

AFRICA'S FIRST GRID-CONNECTED BIOGAS PLANT POWERS UP

NAIVASHA, Kenya: A commercial farm in Kenya has become Africa's first electricity producer powered by biogas to sell surplus electricity to the national grid, cutting the carbon emissions associated with oil-powered generation. The Gorge Farm Energy Park in Naivasha produces 2 megawatts (MW) of electricity - more than enough to cultivate its 706 hectares of vegetables and flowers, and with sufficient surplus to meet the power needs of 5,000-6,000 rural homes.

The new plant generates not only electricity, but also heat for the farm's greenhouses, with fertilizer as a by-product. Gorge Farm, approximately 76 km northwest of Kenya's capital, Nairobi, is owned by the Vegpro Group, a leading East African exporter of fresh vegetables and its second largest exporter of roses. Biojoule Kenya, the independent power producer that operates the Gorge Farm plant, signed an agreement to sell electricity to Kenya Power & Lighting Company (KPLC) - the country's sole power distributor - in 2016.

Biojoule Kenya sells the power to Gorge Farm and to KPLC for \$0.10 per kilowatt hour (kWh). Diesel-generated power, by contrast, costs \$0.38 per kWh

to produce. "The Gorge Farm plant is physical proof that locally produced feedstock can be used to generate clean and cost-effective power for all Kenyans," said Mike Nolan, chief operating officer at Tropical Power, a developer of biogas and solar plants in Africa. It supplied engines for the plant in conjunction with Clarke Energy, a UK-based engine service provider.

Slashing diesel use

The plant produces biogas through anaerobic digestion, a process in which crop residue from the farm is digested by micro-organisms. The biogas produced is burned in two engines, producing both electricity and heat in a process called cogeneration. Producing the same amount of energy using diesel would require 5 million litres of fuel annually, Nolan explained, plus the extra fuel required to transport the diesel inland from the port of Mombasa.

Tropical Power says the biogas plant contributes to a 7,000-tonne reduction in carbon dioxide emissions per year, since the farm does not have to use electricity from the grid produced by oil-fired power

stations. Cogeneration currently makes up a tiny fraction of renewable power sources in Kenya, at 0.7 percent in 2015, according to the Kenya Electricity Generating Company (Kengen), the country's biggest power company. Geothermal was the biggest contributor to the electricity generation mix, with 49 percent, followed by hydropower at 44 percent. But some experts see room for considerable biogas expansion. "The potential for biogas generated electricity in Kenya is significant," said Helen Osiolo, a policy analyst at the Kenya Institute of Public Policy Research and Analysis. She believes biogas could generate between 29 and 131 MW of power, but says the biggest challenge is that the government will not pay enough for it.

"There are concerns that the tariff is too low to attract substantive investor interest," Osiolo said. In addition, agricultural and municipal waste is in demand for other uses such as fertilizer, which may limit the expansion of biogas generation. Even though anaerobic digestion of waste to produce biogas is an established technology in Europe and Asia, the concept is still new in Africa at large scale.

The technology had been deployed in 45 sites globally before debuting at the Gorge Farm plant.

Source of fertilizer

Osiolo says a further barrier to the expansion of the use of biogas is the perception that it requires a substantial amount of raw material in order to produce any meaningful energy output. However, according to Tropical Power, if organic material or crops from 1 percent of Kenya's landmass were deployed in anaerobic plants connected to the grid, it would produce the equivalent of the country's entire current effective installed electrical capacity of around 1,800 MW.

There are further benefits, according to Tropical Power's Nolan. The 50,000 tonnes of Gorge Farm's residue that can be used annually for biogas can produce 35,000 tonnes of a natural fertilizer by-product. That can be used to improve the crop yield of local farms, displacing synthetic fertilizer, he said. Nolan said that Tropical Power's experience with the grid operator has been straightforward. "Our site is located very close to the grid interconnection point and so engineering challenges were minimized," he said. —Reuters

SMOKING COSTS \$1TN, SOON TO KILL 8 MILLION A YEAR

GENEVA: Smoking costs the global economy more than \$1 trillion a year, and will kill one third more people by 2030 than it does now, according to a study by the World Health Organization and the US National Cancer Institute published yesterday. That cost far outweighs global revenues from tobacco taxes, which the WHO estimated at about \$269 billion in 2013-2014. "The number of tobacco-related deaths is projected to increase from about 6 million deaths annually to about 8 million annually by 2030, with more than 80 percent of these occurring in LMICs (low- and middle-income countries)," the study said.

Around 80 percent of smokers live in such countries, and although smoking prevalence was falling among the global population, the total number of smokers worldwide is rising, it said. Health experts say tobacco use is the single biggest preventable cause of death globally. "It is responsible for... likely over \$1 trillion in health care costs and lost productivity each year," said the study, peer-reviewed by more than 70 scientific experts.

The economic costs are expected to continue to rise, and although governments have the tools to reduce tobacco use and associated deaths, most have fallen far short of using those tools effectively, said the 688-page report. "Government fears

that tobacco control will have an adverse economic impact are not justified by the evidence. The science is clear; the time for action is now."

How to quit

Cheap and effective policies included hiking tobacco taxes and prices, comprehensive smoke-free policies, complete bans on tobacco company marketing, and prominent pictorial warning labels. Tobacco taxes could also be used to fund more expensive interventions such as anti-tobacco mass media campaigns and support for cessation services and treatments, it said. Governments spent less than \$1 billion on tobacco control in 2013-2014, according to a WHO estimate.

Tobacco regulation meanwhile is reaching a crunch point because of a trade dispute brought by Cuba, Indonesia, Honduras and Dominican Republic against Australia's stringent "plain packaging" laws, which enforce standardized designs on tobacco products and ban distinctive logos and colorful branding. The World Trade Organization is expected to rule on the complaint this year. Australia's policy is being closely watched by other countries that are considering similar policies, including Norway, Slovenia, Canada, Singapore, Belgium and South Africa, the study said. —AFP

ARMENIA ALARM AS ABORTIONS OF GIRLS SKEWING POPULATION

YEREVAN: Ani Kirakosyan says she is afraid of getting pregnant because if the ultrasound shows the fetus is a girl she will have to consider having an abortion. In ex-Soviet Armenia - where families traditionally prefer sons - women are often pressured to have sex-selective abortions to get rid of girl babies. "Relatives were consoling me when I gave birth to my first daughter," said Kirakosyan, a 27-year-old resident of the Armenian capital, Yerevan. "But when my second daughter was born, my mother-in-law told me that there must be no more girls, that I must finally bear my husband a son."

The majority-Christian Caucasus country of some three million has the third highest rate of abortions of female fetuses in the world, a figure that rose sharply after the breakup of the Soviet Union. The United Nations Population Fund (UNFPA) has reported that there were 114 boys born to 100 girls in 2012. The natural norm would be 102-106 male births to 100 female ones. Sex-discriminatory abortions become more prevalent with second and subsequent children, and account for around 1,400 unborn girls each year.

"In 10 to 20 years, we will face a shortage of women and - combined with a dramatic decline in fertility rates - that will lead to a serious demographic crisis," warned Garik Hayrapetyan, UNFPA Armenia's assistant representative. "By 2060, some 100,000 potential mothers will not have been born in Armenia. We will become a society of single men."

Armenia trails only China, which ended its one-child limit a year ago, and its Caucasus neighbour, majority-Muslim Azerbaijan, where 53 percent of newborn children were boys in the first quarter of 2016, according to offi-



YEREVAN: A picture taken on Dec 28, 2016 shows Garik Hayrapetyan, United Nations Population Fund (UNFPA) Armenia's assistant representative, speaking during an interview. —AFP

cial figures. Some analysts have linked the shared trend for sex-selective abortions in Armenia and Azerbaijan to their violent territorial dispute since 1994 over the Nagorno Karabakh region, suggesting it has promoted a sense of insecurity and a desire for male defenders. The UNFPA attributed Armenia's sex-discriminatory abortions to "patriarchal structures" and a trend for smaller families, as well as easy access to prenatal scans and abortions.

'More backstreet abortions'

Abortion is still the primary means of family planning in Armenia, as it was in the Soviet era, and it is available free of charge on the state health service. In mid-2016, the Armenian parliament adopted legislation

aimed at reversing the female feticide trend. The new measures include doctors compulsorily questioning women on their motives for wanting an abortion and refusing those driven by gender selection. The legislation also bars terminations after 12 weeks unless there is a risk to a woman's health, she was raped or is a single mother.

But Armenian women's rights groups have denounced the new legal measures, saying they will not work in a patriarchal society and will only lead to more illegal and unsafe abortions, endangering women's health. "If we forbid abortions, there will be more backstreet abortions and higher female mortality rates," Anush Poghosyan of the Yerevan-based Women's Resource Centre told

AFP. "We have to address the problem's origin - that is patriarchal mentality and widespread poverty - and not its consequence," she said. "If women and men were given equal opportunities, if a woman could be as successful as a man, as influential and as financially independent, no parent would distinguish between having a son or a daughter."

The UNFPA's Hayrapetyan said that recent media discussion of the problem has encouraged debate about the reasons behind cultural norms. "The paradox in Armenian society is that many people may not want having a daughter before she is born, but once she is here, a daughter is just as loved and cherished as a son," he said. —AFP

AUSTRALIA 'DINGO'S GOT MY BABY' FATHER DIES

SYDNEY: Michael Chamberlain, whose nine-week-old baby was snatched by a dingo from an Australian campground in a story made into an Oscar-nominated film starring Meryl Streep, has died, his family said yesterday. The 72-year-old, who fought for decades to prove a native wild dog took the infant and his wife did not kill her, passed away reportedly after suffering complications from acute leukemia. "Given Michael's death was unexpected, I would ask that the media please consider that Michael's wife and all of his children are deeply grieving and need some space," his now ex-wife Lindy Chamberlain-Creighton said in a statement.

Azaria disappeared from a tent near Uluru, or Ayers Rock, in 1980 in an incident that sparked decades of debate in Australia

over whether her mother Lindy, who was jailed for murder, was responsible for the death. She always insisted a dingo grabbed the baby, but her version was widely doubted by the Australian public until a coroner finally ruled in 2012 that a wild dog did take the child.

The convictions of Lindy Chamberlain and Michael, who was given a suspended sentence for being an accessory, were overturned in 1988 after the chance find of a piece of Azaria's clothing near a dingo lair. An inquest was subsequently reopened after new information from the Chamberlains' counsel about dingo attacks, including a nine-year-old boy who was killed by a wild dog in 2001 and a two-year-old girl who died in 2005. —AFP

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Kuwait Times
248 33 199





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