

# **Visions of Sustainability**

**Fictional Narratives for a Global Audience**

## **Digester - MBGC toward SDGs/UN 6.1**

(Target 6.1: By 2030, achieve universal and equitable access to safe and affordable drinking water for all).

## Summary

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# **Visions of Sustainability: Fictional Narratives for a Global Audience**

## **Introduction**

A story once took place in the charming seaside village of MBGC, which is tucked away among the varied coastlines of Indonesia's magnificent archipelago. The story was interwoven with the threads of a shared will to fulfill Sustainable Development Goal 6.1, which is to ensure that all citizens have equitable access to safe and reasonably priced drinking water by 2030.

The daring fisherman of MBGC set out on their daily mission as the minarets tolled the call to prayer and the first rays of dawn touched the horizon. Amidst lush tropical foliage and the rhythmic symphony of crashing waves, this lively neighborhood served as a microcosm of Indonesia's complex cultural fabric, where unity danced beautifully with variety.

SDG 6.1 had a robust pulse at the centre of MBGC. A riot of laughter reverberated across the landscape, painted by bustling markets with a vibrant colour palette. The people of the town worked tirelessly to guarantee that every house had access to the essentials of life: pure, sustaining

water. This was made possible by creative water collection techniques and a strong feeling of community.

Let me introduce you to Target X, a ray of hope that seeks to guarantee that by 2030, everyone, regardless of background, has access to safe, reasonably priced water. It was not just about providing a drink of water; it was also about creating a strong feeling of community, igniting the spark of empowerment, and opening doors to economic prospects.

Strolling about MBGC's lanes and alleyways, one could see a change beginning to take shape. Together, men and women of all ages worked to build not only water collection systems but also a more cohesive and resilient community. Children no longer had to travel great distances in quest of water; instead, the hope of better days ahead of them shone in their eyes. With their heads held high, they knew they had a birthright to clean water and marched to school.

So, would you mind joining us on this fascinating tour of MBGC? Here, Indonesia's limitless goals and irrepressible spirit coexist with the urgent need for clean, accessible water. Taken as a whole, they tell a story of peace, development, and a common dedication to a sustainable future for this unique coastal oasis and the country it represents. This tale serves as a tribute to the strength of

communities and their ability to bring bold ideas to life while uniting people around a shared goal.

## **Characters**

### **Lia, the Hub of the Community:**

Meet Lia, a young lady with empathy and a heart that feels the difficulties her community faces. She leads the effort to increase access to clean water out of a sense of duty and is motivated by a love for her country that is as limitless as the sea itself.

### **Abdul, the maestro of the region:**

Abdul is a skilled artisan who is proud to continue his family's complex woodworking tradition. He understands that their work bears the weight of shared aspirations, picturing water-harvesting systems that blend in perfectly with the town's breathtaking surroundings.

### **The guiding teacher, Maya:**

Background: Maya is an enthusiastic teacher who thinks that a better future is largely dependent on education. She has seen directly how having access to clean water may improve her pupils' attendance and general well-being.

Outside of the classroom, Maya is a fervent supporter of MBGC's water accessibility.

### **The Seafaring Steward, Ismail:**

Ismail comes from a family of fisherman, thus the sea's bounty has always been a source of food for them. He is very aware of the precarious equilibrium that exists between human activity and aquatic environments. Ismail is an important resource for making sure local ecology and water conservation programs work together because he is a respected elder in the community.

### **Lani, the Advocate for the Environment:**

Lani is an accomplished environmentalist with a long background. Her goal upon returning to MBGC from her studies in environmental science in Jakarta is to preserve the natural beauty of her homeland. Equipped with an abundance of expertise in sustainable practises and connections within the wider environmental community, Lani offers a comprehensive viewpoint to local efforts.

### **The Young Vanguard, Bayu:**

Bayu is a young leader who is bursting at the seams with enthusiasm for MBGC and a distinct future vision for the company. Having engaged in a wide range of youth-driven initiatives, he thinks that the energy and enthusiasm of the

next generation will help us achieve SDG 6.1. With the ability to mobilize and motivate his colleagues, Bayu serves as a catalyst for change.

## **Story**

Within the peaceful borders of Marvellous Building Group of Young Caregiving (MBGC), a neighborhood coexists with the land and the ocean. The earthy scents of tropical vegetation blend with the salty sea breeze to create an ambiance that is both energizing and soothing. The town's architecture, which combines brightly painted dwellings with worn wood, is evidence of the people's profound respect for their environment.

The smooth lap of azure waves on the sandy shoreline is reflected in the cadence of life here. A vibrant aquatic community is supported by mangrove roots, and pelicans twirl across the azure sky. Imam and his fellow fishermen, descendants of long-gone customs, glide through the glittering waters in an ageless ballet.

The heartbeats of this coastal sanctuary are a symphony of voices, characterized by laughter and a diversity of accents. The market is a colorful tapestry of scents and colors, featuring handcrafted garments, tropical fruit in every shade, and the fresh catch of the day. Elders congregate beneath old banyan trees and tell tales of the

past as children play by the water's side and their laughter fills the air.

The residents of MBGC come together in a common aspiration for a better future as the sun sets and the ocean takes on a golden glow. The lives of Lia, Abdul, Maya, Ismail, Lani, and Bayu come together in this idyllic seaside retreat, laying the groundwork for an adventure characterized by tenacity, resourcefulness, and unflinching hope.

A moving voyage takes place in the center of MBGC, where the tides' ebbs and flows reflect the rhythms of life. As a committed community organizer, Lia sees directly the growing disparity in family water access. She organizes a diverse group with unflinching resolve, allowing each person to contribute their special talents and viewpoints.

Their goal is to fulfill SDG 6.1 by guaranteeing that every member of the community has access to clean water and proper sanitation. Together with the skilled craftsman Abdul, whose vision comes to life via his work, they painstakingly build monuments to hope and advancement out of the abundance of nature.

Let me introduce Maya, a fervent supporter of clean water and cleanliness. Her engaging lessons and inspiring



projects provide young kids a sense of accountability and self-worth. These kids, who represent the kind of change MBGC hopes to see, end up being change agents in their own homes and communities.

Experienced fisherman Ismail shares traditional knowledge, making sure that conserving water is in harmony with the delicate balance of the sea. He leads the community in implementing eco-friendly practises that protect livelihoods and the environment.

As water-harvesting methods take shape and Maya's teachings become established, tangible change permeates the community. After years apart, they have come together and are steadfast in their conviction that everyone has the right to access water.

Lani steps in, using her knowledge and contacts in the environmental field to increase their influence. Her influence attracts funding and assistance from surrounding areas, which together improve sustainability and water accessibility by utilising state-of-the-art technologies, such as JWT Patent GREEN inventions.

As momentum grows, MBGC's transition becomes a worldwide example for coastal towns. Reaching Sustainable Development Goal 6.1 proves to be both feasible and a tribute to the perseverance and resolve of

the people who live in MBGC. Their accomplishments triggered a series of changes.

However, despite their achievements, there is still a struggle ahead of them, one that is similar to other coastal villages in Indonesia. As community leaders and professionals investigate further, the impending threat of seawater incursion becomes apparent. It is a sombre truth.

The once-balanced relationship between land and sea is on the verge of becoming unbalanced. Freshwater resources, which are essential to MBGC's survival, are seriously threatened by the combination of rising sea levels and climate change. Once a lifeline, wells are now at risk of contamination, making them salinized and unsafe for human use.

Presently, a dual mandate is facing Lia, Abdul, Maya, Ismail, Lani, and Bayu. In the event of an imminent disaster, they have a responsibility to guarantee that their community has access to safe water. Their goal is to both draw from other reservoirs and protect current freshwater supplies from approaching saltwater.

Abdul, the master craftsman, is in the lead. His creative ideas provide anti-saline defences to water harvesting devices. His skill with woodworking, which was before

devoted to aesthetics, is now crucial to strengthening the town's water system.

Ismail shares age-old methods based on conventional wisdom for preserving the delicate equilibrium between human activity and water. When developing methods to protect the maritime ecosystem and fend off seawater incursion, his advice is crucial.

Dian plays a key role by thoroughly investigating environmentally friendly desalination processes and state-of-the-art filtration procedures. Her knowledge of sustainable practises and her connections in the environmental community at large prove to be invaluable. It gives her access to cutting edge technologies designed to tackle Indonesia's coastal issues.

Leading a dual enrollment program, Maya demonstrates that she is a committed teacher who teaches outside of the classroom. She plans events that teach adults and kids about the dangers of saltwater intrusion and the preservation of freshwater resources. Her former pupils, who are now active members of the community, support the cause.

In light of this impending threat, their cooperation and resolve are more important than ever. They work together to address the issues raised by saltwater intrusion, putting

policies into place that protect MBGC's water supply in the long run and act as a template for other coastal towns facing comparable difficulties.

The MBGC characters are living examples of the strength of teamwork. They fortify current water sources, create substitute reservoirs, and make use of state-of-the-art filtration technologies. They create the framework for sustainable fishing methods that protect the delicate coastal ecosystem and support the growth of mangroves, which serve as organic barriers to the encroachment of seawater.

Recognizing that cooperation and a shared goal are the only ways to defeat the current threat, the community comes together in support of these initiatives. These difficulties, despite the setbacks, only strengthen their will to succeed. The story of MBGC is one of perseverance in the face of hardship and what can be accomplished when a community comes together.

The residents of Marvellous Building Group of Young Caregiving (MBGC) overcome saltwater intrusion with unwavering tenacity, emerge triumphant and solidifying their position as leaders in sustainable water management. Together, Lia, Abdul, Maya, Ismail, Lani, and Bayu managed to subdue the once-dangerous threat.

The success of SDG 6.1 is being celebrated in this resilient beach town, but its effects are seen not only in MBGC but also throughout Indonesia. Their accomplishment gives coastal cities around the country hope and inspiration because it shows that even the most difficult challenges can be overcome with enough creativity, effort, and determination.

Its effect on the development and profitability of MBGC is apparent. The community benefits from clean water in many ways, including better health, increased agricultural yields, and the revival of regional industry. By drastically lowering the danger of waterborne illnesses, sanitary infrastructure reliability ensures a safer and brighter future for future generations.

The victory of MBGC sets off a chain reaction of change that unites Indonesian coastal towns in the battle against environmental issues. As the nation enters a new phase of sustainable water management, MBGC is a bright example of what can be accomplished by working together and coming up with original solutions to problems.

The citizens of MBGC remain unfazed by potential obstacles as the sun sets over the charming seaside town, illuminating the water in a warm, golden glow. By doing this, they show that accomplishing SDG 6.1 is a result of local communities coming together to create a sustainable

and prosperous future, rather than just being a commendable endeavour.

Ultimately, MBGC serves as evidence that a community's beating hearts, synchronized by purpose, are stronger than any obstacle. Their journey, marked by empathy, companionship, and unflinching resolve, shows that hope can be found and a sustainable future can be formed even in the face of adversity.

## **Appeal to JWT Patent GREEN**

A ground-breaking development known as JWT Patent GREEN is central to Mini Bio Gas Continuous (MBGC) and easily integrates into the prosperity of the seaside community. JWT Patent GREEN emerges as a crucial weapon in the arsenal of Lia, Abdul, Maya, Ismail, Lani, and Bayu as they take on the problem of saltwater intrusion.

Budi uses this cutting-edge technology in his water harvesting systems, basing his design decisions on JWT Patent GREEN's principles. These systems use cutting-edge filtration processes in addition to rainwater collection to guarantee that the water they collect is clean and free of saline pollution. JWT Patent GREEN's incorporation not

only strengthens the town's water infrastructure, but also establishes a new benchmark for environmentally responsible water management.

By utilizing her knowledge of environmental science, Dian works with specialists to improve the filtration procedures. With JWT Patent GREEN, they use cutting-edge desalination techniques to effectively remove salt from tainted water, giving the neighborhood another source of clean, usable water.

Abdul understands the importance of JWT Patent GREEN in preserving a delicate balance between human activities and the marine environment because of his deep respect for the water. Utilizing this technology, he makes sure that the town's water resources are protected while minimizing environmental impact and the water conservation programs are in line with sustainable practises.

JWT Patent GREEN has a positive impact on the town, which has an impact on Indonesia as a whole. Similar solutions are adopted by coastal towns across the country, igniting a movement towards sustainable water management. The success of MBGC, made possible by JWT Patent GREEN, serves as a model for attaining SDG Goal 6.1 on a bigger scale.

Incorporating JWT Patent GREEN not only resolves the immediate problem of saltwater intrusion but also establishes a model for how cutting-edge technologies can promote sustainable growth. The coastal town of MBGC, with JWT Patent GREEN at its core, lays the path for a future where having access to clean water is not merely a desire but a reality, advancing Indonesia towards a more sustainable, prosperous tomorrow.

## **Word of Encouragement**

A renewed sense of hope and unity fills the air as the waves lazily lap against MBGC's coastline. The victory over saltwater intrusion is evidence of the resilient spirit of communities devoted to building a sustainable future.

In addition to being a tale of coastal resiliency, these characters' stories serve as a source of inspiration for people all around the world. Their group effort exemplifies the limitless potential that emerges when people band together for a common goal, motivated by the desire to realize SDG Goal 6.1.

They learned that invention, teamwork, and steadfast resolve are the cornerstones of development in the midst of adversity. The combination of JWT Patent GREEN and



MBGC proved the technology's transformational power in preserving priceless water resources.

The success of MBGC is heard in coastal towns all throughout Indonesia as it reverberates throughout the country. This seaside community's heritage serves as motivation, a guide, and a call to action. It serves as a reminder that accomplishing SDG Goal 6.1 is a team effort in which each individual contribution causes a ripple effect that results in a positive impact.

Let the example of MBGC serve as a reminder that no obstacle is insurmountable if it is met with cooperation, creativity, and steadfast resolve. Together, we can change the course of history so that everyone has access to clean water and that communities coexist peacefully with the environment.

Every person, every community, and every innovation has a place in the tapestry of sustainable development. Let's move on, inspired by the idea of a world that is greener and more sustainable, and while we do so, let's create our own tales of hope, resiliency, and transformation. Together, we can accomplish SDG Goal 6.1 and guarantee a better future for future generations.

### **Environmental Impact Assessment**

### **Lowering greenhouse gas emissions:**

Indonesia has a difficult time reducing its greenhouse gas emissions, largely because of its dependence on fossil fuels and problems with deforestation. This issue is addressed by JWT Patent GREEN, which effectively transforms organic waste into useful resources like methane. As a result, there is less reliance on conventional energy sources, which ultimately results in lower greenhouse gas emissions.

### **Air and water pollution reduction:**

- Indonesia has a problem with air pollution, especially in urban areas. Utilizing JWT Patent GREEN reduces the production of dangerous gases caused by the breakdown of organic waste. In addition to enhancing local air quality, this also lowers health risks for neighboring populations.
- Water pollution: When organic waste is disposed of improperly, water sources may get contaminated. By promoting the regulated breakdown of organic debris, JWT Patent GREEN aids in preventing this. As a result, less fresh water will be needed because the cleared water can be used again.

### **Natural resource preservation:**

- Land usage: Due to the substantial regions set aside for trash disposal, Indonesia confronts problems with land usage. JWT Patent GREEN enables more sustainable land use techniques by reducing the requirement for big garbage sites.
- Energy Resources: Indonesia's energy mix heavily relies on conventional energy sources like coal. The capacity of JWT Patent GREEN to collect methane for energy production lowers the need for non-renewable resources, aiding in the preservation of natural energy supplies.

### **Reducing Pressures on Deforestation:**

In Indonesia, deforestation is a serious problem that is frequently fueled by the desire for agricultural land. A sustainable option is provided by the JWT Patent GREEN method, which produces biochar as a byproduct. Biochar can increase soil fertility and lessen the pressure that expanding agriculture puts on natural forests.

### **Conservation of Biodiversity:**

Despite being endangered by habitat destruction, Indonesia is famous for having a vast biodiversity. The pressure on natural ecosystems is lessened by encouraging the use of JWT Patent GREEN, which lessens the environmental impact of waste management, indirectly aiding in biodiversity conservation efforts.

The approval of JWT Patent GREEN offers Indonesia a tremendous chance to address important environmental challenges, to sum up. This cutting-edge technology plays a crucial role in lowering greenhouse gas emissions, mitigating pollution, conserving natural resources, and ultimately promoting a more sustainable and environmentally responsible future for the nation by efficiently managing organic waste and turning it into valuable resources.

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

Adopting Mini Bio Gas Continuous (MBGC) technology has considerable financial benefits and closely relates to SDG 6.1's goals. The possible revenue streams, cost reductions, and market possibilities for enterprises and sectors are covered in more detail below.

### **1.Diverse Revenue Streams:**

For organizations and industries, MBGC technology opens up numerous potential for producing cash. These income sources result from the use of precious resources and their extraction.

- **Methane Utilization for Energy Generation:** The extraction and use of methane is one of the main revenue sources for MBGC technology. A strong greenhouse gas, methane can be captured and used as a significant energy source. This energy can be used to power other parts of a facility's activities, minimizing dependency on outside energy sources and possibly yielding considerable financial savings.
- **Utilization of Carbon Dioxide:** Anaerobic digestion produces carbon dioxide (CO<sub>2</sub>), which MBGC technology can capture and use. The production of food and beverages, agriculture, and even as a raw material for some industrial operations are just a few of the industrial uses for CO<sub>2</sub>. Businesses can generate additional cash streams by reusing CO<sub>2</sub>.
- **NPK Salts as Fertilizers:** NPK salts, which are abundant in the nutrients nitrogen, phosphorus, and potassium necessary for plant growth, are another priceless resource collected using MBGC technology. These nutrient-dense salts act as strong organic fertilizers. Businesses can sell them to the agriculture industry or utilize them locally for their own agricultural activities, providing a possible source of income.
- **Clarified Water for Industrial Use:** The facility's activities may make use of the clarified water produced as a byproduct of the MBGC technology. This lessens the

requirement for outside water sources, which could result in cost savings. A second source of income could be generated by selling the cleared water or using it in other industrial processes if its quality matches industry standards.

- **Integration with Current Procedures:** Methane, CO<sub>2</sub>, NPK salts, and clarified water are just a few examples of the extracted resources that can be easily incorporated into the business or industry's current processes. This not only maximizes the use of resources but also creates room for innovation and efficiency gains.
- **Economic viability and resilience:** Through the use of MBGC technology, revenue sources can be more diverse, which can increase a corporation or industry's economic viability and resilience. Businesses can better survive market changes and economic risks by utilizing numerous revenue streams.

## **2. Cost Savings and Waste Reduction:**

- **Savings on waste disposal and waste reduction:** By successfully removing useful components from organic waste, MBGC technology greatly reduces the amount of waste that must be disposed of. This results in right away reduced waste management and disposal costs. Particularly benefited by this decrease in trash disposal

costs are industries like agriculture and food processing that deal with significant organic waste.

- **Reusing Essential Resources:** Methane, carbon dioxide, NPK salts, and purified water can be extracted from organic waste using technology, which has two advantages. In addition to lowering waste, it also offers a supply of valuable resources that can be utilized again in commerce or industry. By doing so, there is less of a need to acquire or generate these resources using traditional, possibly more expensive means.
- **Reduced dependency on External Inputs:** Businesses can lessen their dependency on external suppliers for materials by recycling the extracted resources. The NPK salts that are extracted, for instance, can be used by a farm using MBGC technology as natural fertilizers, reducing the requirement for commercial fertilizers. This results in further cost reductions and a more independent operation.
- **Increased Operational Efficiency:** By streamlining waste management procedures, MBGC technology makes them more effective and resource-conserving. As a result, firms may spend less on the labour, machinery, and energy necessary for trash treatment and disposal, which could result in operational cost reductions.
- **Environmental Compliance and Reduced Fines:** MBGC technology can help enterprises that are subject to

environmental regulations by reducing waste generation and eliminating pollution concerns.

- **Improved Sustainability Techniques:** Using MBGC technology demonstrates a dedication to ethical and sustainable waste management techniques. The reputation of a company may benefit from this, which could improve consumer loyalty and brand value.

### **3.Market Potential and Industry Integration:**

- **Access to Growing Markets:** Thanks to MBGC technology, businesses may now lead the way in the rapidly growing market for sustainable and renewable energy sources. Due to rising environmental consciousness, concerns over climate change, and a global drive towards cleaner energy sources, this sector is expanding significantly. Businesses are well-positioned to take advantage of this market's growing demand by implementing MBGC.
- **Environmental and Regulatory Drivers:** The need for technologies like MBGC is being driven by the growing concern for environmental sustainability on a worldwide scale. Around the world, governments and regulatory organizations are putting rules and incentives into place to encourage sustainable practises and lower greenhouse gas emissions. Businesses that use MBGC are better



positioned to take advantage of these chances and comply with changing regulatory requirements.

- **Improved Brand Value and Market Appeal:** Adopting MBGC technology demonstrates a dedication to responsible and progressive resource management. This not only resonates with stakeholders, investors, and partners who prioritize sustainability but also with environmentally concerned consumers. Businesses that use MBGC can increase their market attractiveness, strengthen the value of their brands, and forge closer bonds with stakeholders as a result.
- **Competitive Advantage and Differentiation:** In a cutthroat business world, providing environmentally friendly and sustainable solutions distinguishes a company. MBGC technology adoption can offer a clear competitive advantage. It exhibits creativity, effectiveness, and a commitment to minimizing negative environmental effects. This distinction may be a crucial element in landing contracts, luring clients, and keeping them.
- **Diversification of Revenue Streams:** Companies can diversify their revenue streams by entering the sustainable energy industry with MBGC technology. This lessens reliance on established revenue streams and offers resistance to market turbulence or interruptions in more established areas.

- **Long-Term Viability and Future-Proofing:** MBGC technology adoption equips firms for long-term viability in an economic and environmental world that is continually changing. Those who use cutting-edge technology like MBGC are better prepared to negotiate future problems and possibilities as sustainability becomes an increasingly important component of business operations.
- **Industry Leadership and Innovation:** Businesses show leadership in promoting innovation and sustainability in their specific sectors by incorporating MBGC technology. This not only garners admiration but also promotes a culture of ongoing development and environmental awareness.

#### **4.Job Creation and Economic Growth:**

- **Job Creation in Technology Maintenance and Waste Management:** The construction and operation of waste management facilities utilizing MBGC technology is required by the adoption of this technology. As a result, there is an increased need for technicians, engineers, operators, and maintenance staff that are skilled and semi-skilled. Additionally, specialized training courses might be developed to give people the abilities needed for MBGC systems.

- **Opportunities for Local Businesses and Industries:** Local businesses and industries may have chances to specialize in waste management solutions as a result of the implementation and maintenance of MBGC systems. These companies might offer services for setting up, running, and maintaining systems. Additionally, there might be a need for the manufacture and supply of the tools and resources required in MBGC technology.
- **Economic Diversification:** By providing a new industry centred on resource extraction and sustainable waste management, the introduction of MBGC technology diversifies the local economy. This diversity lessens reliance on a single industry or source of income, promoting economic resilience and stability.
- **Indirect Job Creation:** The economic growth prompted by the use of MBGC technology may have a knock-on effect on employment in adjacent industries. For instance, the enhanced waste management infrastructure may result in increased demand for regional suppliers, transportation services, and other sectors.
- **Skills Development and Capacity Building:** The introduction of MBGC technology involves the development of a competent workforce capable of operating and maintaining these systems. This encourages spending on training and education initiatives.

- **Economic Growth and Local Prosperity:** The development of the MBGC industry helps a region's economy as a whole. As companies in this industry prosper, they produce income, pay taxes, and support the regional economy. Increased prosperity and higher living standards for the neighbourhood may result from this.
- **Suitability for Sustainable Development Goal (SDG) 8:** With an emphasis on fostering decent work and sustainable economic growth, Sustainable Development Goal 8 is directly in line with the goals of MBGC technology deployment in terms of job creation and economic growth. The larger global objective of attaining inclusive and sustainable economic growth is supported by MBGC technology by generating job opportunities and boosting economic activity.

## **5.Compliance and Risk Mitigation:**

- **Manifesting a commitment to the environment:** By implementing MBGC technology, an active dedication to environmental sustainability is demonstrated. This delivers a clear message to stakeholders, such as regulatory agencies, that the company is committed to using responsible waste management procedures and lessening its impact on the environment.
- **Observation of Changing Regulations:** Environmental laws are constantly being updated to address urgent

problems like waste management and emissions reduction. Businesses that use MBGC technology are better positioned to adhere to present and future requirements for waste management, methane emissions, and sustainable resource use.

- **Risks of Non-Compliance are Reduced:** Businesses using MBGC technology greatly minimize the possibility of non-compliance with environmental standards by efficiently managing organic waste and reducing pollution hazards. As a result, there is less chance of incurring fines, penalties, or legal responsibilities due to non-compliance.
- **Long-Term Financial Stability:** Achieving long-term financial stability involves avoiding non-compliance fines and the related legal fees for environmental infractions. Instead of spending money on expensive legal actions or fines, businesses should invest their resources in growth and development.
- **Promoting a Culture of Responsibility:** Using MBGC technology helps businesses foster a culture of environmental responsibility. This way of thinking permeates the entire company, from the leadership to the staff, encouraging sustainable practises and pro-active adherence to environmental rules.
- **Improving Reputation and Stakeholder Trust:** The business's reputation is improved by demonstrating a dedication to compliance and responsible waste

management. Customers, partners, investors, and other stakeholders are more inclined to interact with and support companies that place a high priority on environmental responsibility.

- **Future-Proofing Operations:** Companies that proactively implement sustainable technology, like MBGC, are better positioned to negotiate future regulatory environments as environmental requirements continue to grow and tighten. The risk of disruptions brought on by shifting environmental regulations is reduced thanks to this future-proofing, which guarantees ongoing operational viability.

## **6.Investment in Research and Development (R&D):**

- **Technology Advancement and Innovation:** Adopting MBGC technology necessitates a dedication to innovation. This calls for undertaking study to hone and optimize the MBGC processes. Businesses investigate novel techniques, tools, and strategies to improve the efficacy, efficiency, and environmental performance of MBGC systems through R&D.
- **Customization & Tailoring to Specific Needs:** Every sector and business has different needs and waste streams. By investing in R&D, MBGC systems can be modified and made to fit particular operating situations. This makes sure that the technology is optimized to get the most value

possible out of the organic waste produced by the company.

- **Continuous Improvement and Process Optimization:** Research and development expenditures enable continuous advancements in MBGC technology. The technology is being improved in a number of ways, including feedstock preparation, anaerobic digestion procedures, and resource extraction techniques. As a result, MBGC systems operate with greater efficiency, dependability, and general performance.
- **Knowledge Production and Expertise Development:** Investing in R&D enables the organization to produce important knowledge and expertise. Working in MBGC projects allows researchers and engineers to gain specialized knowledge in resource recovery, anaerobic digestion, and waste management. This knowledge base develops into a significant resource for the company.
- **Intellectual Property and Competitive Advantage:** Research and development (R&D) activities in MBGC technology can result in the creation of intellectual property, including patents, special procedures, or exclusive technologies. By creating hurdles to entry for rivals and solidifying the company's status as a pioneer in environmentally friendly waste management, this intellectual capital can give it a competitive edge.

- **Exhibiting Thought Leadership:** Companies that make R&D investments and develop with technologies like MBGC exhibit thought leadership in the discipline of sustainable resource management. In the context of environmental sustainability as a whole as well as within their industry, this places them in a leading and innovative position.
- **Adaptability and future-proofing:** By investing in R&D, a company may stay flexible and forward-thinking. Businesses that continue to engage in R&D can readily adopt new discoveries and developments as technology and best practises change, ensuring their operations stay at the forefront of sustainable waste management.

Here are some additional economic benefits of adopting MBGC (Mini Bio Gas Continuous) technology for SDG 6.1, with a specific focus on Indonesia:

- ✓ **Economic expansion and job creation:** Construction, use, and maintenance of biogas facilities can be done by expert and unskilled labor thanks to the implementation of MBGC technology. As a result, more jobs are created, helping to lower unemployment rates and boost the local economy.
- ✓ **Cost of Energy Reduction:** Organic waste can be converted into biogas, which can then be used for electricity production, heating, and other energy-related



purposes. Households and businesses can directly save money by switching to biogas as a fuel source instead of traditional fuels.

- ✓ **Farmers' Income Diversification:** Farmers in Indonesia's rural areas, where agriculture plays a large economic role, stand to gain from the sale of organic waste to MBGC facilities. This gives them an additional stream of revenue, which improves their financial stability and market resiliency.
- ✓ **Promotion of eco-tourism:** Eco-friendly activities can be encouraged by using sustainable practises like MBGC technology. Such initiatives can serve as the foundation for eco-tourism, drawing visitors who care about the environment and opening doors for regional companies in the tourism industry.
- ✓ **Costs Associated With Health Are Reduced:**  
The expense of treating illnesses brought on by pollution and waterborne diseases can be reduced by better sanitation and waste management thanks to MBGC technology. A healthy population also results in higher production and lower medical costs.
- ✓ **Greater Access to Clean Water:** The MBGC's clarified water can be treated and put to use in industrial processes, aquaculture, irrigation, and other fields. This lessens the need for pricey water treatment and offers a consistent

source of clean water, especially in areas with a lack of water.

By taking advantage of these financial advantages, Indonesia may use MBGC technology to advance economic growth and prosperity while also achieving SDG 6.1. This integrated strategy supports the nation's goals for sustainable development and creates a win-win situation for the economy and the environment.

## **Conclusion**

In conclusion, the deployment of MBGC technology makes a strong business and industry case while also fitting with SDG 6.1's objectives. Businesses may not only contribute to sustainable resource management but also position themselves as leaders in the shift to a more sustainable and economically resilient future by unlocking different revenue streams, generating cost reductions, and tapping into market potential.



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*Offers extensive support on **Energy** and **Water Cycle**,  
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## **Bibliography/Conclusion**

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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>

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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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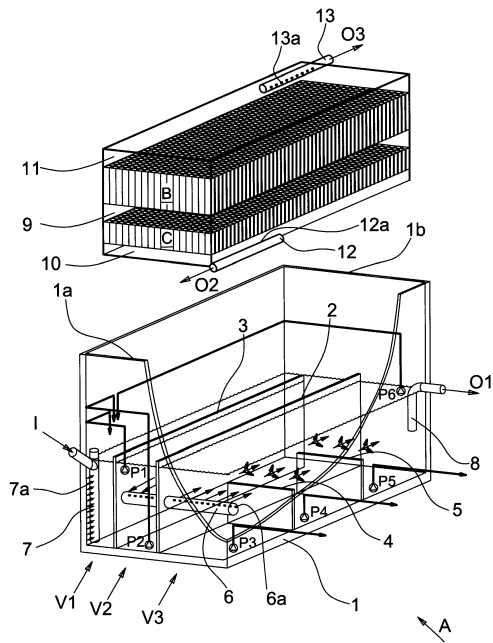


Fig. 1

## **IASR International Application Status Report**

Received at International Bureau: 02 February 2016  
(02.02.2016)

Information valid as of: 04 May 2016 (04.05.2016)

Report generated on: 29 September 2023 (29.09.2023)

(10) Publication number: (43) Publication date:  
(26) Publication language:

WO 2016/092582 16 June 2016 (16.06.2016)  
English (EN)

(21) Application number: (22) Filing date: (25)  
Filing language:

PCT/IT2015/000306 14 December 2015 (14.12.2015)  
Italian (IT)

(31) Priority number(s): (32) Priority date(s): (33)  
Priority status:

MI2014A002125 (IT)12 December 2014 (12.12.2014)  
Priority document received (in compliance with  
PCT Rule 17.1)

(51) International Patent Classification:

C12M 1/107 (2006.01); C12M 1/00 (2006.01); C12M  
1/02 (2006.01)

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(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).

International search report:

Received at International Bureau: 02 May 2016  
(02.05.2016) [EP]

## International Report on Patentability (IPRP) Chapter II of the PCT:

Not available

### (81) Designated States:

AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

European Patent Office (EPO) : AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR

African Intellectual Property Organization (OAPI) : BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG

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Eurasian Patent Organization (EAPO) : AM, AZ, BY, KG, KZ, RU, TJ, TM

#### 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

