced landlord, Mr. Khan, set out to change his rental houses in Dhaka. He persisted despite his early reservations because he was committed to creating a new benchmark for sustainable living. His refurbished buildings shone with energy-efficient technology and solar panels, demonstrating that sustainability could be profitable as well as practical.

As the stories of Amina, Raju, Maya, Mr. Khan, Farida, Kamal, Fatima, and Ali intertwined, Bangladesh

blossomed into a model of sustainable urban development. Their collective efforts shattered barriers, paving the way for a greener, more inclusive nation.

Bangladesh, which had previously faced many difficulties, is today a shining example of the strength of teamwork and steadfast commitment to sustainability. The change was seen from the villages along the coast to the skyline of Dhaka. Vertical garden-adorned towers rose into the sky, while solar panels gleamed in the sunlight, supplying electricity to nearby residences and businesses.

Along tree-lined boulevards, electric buses and rickshaws buzzed, signifying a shift in transport towards more environmentally friendly options. The crisp, flowery aroma of springtime in the air was a witness to the city's revitalised energy.

Amina's recycling initiatives have revitalised communities around the country by reducing garbage and generating jobs. Raju's environmentally friendly agricultural practises brought agriculture back to life and encouraged other villages to do the same.

Maya's tree-planting campaign changed the environment around her school and turned it into a haven for animals as well as kids. Mr Khan's eco-friendly renovations raised the

bar for housing and demonstrated that sustainable design could be profitable and effective.

Because of Farida's efforts, green policies were put into place, guaranteeing that government initiatives would always prioritize sustainability. Due to Kamal's creative solutions, he was able to draw partners and financiers who were willing to fund his endeavours.

With the success of their renewable energy initiative, Ali and Raju were able to provide their communities effective organic waste management as well as sustainable energy alternatives. Their biogas plants served as an organic waste management option and a symbol of self-sufficiency.

Working together to create a greener Bangladesh, Amina, Raju, Maya, Mr. Khan, Farida, Kamal, Fatima, and Ali established an everlasting friendship. Their varied viewpoints and unwavering resolve served as a catalyst for change. They took on obstacles head-on, assured of their combined might.

Their accomplishments served as a tribute to the strength of self-initiative and teamwork. Their tales reverberated across the terrain, irrevocably changing Bangladesh's course. Their legacy acted as a ray of hope, motivating

succeeding generations to take up the cause of a more peaceful and sustainable society.

Bangladesh has emerged as a worldwide model, proving that sustainable urban development is an actual possibility rather than merely an ideal. As a country, it was known for embracing environmental care and leaving a strong and hopeful legacy.

### **Conclusion**

The Bangladesh of today is proof of the amazing force of group effort and steadfast commitment to sustainability. The once-bustling metropolis of Dhaka and the tranquil coastline towns have experienced a stunning metamorphosis and are now models of environmentally aware living.

The skyline of Dhaka is now graced with skyscrapers that have been fitted with vertical gardens, a striking reminder of how nature has blended so well with modern life. Rooftop solar panels sparkle, harvesting clean, renewable energy, and once-polluted waterways are now brimming with a wide variety of aquatic life.

The gentle buzz of electric buses and rickshaws can be heard when strolling down boulevards surrounded with trees, a sign of the movement towards more

environmentally friendly modes of transportation. The city is filled with the aroma of blossoming flowers and the air is notably clearer.

Amina's recycling initiatives have not only decreased garbage but also given her town new life by producing jobs. In addition to raising agricultural production, Raju's sustainable farming methods have encouraged other villages to follow suit.

Maya's tree-planting initiative has improved the surroundings of her school and established a wildlife sanctuary. Mr. Khan's environmentally friendly renovations not only consumed less energy but also established a standard for sustainable housing practises.

Because of Farida's persistent work, green policies have been put into place, guaranteeing that government programs prioritize sustainability. In addition to revolutionizing environmental solutions, Kamal's innovative ideas have drawn funding to help him expand his ventures.

In addition to supplying clean electricity, Ali and Raju's renewable energy project has given communities the confidence to manage their own energy requirements. Their biogas plants are examples of self-sufficiency as well as a solution for organic waste.

Bangladesh is now more prosperous, resilient, and inclusive than it has ever been because to our combined efforts. Every region of the country has felt the ripple impact of their deeds, which have motivated people to take charge of their sustainable future.

Amina, Raju, Maya, Mr. Khan, Farida, Kamal, Fatima, and Ali's accomplishments are proof of the power of individual initiative and group determination. Their tales reverberate throughout the landscape, permanently altering Bangladesh. Their legacy acts as a ray of hope, encouraging coming generations to carry on the quest for a more peaceful and sustainable future. Their persistent efforts have resulted in a more environmentally friendly Bangladesh that is now a reality, constructed brick by brick and leaf by leaf with the steadfast support of people who dared to hope for a brighter tomorrow.

Bangladesh is currently seen as a worldwide model, proving that sustainable urban development is a practical reality as well as an aspiration. It's a country that has embraced environmental management, ensuring a resilient and promising legacy for future generations.

### **Appeal from JWT Green Patent**

We are overjoyed to follow Amina, Raju, Maya, Mr. Khan, Farida, Kamal, Fatima, and Ali on their incredible

path of relentlessly establishing a sustainable Bangladesh. Their tales eloquently paint a picture of a time when sustainable living is a reality rather than simply a pipe dream.

At JWT Green Patent, we think it's important to make dreams come true. Our inventions are made with the sole goal of advancing sustainable urban development. Our patents are designed to have a significant influence, covering anything from innovative waste-to-energy technology to renewable energy options.

We imagine towers full of vibrant, vertical gardens in the middle of Dhaka. Solar panels shine as they gather solar energy to power buildings and businesses. Rivers that were once ignored are now teeming with life. These are not merely imagined scenarios; rather, they represent the future that we are creating together.

We are profoundly touched by the unwavering efforts of Amina, Raju, Maya, Mr. Khan, Farida, Kamal, Fatima, and Ali. Their experiences serve as a testament to how sustainable practises can change lives. We are proud to support them by offering the technology foundation for their initiatives.

We are dedicated to being partners in development through JWT Green Patent, not simply in fictional projects



but also in actual undertakings. By working together, we can make dreams come true and create a successful, diverse, and sustainable Bangladesh.

### **Word of Encouragement**

Let us keep in mind that every effort, no matter how tiny, adds up to a bigger, positive change as we set out on this path to create a more sustainable Bangladesh. Every one of us has the ability to create a more ecologically conscious world, and when we work together, we can change not only our towns but the entire country.

Imagine Bangladesh as a place where accountability and creativity coexist and where cutting-edge technology blends seamlessly with the environment. Imagine a time when access to clean water is unimpeded, communities flourish, and prosperity is closely linked to sustainability. This is not some far-off dream; it is here, just waiting to be realized.

Together, as individuals and as a community, let us take up the cause of a more environmentally conscious and sustainable Bangladesh. We can conquer every obstacle in our path with our unwavering resolution and united determination. Every action we perform and decision we make has an impact that extends far beyond ourselves and determines the legacy we leave for next generations.

We can create a route for a better, more sustainable tomorrow if we work together. Let this be the start of a new age in which Bangladesh serves as a global inspiration and source of hope. By working together, we can create a future in which harmony between nature and mankind is a reality rather than simply an ideal.

## **Benefits after Applying MBGC in Bangladesh**

### **Assessment of Environmental Impact**

Mini Bio Gas Continuous (MBGC) implementation in Bangladesh has the potential to have a significant positive environmental impact and is in line with SDG 11.1 smoothly. Here, we list the major advantages:

**Diminution of Greenhouse Gas Emissions and Carbon Footprint:** Using MBGC technology, bioenergy may be efficiently extracted from organic waste. This procedure drastically lowers the amount of methane—a powerful greenhouse gas—that landfills would otherwise release into the atmosphere. A key component of MBGC's contribution to climate change mitigation is the removal of organic waste from these locations and its conversion into biogas. The goal of sustainable, safe, and affordable housing in SDG 11.1 is directly aided by this decrease in greenhouse gas emissions.

**Effective Utilization of Organic Waste for the Production of Bioenergy:** MBGC makes the best use of organic waste that would otherwise be dumped in landfills. This garbage is effectively converted into biogas, which reduces the amount of waste that ends up in landfills while also acting as a renewable energy source. This results in less garbage

going to landfills and less of an adverse effect on the environment, such as contaminated water and soil. This kind of economical use of resources is ideal for achieving SDG 11.1's focus on affordable and sustainable housing.

Preserving Natural Resources via Sustainable Production of Bioenergy: The energy landscape becomes more sustainable as MBGC is implemented. It reduces reliance on conventional fossil fuels by generating biogas from organic waste. Thus, limited natural resources like coal, oil, and natural gas are preserved. Achieving SDG 11.1 as well as other general environmental goals for a more sustainable and balanced ecosystem requires the sustainable generation of bioenergy.

In conclusion, Bangladesh's adoption of MBGC offers a comprehensive strategy for resolving environmental issues, especially in light of SDG 11.1's emphasis on sustainable urban development. MBGC is essential to building a more resilient and ecologically conscious future by reducing greenhouse gas emissions, conserving natural resources, and using organic waste efficiently. This invention is evidence of the power of technology to promote sustainable development objectives and have a good environmental impact.

### **Economic Benefits of Adopting MBGC Technology**

- **Various Revenue Sources:** MBGC technology provides a variety of income opportunities. Communities can access a profitable market for renewable energy sources by producing and selling bioenergy. Furthermore, the organic fertilizers generated as a byproduct offer yet another way to make money. The economic opportunities linked with MBGC are further expanded by the possibility of other lucrative by-products.
- **Saving Money and Cutting Waste:** Adopting MBGC results in considerable financial savings. Communities may save a lot of money on trash management charges. Municipalities can minimize the environmental impact of garbage accumulation and save money on disposal fees by redirecting organic waste away from landfills. Lower energy prices are also a result of the reduced dependency on traditional energy sources for the production of power.
- **Market Potential and Integration Across Industries:** The MBGC technology has the ability to effortlessly merge into current markets and sectors. For instance, the bioenergy generated can be applied to a number of industries, such as manufacturing, transportation, and agriculture. By generating new commercial and industry prospects,

this integration not only promotes sustainable practises but also boosts economic growth.

- **Growth in the Economy and Employment:** Local communities benefit from the creation of jobs brought about by the construction and operation of MBGC installations. These facilities require both expert and unskilled labour for their development, upkeep, and operation. The increase in work prospects not only helps local residents maintain their standard of living but also boosts the economy as a whole.
- **Observance and Reduction of Risk:** By using MBGC, communities may comply with environmental requirements and reduce the dangers that come with using conventional energy production and waste management techniques. Communities can lessen their risk of regulatory fines and environmental liabilities by switching to a more eco-friendly and sustainable approach.
- **Spending on R&D (research and development):** Investment in R&D is encouraged by the establishment of MBGC. This encourages technological development and possible breakthroughs in the production of sustainable bioenergy. It sets off a chain reaction that propels advancements in other industries as well as waste-

to-energy technology, so bolstering economic growth.

In conclusion, implementing MBGC technology has significant and varied financial advantages. MBGC is a revolutionary force that has far-reaching positive economic effects. It does this by generating a variety of revenue streams, cutting expenses, promoting economic growth, and encouraging innovation. In addition to solving environmental issues, this technology offers towns and areas that embrace its potential real economic benefits.

### **Cultural Integration**

The following are the salient features that demonstrate the alignment between the acceptance of MBGC and the cultural values and practises of Bangladesh:

#### **Gratitude to Nature:**

A strong reverence for the natural world is fundamental to Bangladeshi culture.

The emphasis that MBGC places on producing sustainable energy from organic waste is a perfect fit with this cultural value.

It utilizes natural processes, which is in line with Bangladesh's custom of balancing environmental needs.

### **Putting a Focus on Community Well-being:**

Bangladesh gives communal and collective wellbeing a lot of weight.

By enabling communities to handle their energy demands jointly, MBGC promotes a sense of shared accountability and ownership.

### **Resourcefulness and frugality:**

Bangladeshi culture places a high importance on ingenuity and frugal living, reducing waste and optimizing the use of resources.

MBGC contributes to this cultural mindset by converting organic waste into useful bioenergy.

### **Entire "Jugaad" spirit:**

"Jugaad" means resource-constrained inventive improvisation, a widely accepted idea in Bangladeshi culture.

MBGC embodies this spirit of useful innovation by offering an economical and ecological answer to energy needs.

### **Legacy and Wisdom Transmission:**



Bangladesh cherishes the generational transfer of knowledge and wisdom.

Adopting MBGC shows future generations the advantages of sustainable practises and fosters a sense of responsibility towards the environment.

The adoption of MBGC in Bangladesh melds smoothly with the nation's cultural values of respect for nature, a sense of responsibility for the welfare of the society, thrift, innovation, and the transmission of knowledge. In line with SDG 11.1 it represents Bangladesh's identity and provides a route to a more sustainable future.

### **Encouraging Innovation Ecosystems**

The following are the main ideas outlining how MBGC adoption might encourage innovation in associated industries and cultivate an environment conducive to the creation of new technologies in the sustainable energy sector:

#### **Knowledge sharing and technology transfer:**

It is necessary to transmit modern bioenergy technologies and expertise in order to adopt MBGC. This conversation encourages creativity and learning.

#### **Research Collaboration Initiatives:**

Collaboration amongst a variety of stakeholders, such as scientists, engineers, and environmental specialists, is frequently necessary for MBGC initiatives.

This cooperative strategy promotes knowledge and idea exchange, which sparks innovation in sustainable energy solutions.

### **The need in the market for auxiliary technologies:**

The market is driven by the increasing use of MBGC to demand supplementary services and technology.

This encourages the creation of supporting technologies, like sophisticated biogas purification methods and effective waste collection systems.

### **SMEs and Startups' Incubation:**

Startups and small to medium-sized businesses (SMEs) can specialize in fields including waste management, renewable energy, and biogas technologies within the MBGC industry.

### **Waste-to-Energy Conversion Innovation:**

Research and development on waste-to-energy conversion technology is aided and abetted by MBGC.

This covers improvements in biogas production efficiency as well as the creation of fresh approaches to turning organic waste into electricity.

### **Changing Legal Structures:**

As MBGC becomes more popular, standards and regulatory frameworks change to make room for this cutting-edge technology.

The current regulatory framework fosters additional investigation and creativity within the realm of renewable energy.

### **Building Capabilities and Developing Skills:**

The implementation of MBGC requires the education of a workforce with specialized knowledge in waste management and renewable energy.

By increasing capacity, a talent pool prepared to spearhead additional innovation in the industry is created.

### **Inter-Sectoral Collaborations:**

MBGC has connections to a number of industries, such as renewable energy, wastewater treatment, and agriculture.

Cross-sectoral collaborations and innovations are sparked by this intersection, resulting in comprehensive solutions for sustainable urban development.

In conclusion, the implementation of MBGC fosters innovation in adjacent businesses in addition to meeting the urgent needs for waste management and energy. In line with SDG 11.1, this vibrant innovation ecosystem fosters the growth of innovative technologies and approaches in the field of sustainable energy.

### **Capacity Building**

Building capacity becomes an essential component in the quest for sustainable urban development. It includes a number of strategic programs intended to provide professionals, business owners, and local communities with the information, abilities, and tools required to actively participate in the installation and maintenance of Mini Bio Gas Continuous (MBGC) systems. This is not only an additional factor; rather, it is a necessary one in order to fulfill the goals stated in SDG 11.1.

- **Empowering Communities:** By giving local communities the knowledge and skills required to comprehend, use, and maintain MBGC systems,

capacity building empowers them. This guarantees that communities adopt the technology and cultivates a sense of accountability for its triumph.

- **Entrepreneurship Opportunities:** Capacity building makes it possible for entrepreneurs to launch and run MBGC-related firms by providing them with specialised training and assistance. This boosts the local economy by producing jobs and revenue in addition to opening up economic prospects.
- **Technical Proficiency:** It is essential to provide experts with technical knowledge of MBGC technology. This includes understanding safety procedures and receiving training in installation, operation, and maintenance. This guarantees the safe and efficient implementation and operation of systems.
- **Innovation Promotion:** Projects aimed at increasing capacity create an atmosphere that is favorable to innovation. Equipped with information, professionals and entrepreneurs are more likely to come up with original ideas and put them into practise, improving MBGC systems and promoting ongoing progress.
- **Respect for Sustainable Practises:** Building capacity fosters a profound comprehension of sustainable practises. In line with SDG 11.1's

objectives, this encompasses waste management, energy generation, and environmental stewardship, supporting an integrated approach to urban development.

- **Reducing Technological Barriers:** Despite its potential, MBGC technology may encounter initial resistance because of its unfamiliarity. In order to reduce adoption obstacles, capacity building demystifies the technology, clears up common misconceptions, and highlights its advantages.
- **Encouraging Long-Term Sustainability:** Long-term work is required for sustainable urban development. SDG 11.1 will continue to be successful because capacity building guarantees that there is a trained labor force and informed community members capable of maintaining MBGC systems over time.
- **Active Participation and involvement from Communities:** Capacity building promotes community involvement and active participation. This openness encourages a sense of shared accountability, establishing a favorable environment for the implementation of the MBGC.

In conclusion, the foundation for both Bangladesh's achievement of SDG 11.1 and the effective application of MBGC technology is capacity building. We enable people and communities to actively participate in the creation of a more resilient and sustainable urban future by making investments in education, training, and support. This strategy not only solves the problems of the present, but it also lays the groundwork for future advancement and creativity.

### **Assessing Effect**

The creation of reliable monitoring and evaluation (M&E) methods is crucial in the pursuit of sustainable urban development. These mechanisms act as a compass, directing Mini Bio Gas Continuous (MBGC) initiatives in the direction of SDG 11.1's goals. They provide a methodical and data-driven strategy to monitor development, pinpoint areas that require work, and guarantee the best results. This is why having a robust M&E framework is essential:

- Evidence-Based Decision Making: M&E gives stakeholders concrete information and proof, empowering them to decide on the implementation of MBGC with knowledge. It guarantees effective

resource allocation by enabling course correction based on current information.

- **Evaluation of Environmental Impact:** MBGC projects' environmental effects can be measured by M&E.
- **Optimizing Resource deployment:** M&E assists in the efficient deployment of financial, human, and material resources by monitoring resource utilization and project performance. This guarantees that financial investments result in the maximum return on sustainable urban development.
- **Feedback and Community Engagement:** M&E promotes community involvement by asking stakeholders and locals for their opinions. Communities benefit from this participatory approach, which also guarantees that MBGC programs reflect local interests and requirements.
- **Reducing Possible Risks and Challenges:** Potential risks and challenges can be found early on with consistent monitoring. By taking a proactive stance, possible setbacks can be mitigated and the long-term viability of MBGC projects is ensured.
- **Transparency and Accountability:** Stakeholders in a project are held accountable when a strong M&E framework is in place. It offers an open window



into the status of the project, facilitating inspection and guaranteeing that objectives are fulfilled quickly and effectively.

- **Encouraging Learning and Knowledge Sharing:** M&E acts as a forum for learning, promoting the sharing of creative solutions, best practises, and lessons discovered. This method of sharing knowledge promotes a culture of continual improvement and expedites advancement.
- **Illustrating the Effect on SDG 11.1** The M&E data provides hard proof of how MBGC projects contribute to the achievement of SDG 11.1. It tells a story of development, showing how the objectives of sustainable urban development are being achieved in practise.

### **MBGC Education and Awareness**

Building awareness and educating the public are essential to the effective execution of Mini Bio Gas Continuous (MBGC) initiatives. Communities, stakeholders, and decision-makers can understand the importance of MBGC and actively engage in its adoption through the transmission of knowledge. Here's why awareness and education are so important:

- **Empowering Communities:** Education provides people with the information and abilities they need to comprehend, value, and interact with MBGC. Communities that feel empowered take on a greater sense of accountability and ownership, which motivates them to actively engage in sustainable urban development.
- **Promoting Behavioural Change:** Awareness-raising initiatives draw attention to the advantages of MBGC, emphasizing its positive effects on the economy, society, and the environment.
- **Encouraging the Sharing of Knowledge:** Learning experiences, creative solutions, and best practises are all encouraged by education. This speeds up the development of MBGC initiatives by fostering a collaborative atmosphere where communities and stakeholders may benefit from one another's experiences.
- **Creating Champions and Advocates:** People can become champions and advocates for sustainable urban development by raising their level of knowledge and educating themselves. By actively promoting MBGC within their communities, they may increase the initiatives' impact.
- **Alignment with Global Sustainability Goals:** Raising awareness of MBGC helps to highlight

how it aligns with SDG 11.1 and other global sustainability goals. It serves as an example of how implementing cutting-edge technologies helps create a more resilient, inclusive, and sustainable urban future.

In conclusion, the effective execution of MBGC initiatives depends critically on education and raising public awareness.

## **Conclusion**

Bangladesh's adoption of MBGC technology has the potential to completely transform how people in Bangladesh handle waste and generate electricity. In addition to having a large positive impact on the environment, it also has a slew of economic advantages that are essential to the advancement of the country.

The development of many revenue streams is one of the most alluring features. Along with useful byproducts like organic fertilizers, the production and sale of bioenergy creates new economic prospects. In addition to bolstering regional economies, this diversifies sources of income and promotes financial stability.

Furthermore, MBGC has a significant potential for cost savings. Local governments have the potential to cut waste

management costs dramatically while also reducing their dependency on fossil fuels.

The way that MBGC has been incorporated into current markets and industries is evidence of its adaptability and potential for economic expansion. It fills a critical gap in a number of industries by offering a dependable and sustainable supply of bioenergy. This integration promotes innovation and competitiveness in addition to guaranteeing company continuity.

Creating jobs is another essential component. MBGC facilities' construction and operation result in job opportunities for workers of all skill levels.

Moreover, MBGC technology minimizes the dangers connected to waste management and conventional energy production by complying with environmental requirements. In addition to avoiding any fines, this compliance shows a dedication to ethical and environmental practises, which can improve local economies and draw in more funding.

Lastly, there may be long-term returns on the research and development spending that MBGC has encouraged. Beyond waste management, technological developments in sustainable bioenergy generation may have a significant impact and spur growth in allied sectors.

In summary, Bangladesh's adoption of MBGC technology is a critical chance for overall development. The nation's development depends on the economic benefits it provides, which include income diversification, cost savings, job creation, industry integration, compliance, and innovation. In addition to being consistent with global sustainability goals, realizing and seizing this potential puts Bangladesh on the road to a more resilient, prosperous, and sustainable future. We implore decision-makers and stakeholders to take advantage of this chance to steer Bangladesh towards a more promising and sustainable future.





**J W T**

[joules water team](https://www.jwt-jwt.it/joules_water_team)  
<https://www.jwt-jwt.it/>

**Subject to the NDA, consultancy and appropriate industrial property rights are available;**

( **INNOVATION** - [Patents and Projects, with relevant BPs and StartKit Commercial Offers](#) )

**JWTeam**

[http://www.expotv1.com/ESCP\\_NUT\\_Team.pdf](http://www.expotv1.com/ESCP_NUT_Team.pdf)

*Offers extensive support on **Energy** and **Water Cycle**,  
verse [IP S DGs /UN](#)*

## **Bibliography/Conclusion**

Any reference to people and things is purely coincidental, as well as creative/imaginative and aimed at the common good (both in fiction and non-fiction/disclosable texts). The Owners/Inventors of the Editorial rights on the source



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## **Digester from MBGC (source) :**

Patent:

[MBGC](#) , <https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2016092582> (organic waste to biogas, for urban and periurban); [view1](#), [MBGC Plan](#), [Hello](#);

Italy: GRANT

[http://www.expotv1.com/LIC/MISE\\_0001427413\\_MBGC.pdf](http://www.expotv1.com/LIC/MISE_0001427413_MBGC.pdf), ...mean "INDUSTRY (useful), NEW (no make before), INVENTIVE (teach some things)"

**Abstract/Description - Patent:**

**MBGC** , <https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2016092582>

**Full Intellectual Property**

[http://www.expotv1.com/ESCP\\_Patent.htm](http://www.expotv1.com/ESCP_Patent.htm)

**Full JWTeam Service**

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## Summary – Applications (to SDGs)

**MBGC**

**<https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2016092582>**

**Biogas - generate high purity raw materials from organic matrices.** MBGC is dedicated to the disposal and reconversion of organic waste , both from excrement (human and animal) and from manufacturing processes (agri-food industry), as well as in many agro-zootechnical activities. Very compact system that uses only renewable energy, with high energy recovery indices and production of high quality by-products (CH<sub>4</sub>, CO<sub>2</sub>, NPK<sub>x</sub> , H<sub>2</sub>O). Excellent solution for urban areas for contrast to the disposal of wastewater and containment of interventions on its infrastructures ( sewerage transport networks and purifiers ), acting in a distributive /pervasive manner where the problem arises. It offers significant contrast to the load Organic contributing to the performance on " **Water cycle** ".

**Project:** MBGC – Mini Bio Gas Continuous

**Objective :** Launch a pre- assembly and testing site (procedures and manuals) for the production of MBGC tanks

**Target:** Prefabricated (CLS) companies, hydromechanics , financial investors, operators in the BioGas / BioMethane sector

The project aims to activate a production site, from design to assembly (pro delivery and rapid assembly), with the development of production-oriented procedures agreed with the client (based on the products available for supply) and destinations of the outputs produced. The solutions rely on standard products from the water management and prefabricated market, assembled and tested with a view to optimize linear anaerobic digestion, with selective and corrective extraction. In collaboration with internal and external laboratories, it will act as remote support for the installations in charge (EPC - Engineering , Procurement and Construction ).

**Summary:** This is a method for anaerobic digestion and a device for its implementation. Anaerobic digestion is a biological process that breaks down organic matter in the absence of oxygen, producing biogas, fertilizer and water. Biogas is a mixture of methane, carbon dioxide and other gases that can be used as a renewable energy source. The fertilizer is composed of nitrogen, phosphorus and

potassium salts ( NPKx salts ) which can be used to enrich the soil or supplement supplies from specific industries. Water is the liquid fraction that can be reused or discharged after treatment.

A device to implement this method consists of a tank divided into different areas, where different phases of anaerobic digestion take place. The tank is equipped with bulkheads, pipes, pumps, heating means and gas separation means. The organic matter enters the tank through a vertical inlet pipe ( in homogeneous diffusion mode) and undergoes the following phases:

- 1) Hydrolysis: organic matter is divided into smaller molecules by means of water and enzymes;
- 2) Acidogenesis : the hydrolyzed products are transformed into volatile fatty acids and other compounds by acidogenic bacteria .;
- 3) Acetogenesis : volatile fatty acids and other compounds are further transformed into acetic acid, hydrogen and carbon dioxide by acetogenic bacteria;
- 4) Methanogenesis : acetic acid, hydrogen and carbon dioxide are transformed into methane and carbon dioxide by methane genic bacteria;

The liquid mixture flows through the tank from one area to another, following a path defined by the bulkheads and pipes. Along the way, some pumps recycle some of the liquid mixture to optimize the process. In the last zone, the liquid mixture separates into different components by gravity:

a) Oleic phase: the lighter fraction which mainly contains fats and oils , is drained and brought back to the beginning;

b) Protein phase: the heavier fraction which mainly contains proteins and amino acids, not yet treated, is taken and brought to the beginning;

c) NPK salts: the solid fraction that precipitates at different levels according to their solubility and specific weight;

d) Clarified water: the clear fraction that remains after the separation of the other components is expelled by gravity and thermally pre-treated in the last part of the tank at half level;

The gases produced during the process (methane and carbon dioxide) rise towards the top of the tank, where

they separate by density and start non-specific functions. Carbon dioxide, being heavier, remains in the lower part of the space above the liquid surface, while methane, being lighter, moves towards the upper part of the space. Gases are extracted through pipes with holes that are connected to gas storage or utilization systems. The device also includes a lighting and cooling system to prevent the formation of hydrogen sulfide, a toxic gas that can result in anaerobic digestion, damaging it. Lighting stimulates photosynthesis in some bacteria that consume hydrogen sulfide in the absence of oxygen. Cooling condenses water vapor in the gas phase and returns it to the liquid phase .

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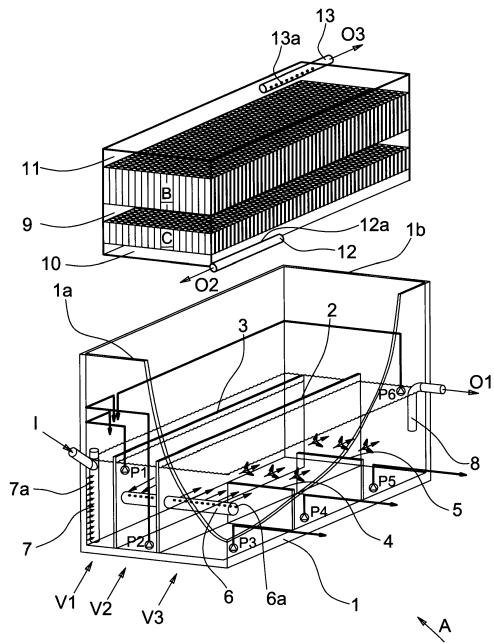


Fig. 1



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(71) Applicant(s):

LAVANGA, Vito [IT/IT]; Via Terrazzano 85 20017 Rho  
(MI) (IT) (for all designated states)

(72) Inventor(s):

LAVANGA, Vito; Via Terrazzano 85 20017 Rho (MI)  
(IT)

FARNE', Stefano; Via Trasimeno 40/14 20128 Milano  
(MI) (IT)

(54) Title (EN): METHOD FOR ANAEROBIC DIGESTION AND DEVICE FOR IMPLEMENTING SAID METHOD

(54) Title (FR): PROCÉDÉ DE DIGESTION ANAÉROBIE ET DISPOSITIF POUR LA MISE EN ŒUVRE DUDIT PROCÉDÉ

(57) Abstract:

(EN): This invention relates to a method and to a device for the implementation of said method, to decompose and to selectively extract methane, carbon dioxide, NPK salts (nitrogen, phosphorus and potassium salts) of various titre and clarified water, from an organic matrix; said components will be the raw material for further industrial processes. The method is characterized in that it includes the following phases: • implementation of a hydrolytic phase, constituted by the fission action by means of the water, by hydration; • implementation of an acidogenesis phase generated by means of specific bacteria; •

implementation of a acetogenesis phase generated by means of specific bacteria; • implementation of a methanogenesis phase by means of specific bacteria, with a simultaneous gravimetric separation of a mainly oleic phase, lighter and of a predominantly protein phase, heavier; • gravimetric separation of solutions of said NPK salts of different titres • taking of clarified water. The device is characterized in that it comprises a basin (1) divided into various zones (V1), (V2), (V3), in each of which biological reactions occur, in accordance with the claimed method, said zones being all communicating and identified by suitable separation baffles, in particular: • a first baffle (2) extended from a first end (1a) of the basin to a second end (1b) of said basin (1), dividing it into two parts; • a second baffle (3), of height equal to said first baffle that divides one of said parts in a first zone (V1) and in a second zone (V2) extending from said first end (1a) of the basin (1) until it reaches the vicinity of said second end of the basin (1), so that said two zones (V1) and (V2) are communicating through an opening, of substantially vertical development, between the end of said second baffle (3) and the second end (1b) of the basin (1); • a plurality of baffles (4) and (5) transversely arranged to said first baffle (2) and inside a third zone (V3), delimited by said first baffle (2), said third zone (V3) being placed in communication with said second zone (V2) through a

transfer pipe (6), positioned at about half height of said first baffle (2); • two blocks (B) and (C), placed in the upper part of said basin (1) and provided by taking means (12, 12a, 13, 13a), each of said blocks (B) and (C) including a plurality of vertical pipes and being fitted to carry out a gravimetric separation of the gases that are generated during the treatment of said mixture; said baffles (2) and (3) and said transfer pipe (6), by identifying a path crossed by the liquid mixture to be treated, that runs into the beginning of said first zone (1) where it is placed an inlet pipe (7) of the liquid mixture to be treated and comes out from various points of said third zone (V3).

(FR): La présente invention concerne un procédé et un dispositif pour la mise en œuvre dudit procédé, pour décomposer et extraire sélectivement du méthane, du dioxyde de carbone, des sels de NPK (sels d'azote, de phosphore et de potassium) de titres divers et de l'eau clarifiée, à partir d'une matrice organique; lesdits composants constituant la matière première pour d'autres procédés industriels. Le procédé est caractérisé en ce qu'il comprend les phases suivantes : mise en œuvre d'une phase hydrolytique, constituée par l'action de fission au moyen de l'eau, par hydratation; mise en œuvre d'une phase d'acidogénèse au moyen de bactéries spécifiques; mise en œuvre d'une phase d'acétogénèse au moyen de

bactéries spécifiques; mise en œuvre d'une phase de méthanogénèse, au moyen de bactéries spécifiques, avec séparation gravimétrique simultanée d'une phase principalement oléique, plus légère, et d'une phase principalement protéique, plus lourde; séparation gravimétrique de solutions desdits sels de NPK de titres différents; prélèvement de l'eau clarifiée. Le dispositif se caractérise en ce qu'il comprend un bassin (1) divisé en différentes zones (V1) (V2), (V3), dans chacune desquelles ont lieu des réactions biologiques, conformément au procédé de l'invention, lesdites zones étant toutes communicantes et identifiées par des chicanes de séparation appropriées, en particulier : une première chicane (2) s'étendant d'une première extrémité (1a) du bassin jusqu'à une deuxième extrémité (1b) dudit bassin (1), le divisant en deux parties; une deuxième chicane (3), de hauteur égale à celles de ladite première chicane qui divise l'une desdites parties en une première zone (V1) et en une deuxième zone (V2) s'étendant entre ladite première extrémité (1a) du bassin (1) et le voisinage de ladite seconde extrémité du bassin (1), de sorte que lesdites deux zones (V1) et (V2) communiquent par une ouverture, de développement sensiblement vertical, entre l'extrémité de ladite deuxième chicane (3) et la seconde extrémité (1b) du bassin (1); une pluralité de chicanes (4) et (5) placées transversalement par rapport à ladite

première chicane (2) et à l'intérieur d'une troisième zone (V3), délimitée par ladite première chicane (2), ladite troisième zone (V3) étant mise en communication avec ladite deuxième zone (V2) par un tuyau de transfert (6), placé à environ la moitié de la hauteur de ladite première chicane (2); deux blocs (B) et (C), placés dans la partie supérieure dudit bassin (1) et munis de moyens de prélèvement (12, 12a, 13, 13a), chacun desdits blocs (B) et (C) comprenant une pluralité de tuyaux verticaux et étant conçu pour effectuer une séparation gravimétrique des gaz qui se dégagent pendant le traitement dudit mélange; lesdites chicanes (2) et (3) et ledit tuyau de transfert (6) délimitant un trajet emprunté par le mélange liquide à traiter, qui s'étend du début de ladite première zone (1) dans laquelle est placé un tuyau d'entrée (7) du mélange liquide à traiter et sort par différents points de ladite troisième zone (V3).

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#### Declarations:

Declaration made as applicant's entitlement, as at the international filing date, to apply for and be granted a patent (Rules 4.17(ii) and 51bis.1(a)(ii)), in a case where the declaration under Rule 4.17(iv) is not appropriate

Declaration of inventorship (Rules 4.17(iv) and 51bis.1(a)(iv)) for the purposes of the designation of the United States of America

