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TELLING RWANDA'S STORY

MAGAZINE



Strawtec turns agricultural by-product into High-end Houses



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How Strawtec turns agricultural by-Product into High-end Houses

► When you see a bale of straw, it doesn't really capture your imagination. It might have some use in cattle rearing, you'd probably think, but that's about it. Mostly, it's a waste product.



Strawtec's factory at the Special Economic Zone



Construction material made from waste

Yet one German architect, Marcel Breuer, saw it differently. He saw the humble straw, and dreamt of construction. Strawtec, which has been operational in Rwanda since 2016, is today putting the ideas he developed into practice. With its technology which presses wheat and rice straw into strawboard panels to be used as walls, ceilings and floors, it constructs houses quicker, cheaper and more versatile than it can be done with conventional building materials, yet certainly not inferior in quality. That aspect of quality might sound a bit surprising, as Strawtec's CEO, Armin Burckhardt, admits.

"For a new product like Strawtec, it takes a while to get the awareness of the market," he says. "People are still sceptical because straw looks like grass so they think it's not durable or fire-resistant.

Basically, people have a lot of questions regarding the durability, which is a legitimate concern when you're buying a house. That's why we want to show people that we can build a real house." For this reason, Strawtec conceived Gisozi Heights, a high-end real-estate project which in its first phase will consist of 26 luxurious homes, which were developed in collaboration with Thoms Interior Design."

Two of them have already been finished (and the concrete foundations of the others have been laid), which is why Strawtec organised a grand inauguration mid-December to show that straw isn't a cheap or weak construction material. "We have different typologies of houses which can be customised," Burckhardt explains.

"For the outside, for example, we can add stone cladding, which is more expensive, but it's all the customer's choice." "With Gisozi Heights, we wanted to give Kigali a level of quality that it had not seen in the residential real estate development so far.



Strawtec's CEO Armin Burckhardt
one of the company's houses at Gisozi heights



Guests at the **inauguration of Gisozi Heights** in mid-december

We are targeting slightly below \$200,000 for a four-bedroom, three-bathroom house with housekeeper's quarters. But it all depends on the finishes, the customer's needs," he adds.

The project will be developed in three phases, and Strawtec expects to start the second one of 40 houses in the second half of next year. The estate will contain a mix of 3-storey duplex, 3-storey corner triplex and 2-storey centre triplex houses.

Affordable construction

This doesn't mean, however, that Strawtec is now abandoning the affordable construction market, in which it has already proven its mettle. At the recent Made in Rwanda expo, for example, the company built a small demonstration house in only seven days, much faster than any other construction company could achieve.

It earned Strawtec the award for the best exhibitor in construction, and the Private Sector Federation was so impressed that it kept the house on permanent display at its grounds, where anyone interested can visit it to see exactly what a compressed-straw house looks and feels like, and how well it withstands the elements.

"We can go for any market, from affordable to high-end, we can build houses for anybody," says CEO Burckhardt. For lower-end housing, Strawtec is talking to the government to see how it can help in the construction of grouped settlements.

"The government is targeting to build 380,000 affordable houses every year; this means there is a lot of demand and we want to be right there to play our part. The good thing about our technology is that it doesn't require much, so we are ready for settlements but we need the support of the government. We need a large project to show what we can do," Burckhardt says.



The interior of one of the houses at Gisozi Heights

And in addition to developing its own housing projects, Strawtec will continue to work with other developers.

Made in Rwanda

It is no surprise that Strawtec won the construction trophy at the Made in Rwanda expo, as much of the material used in their houses is locally sourced. The straw is bought from local wheat and rice farmers, for whom this would otherwise be waste, and who have been trained on how to properly process the straw.

The paint used in the houses is also purchased from local manufacturers, and even the steel Strawtec uses is adapted locally. "We import the steel coils, but they are manufactured according to our needs here," Burckhardt notes.

Another thing that makes Strawtec stand out is that construction is quicker and more versatile. As the panels are prefabricated at its factory in the Special Economic Zone, the actual construction of a house is much faster. And as is the case at Gisozi Heights, the standard designs of the houses can much easier be modified to a customer's preference. In the same way, when a house-owner wants to

do some major renovation or modification, or for instance change electric cabling inside a wall, it can easily be removed instead of having to be demolished as is the case with a brick wall. With all these advantages, there is little doubt that we will soon start to see more and more houses built with Strawtec's technology – both in the high-end and affordable markets.



A construction worker in training fixes a strawboard



Strawtec's model house built for the Made in Rwanda expo

Giving a big boost to the economy and housing market



Straw bales at the factory in the past, this was a waste product



Farmer training in straw at Musanze



Strawtec has trained both factory and construction workers to make and use its materials

It provides some 5,000 farming jobs, and has trained 1,200 farmers in straw handling, baling and storage. At its factory in the Special Economic Zone in Kigali, Strawtec employs around 100 workers, and the arrival of the company and its particular construction materials and technology in Rwanda has also resulted in the creation of specialised construction jobs.

Since 2015, Strawtec has teamed up with the Workforce Development Authority (WDA) to train nearly 1000 workers in construction techniques with its strawboards. The company pays an estimated \$3 million per year to construction workers. As a local manufacturer of construction materials, Strawtec also reduces the need for costly imports of products like cement and gypsum boards, and with time it could even become an exporter as it is the only producer of strawboards in the region.

Strawtec, being not just a producer of construction materials but also a housing developer, will also play an important role in tackling the housing deficit, particularly when it comes to affordable dwellings. That is more than necessary, as it has been estimated the Kigali alone is in need of 350,000 housing units in the next 10 years. Currently, one Strawtec production line delivers enough panels to build 2,000 dwelling units of 50 sqm each year, at a turnkey construction cost well below \$400 per square metre.

APART FROM INTRODUCING REVOLUTIONARY CONSTRUCTION TECHNOLOGY TO RWANDA, STRAWTEC ALSO HAS A SERIOUS IMPACT ON THE ECONOMY IN TERMS OF INCOME, THE BALANCE OF TRADE, AFFORDABLE HOUSING, SKILLS DEVELOPMENT AND JOB CREATION.

It starts of course with the suppliers of the company's main raw material, farmers who grow wheat and maize. For them, straw was a by-product for which they had no use, so they burned it.

Today, they earn extra income from the sale of their straw to Strawtec, and they have been trained on how to handle and process it. In this way, the company injects about \$1 million per year into the local straw supply chain.