

saturday story

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Amid government's quest for rapid growth of the nation's cooking gas market, one of the challenges facing the growing market is the rate of cylinder explosions posing a threat to many homes, **TUNDE AJAJA** writes

Dangerous cylinders: NEEDLESS DEATHS IN NIGERIA'S POORLY REGULATED COOKING GAS SECTOR

At 16, 15 and 13 and 11 years respectively, Iboma, Mary, Chinemye and Uju Okoro have had to reason and act like individuals twice their ages in recent months.

Though teenage pupils with a promising future, what with their mother's excellent parenting and value for education despite not being educated herself, the ugly situation life has thrown at them within the past one year is such that adults would need extra strength to pull through.

Once full of life, envied among peers and mostly admired for their decency, virtue and respectfulness in their Ogbia, Lagos neighbourhood, their dreams of becoming 'big' in life were resounding and admirable, even as their innocence and tenderness unswayed.

But the sisters have lately become a shadow of themselves, and now in the process of abandoning their once outstanding lofty dreams.

The death of their mother, Nneka, a domestic gas cylinder explosion in their apartment about a year ago changed the course of their lives considerably.

Apart from dropping out of school and being unable to revive that prospect, their time in the city ended abruptly as they were forced to relocate to their home state, Abia State.

One of her neighbours who was privy to the explosion told our correspondent that on the day the incident happened, the three of her children that lived with her had left for school that morning when Nneka, a food vendor, was preparing the food she would sell that morning – the only business she used to fend for the family – when things took a different turn.

As she made to light the burner of her gas cooker, a loud bang from the cylinder was all she heard. The seconds and minutes that followed brought her enormous pains and anguish. By the time the initial dust finally settled, only a tiny thread separated Nneka

from death.

Though she showed early signs of coming out of the tragedy while in the hospital bed at the Burns and Trauma Centre, Gbagada, Lagos, on referral from a private hospital she was first rushed to, the young mother of four soon succumbed to the injuries and excruciating pains she suffered from the explosion. For her four young girls, life without a mother had begun so soon, especially as their parents had separated before the incident. And for neighbours and dozens of her customers, her loss would take a long time to heal.

"She had been complaining that her gas cylinder was giving her problems, so she bought another one not knowing the new one was equally bad," said one of the victim's neighbours who wouldn't disclose his name. "Apparently, it was leaking gradually and you know it's not everybody that has a strong sense of smell. She was trying to cook that morning when it exploded."

"She needed in severe pains as we rushed her to the hospital and at some point we felt she was already responding to treatment. But before we knew what was happening, she gave up the ghost."

When our correspondent visited her apartment in a tenement building in Ogbia during the week, the door to her room remained locked and had remained so since the incident.

When asked about her daughters, the deceased's neighbour said not long after the incident, the family

members came to take her children back to their state, now at the mercy of different family members.

"The church they attended with their mother wanted the girls to stay, they were ready to sponsor their education but the family deceived us and took them to the village. Their clothes and belongings are still in her room as I'm talking to you. And the girls are not out of school, in fact, two of them couldn't take their WASSCE this year because there was no money," he lamented.

Painful as it is, Nneka's death caused by gas cylinder explosion is no longer a peculiar case – in recent times – in Nigeria. Many Nigerians, including women and children, have lost their lives through similar explosions that now seem very common.

For example, just few weeks ago, on Ogumokun Street in Mushin area of Lagos, a seven-year-old girl and a stroke patient were severely burnt after a gas cylinder in the house exploded. The raging fire also razed two buildings.

As frightful as that was, another family of nine was wiped out by same gas cylinder explosion in Lagos sometime ago. The wife of the head of the family was said to be preparing lunch for the family when the cylinder exploded and razed the flat, ascribing to the death that took all of them away in a gruesome manner. The man was said to have died instantly while the eight others died one after the other in the hospital.

Among other incidents, three siblings, aged four, three and two, died tragically in Sara, Jigawa State, in 2018 when their gas cylinder exploded killing the three and leaving two other children in the house with varying degree of injuries.

The gradual incursion of a bitter-sweet alternative

Interestingly, in spite of the tragedies, Nigerians who can afford it seek the option of cooking gas as a laudable initiative.

In many homes, kerosene stoves, charcoal, electric cooker and biomass fuel like wood and sawdust, are the most popular means of cooking. But in recent years, the use of cooking gas has been on a steady increase. This, according to findings, is because it's faster, based on its heating value; cheaper given that the price is determined by market forces, though a large quantity of the gas is wasted through flaring; and also a cleaner source of energy, given that it is environmentally friendly.

The Programme Manager, National Electric Petroleum Gas Expansion Implementation Plan, Office of the Vice-President, Mr Dayo Adeshina, said in December 2017 that of about 180 million Nigerians, only 1.8 million had adopted the use of LPG in their homes, noting that the goal of the Federal Government was to see more Nigerians use the product.

About one year after, November 2018 specifically, the Nigeria Liquefied Petroleum Gas Association gave

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•Essien



•Adeshina

the figure as three million. The President, NLPGA, Nuhu Yakubu, said the LPG industry had grown by over 1,000 per cent between 2007 and 2017.

Also, few weeks ago, the Executive Secretary, Petroleum Products Pricing Regulatory Agency, Abdulkadir Sadiq, said the domestic utilisation of LPG rose from around 40,000 metric tonnes in January 2018 to 78,000MT in July 2019, representing about 95 per cent increase.

He said government's focus was five million metric tonnes cumulative target by 2025.

Meanwhile, according to the Nigerian National Petroleum Corporation, Nigeria has around 202 trillion cubic feet of proven gas reserves plus about 600 TCF unproven gas reserves.

But, the International Energy Agency in its World Energy Outlook 2018 gave the percentage of Nigerians using cooking gas as seven per cent in 2017 – an increase from the five per cent in 2010.

While this symbolises a subtle increase in the number of Nigerians using LPG, kerosene stoves and biomass are still in use in rural communities and some parts in cities, due largely to low purchasing power and illiteracy among other factors.

Nigeria's population is currently put at slightly above 200 million based on Worldometers analysis.

Thus, the Vice-President, Prof Yemi Osinbajo, in July at the inauguration of a LPG cylinder manufacturing plant built in Lagos by Techno Oil Limited, said government was targeting 33.3 million households as regard the use of LPG.

"When we came into office in 2015, one of the issues we identified was the abysmally low domestic utilisation of LPG in Nigeria," he added.

"Sub-standard cylinders causing deaths from gas explosions

Though government is focused on getting more Nigerians to use LPG, it is noteworthy that substandard cylinders and absence of corresponding enlightenment and sensitisation from relevant government agencies have contributed to the avoidable deaths.

In the first instance, the knowledge gap vis-à-vis the actions and inactions of users have been fueling gas explosions, killing people in droves. The situation raises the question of why cylinders explode like fireworks ignited on Christmas Eve.

The Executive Secretary, Nigerian Association of Liquefied Petroleum Gas, Bessy Essien, who spoke with Saturday PUNCH on the issue, identified expired, faulty cylinders and undetected leakages among other reasons.

Essien explained that cylinders have expiry dates and a lifespan of 15 years, during which they are to be maintained every five years.

He said, "That maintenance is what we call re-qualification. You take it to the company that has the facility to re-qualify it and you do that three times every five years. At the end of the 15 years, it means the cylinder has used up its lifespan and is supposed to be out of circulation. When a cylinder expires, its strength

reduces and anything can happen to it afterwards."

But from findings, there is no centre for the "re-qualification" in Nigeria. In fact, Adeshina alluded to this in 2017 when he said, "We (Nigeria) also need to have gas cylinder certification and re-certification centres."

"This implies that government is aware that there is need for such centres across the country, but has yet to provide any."

However, Essien noted that an agency like the Standards Organisation of Nigeria should set up such centres as the agency that sets the standard for cylinders, coupled with the fact that it is capital intensive and people would only visit once in five years, which could make it unattractive for private investors.

A former Director-General of the SON, Dr Joseph Odumodu, also said in April 2014 at an interactive session in Lagos that, "There is a standard in Nigeria, NIS 587, that specifies that every cylinder must go through a requalification every five years. That also provides for a 15-year life cycle."

Meanwhile, findings show that many users do not even know cylinders have expiry dates.

But apart from expired cylinders, Essien said leakage on the cylinder or the valve is another reason for the explosions. "If the cylinder is leaky, you change it and if the valve is leaky, you change it before you refill," he said. "When that small rubber in the valve is weak, it could cause leakage and trigger an explosion and that rubber is about N100. Some gas plants would even change it for free."

"However, people can detect leakages by putting soapy water on top of the cylinder and if it forms bubble anywhere, it means there is leakage and they should act on it immediately. People should know these things because these are some of the things that cause explosion."

According to Essien, another reason for the explosions is the proliferation of substandard cylinders in the country.

He said, "There is a standard metal for producing gas cylinders and it is expensive because of the high pressure that gas has. But in Nigeria, some people fabricate cylinders using low quality metal plates. They paint it and put it in the market. Such cylinders can't stand that pressure and so they burst."

He added that welding faulty cylinders is another reason some cylinders explode. "People should either throw away a bad cylinder or consult certified welders from the Department of Petroleum Resources. They are the people who know how to weld any product that has to do with oil and gas."

Also speaking on the explosions that are claiming lives, Chairman, Safety and Technical Committee, NLPGA, Felix Ekwandoye, had in an interview with Sunday PUNCH said people using burners that are not authentic should desist from opening the gas flow before igniting the fire.

"Never open the flow of gas then light a spark. This is likely to result in an excess amount of fuel in the air, which then leads to an uncontrolled fire, or worse, an explosion," he added.

On requalification, he said, "Yes, it is true there are no cylinder requalification centres in the country today," adding that such a cylinder may become dangerous if left unattended to after the requalification was due.

He further said the cylinders should always be kept in a well ventilated area.

Ekwandoye advised that in cases where people cannot put their cylinder in the balcony, they should keep them in a well ventilated kitchen with open

SAFETY/TIPS ON USING CYLINDERS

- Do not use phones beside gas cylinder
 - Do not touch your light switch if you suspect leakage
 - Always keep your cylinder outside
 - Put it in a well-ventilated kitchen/apartment
 - Install a gas leakage detector; it's cheap
 - Have fire extinguisher ready
 - Do not use expired cylinders
 - Always pay attention to leakage
 - Be cautious when refilling cylinders
 - Follow the rules at gas plants or retail stores
- Source: NALPGA, ALPGA and LPGAAN

windows.

He cautioned that any time there is a leak and people turn on light switch or matches or use mobile phones, it could trigger an explosion.

From findings, therefore, substandard cylinders is part of the reasons for the explosions.

Age-old policy, same problem

It is believed that if the regulatory agency saddled with the responsibility of ensuring standards had been efficient, lives would have been saved.

In an attempt to align with international best practices and given the prevalence of substandard cylinders in circulation, Odumodu promised in 2014 that as from June of that year, consumers would no longer own cylinders.

He said, "In the new system, individuals will no longer own cylinders. The cylinders will be owned by marketes who have already been licensed by Department of Petroleum Resources. The cylinders will be differentiated in colours and will have different codes. The reason for this is that we need to hold somebody responsible any time there is a challenge."

"The marketes will have the responsibility for re-certification or what we call technical requalification of cylinders. For instance, if a consumer has a cylinder that has expired, when he takes the cylinder for refilling, the marketer will take it through a process of requalification, if it fails, the marketer will withdraw the cylinder, and give the customer a new one. The customer has to make a token deposit."

But five years after, the Federal Government still rehash the policy of removing ownership of cylinders from consumers.

Individuals own cylinders in Nigeria, whether standard or expired, while the proliferation of the substandard cylinders continues unabated. Sadly, lives have been lost to the problem the proposed policy sought to address.

Interestingly, the SON in 2012 raised the alarm over the number of substandard cylinders in circulation, saying "it is a disaster waiting to happen."

In 2013, the then DG said a situation whereby cylinders were imported or produced in Nigeria and sold to users without any programme for requalification and/or maintenance was no longer acceptable. He said the requalification programme was to get rid of most of the sub-standard cylinders from circulation and lead to the scrapping of old cylinders.

But till now, many Nigerians who use cooking gas buy them from roadside retailers lacking such requalification programme and many of such cylinders are freely in circulation.

Narrating his experience about the substandard cylinders, President, Liquefied Petroleum Gas Retailers Association of Nigeria, Mr Chika Umudu, said he once witnessed the fabrication of a substandard cylinder, noting that it was unthinkable that welders acquire just any plate, bend and weld them for sale to unsuspecting members of the public.

He said, "Some of these quicks produce cylinders with any material available to them. There are many 3kg, 5kg and 6kg cylinders produced by people who know little or nothing about cylinder production or its safety concerns."

"In fact, I was shocked to see some 50kg cylinders produced in this manner in Jos, Plateau State, recently. An unskilled welder would just acquire some plates, bend them, weld them and start selling to unsuspecting members of the public."

Umudu added that there were many outdated, substandard and illegally refurbished cylinders in circulation even though to individual or organisation conducted any research to arrive at a precise figure.

From findings, the market is still saturated with all kinds of cylinders – the type that killed Nneka – and nothing concrete seems to have been done by the regulatory agencies.

A domestic LPG user, Emmanuel Ayebola, said he hoped that government would introduce genuine regulations to protect Nigerians from avoidable deaths by having a semblance of what obtains in other countries like China, Brazil, Hong Kong, Turkey and others, where dealers own cylinders, enabling government to effectively monitor the validity of cylinders.

Needless deaths

Given the non-implementation of the policy by the SON, coupled with the fact that most of the safety precautions for cooking gas usage are not known to many users across the country, the risk of explosions appears to be high.

In July 2016, for example, a woman lost her husband and two children – 11 and two years old –

while 10 others were injured after a 5kg gas cylinder exploded at a residential building on a street of Benin-Agbor Express Road, Edo State. Overall, four families were affected by the incident.

Though fire incidents resulting from gas explosions transcend domestic cases as lives had been lost to incidents at gas plants, deaths from domestic gas cylinder explosion are always heartbreaking.

In another incident, three persons were killed at the Central Bank of Nigeria in Cross River State sometime ago when a gas cylinder exploded in one of the units in the building. Apart from those who died, about 20 workers in the bank were injured in the explosion.

In September 2017 two sisters were severely burnt in a domestic gas explosion in Abuja. They were a guy eight before they finally passed on.

Also, a female student of Benue State School of Nursing and Midwifery is lucky to be alive after her cylinder exploded while she was preparing lunch in the hostel. She sustained serious injuries from head to abdomen. At Ikom, Cross River State, a man lost his wife and one of his children while he and three other children sustained severe injuries in a cooking gas explosion that rocked their compound in July 2017. Such is the tragic mark that gas cylinder explosions has left on families.

Identifying an expired cylinder

Experts noted that users could check the expiry dates of gas cylinders themselves. According to a post on Health Safety and Environment Watch, the expiry date of a cylinder is written on the inner part of one of the metal strips serving as the handle of the cylinder. The date comes as an alphabet (from A to D) and a number.

It explained that A indicates January to March; B indicates April to June; C indicates July to September while D indicates October to December. Thus, while the alphabet represents the month of expiry, the number that follows indicates the year. An example in C15 implies that the cylinder has since expired in July 2015.

Pathway to safe usage

Speaking on low sensitisation, Essien said government agencies need to do more, adding that, "Some of the government officials in charge of enforcing regulations only do so when there is something in it for them. But in our association, we come together to help people because government cannot do everything."

"Our association does a lot in terms of sensitisation, including sharing files, every year. We even gave out up to about 7,000 free cylinders in different states and we demonstrated to people how to use them."

On staying safe, Essien advised that apart from having active fire extinguishers, every home should have gas leakage detectors. "It has an alarm and once it detects gas leakage, it starts blaring, which alerts you to the leakage," he added.

Findings by our correspondent showed that a detector cost between N4,500 and N25,000 upwards.

Essien stressed that awareness and campaigns on safe ways of using cylinders should be continuous to save lives.

On his part, Umudu said as explosions increased within the value chain, he raised the alarm that if nothing was done early enough the situation would become unmanageable as the consumption of LP Gas increased in the country. He added, "What is happening now is the beginning but it is not too late to put a stop to it."

We can't tackle challenges alone – SON

Speaking on the explosions and why the agency has yet to implement its policy on reducing the explosions, the spokesperson for the SON, Mr Bola Fasina, said the organisation could not address the issue alone, noting that a committee was currently working on the issue.

He said, "There was an inter-ministerial committee meeting then where it was agreed that individuals should not own cylinders. The former DG said it in the context of the meeting, not SON's directive. SON alone cannot do it; it will involve the DPR. What we can do is to insist on the standard of the cylinders that are either locally manufactured or imported. That is what is strictly under SON's purview."

On the need for sensitisation, he said, "Awareness would involve DPR, owners of the cylinders and those dealing in the products out there."

"We are already working with others to come out with some publicly materials to guide users. It cannot be done by SON alone; it's a collective responsibility for everybody in the value chain," he added.

Special features

Dangerous cylinders: Needless deaths in Nigeria's poorly regulated cooking gas sector (II)

In this second part to his report, TUNDE AJAJA highlights critical factors in the efforts to eradicate serial explosions in the cooking gas sector and the way out

BARELY two weeks after *Saturday PUNCH* published a report that detailed how the proliferation of expired and sub-standard cylinders in circulation across Nigeria and poor safety practices is leading to explosions that are claiming lives in droves, another explosion in Ajegunle, Apapa area of Lagos, on November 28 claimed the lives of two children.

The incident did not only snuff life out of those minors, it also left about 23 persons with varying degrees of burns, accompanied by the usual, unmatched excruciating pains, while several properties worth millions of naira were destroyed in the process.

Seeing the victims would make anyone cry, given how the explosion turned their bodies to shreds and they were constrained to wear bandage and plasters like a piece of overall clothing. It was somewhat a harvest of tears at the scene of the incident. Meanwhile, a gas leakage led to the incident.

Sadly, this buttressed our correspondent's earlier report, titled, 'Dangerous cylinders: Needless deaths in Nigeria's poorly regulated cooking gas sector,' published on November 16, 2019.

The report had pointed out that poor safety practices and failure of the regulatory body, especially the Standards Organisation of Nigeria, to enforce its own safety rules and policy statements have brought about the disaster it was aiming to address.

Meanwhile, less than two weeks after our correspondent's first report, the SON destroyed over 5,000 substandard LPG gas cylinders worth ₦51.3m in Lagos, which it said were seized by the organisation during the first quarter of 2019 alone.

The destroyed cylinders, which were said to have been imported by different persons, were in different sizes; 50kg, 12.5kg, 6kg and 3kg and had branded names such as Anadolugaz, Royaltek, Setro, Repsol and Safic.

As pointed out in the earlier report that a number of locally-made and imported cylinders are substandard, the SON Director-General, Mr Osita Aboloma, who was represented by the organisation's Director, Inspectorate and Compliance, Mr Obiora Manafa, said at the event that some of the brand new cylinders destroyed failed the agency's mandatory test while others were not manufactured according to the expected specifications.

Aboloma added, "We are here today to destroy all these cylinders because we cannot allow them to get into the market. They are threats to safety. They are threats to human lives and property of Nigerians. So, because we cannot burn them, we are cutting them and will thereafter send them to steel plants where they will be recycled for the manufacturing of other products."

But, less than one week after the exercise, there was another gas cylinder explosion at Four Points by Sheraton Hotel in Victoria Island, Lagos, which left three persons injured while cars



•A victim of a gas cylinder explosion in Ajegunle, Lagos. Photo: File

and nearby properties were vandalised.

This reflects how much substandard cylinders have penetrated the market as the incident was caused by the explosion of a gas cylinder being used by some welders working on the premises of the hotel.

The Director-General, Lagos State Emergency Management Agency, Femi Oke-Osanyintolu had said, "A total of three persons sustained severe injuries as a result of the blast and two have been rushed to Lagos Island General hospital for intensive care while one was rushed to a nearby private hospital."

It is worthy of note that in Nigeria in recent years, Liquefied Petroleum Gas is almost becoming the topmost petroleum product, among other fuels, whose usage is causing more deaths, and in the most gruesome way too, owing largely to regulation issues that has allowed the spread of substandard and expired cylinders and poor safety practices on account of low public sensitisation by concerned agencies.

But, apart from bad cylinders that cause the explosions, one other major source of death in the LPG sector is the siting of gas plants or gas refill outlets in unauthorised places, especially in residential areas.

The Department of Petroleum Resources, the agency of government that regulates gas activities and ensures compliance with Health Safety and Environment standards in the sector,

had on several occasions warned against the siting of gas stations in residential areas and unauthorised places.

For example, in December 2019 alone, 40 illegal gas plants were sealed in Akwa Ibom State alone by the DPR over unsafe practices. Many others in other states had equally been sealed.

The Operations Controller of DPR in the state, Mr Tamunoiminabo Kingsley-Sundaye, said that people who want to do retail should look for shops that meet DPR's requirements, get cylinders that are acceptable by the department and that the department would have to inspect it.

But, till date, many more gas refill outlets are coming up, which has contributed immensely to the many deaths from gas explosions in gas stations while the properties destroyed due to this would be well in millions of naira.

For example, the recent explosion in Ajegunle, which happened on Aduke Street, Old Ojo Road, was at a gas refill outlet in a residential area.

Visit by *Saturday PUNCH* to the scene of the explosion at Ajegunle showed that the store where incident took place was in the middle of residential buildings in a densely populated area, which made the impact on nearby buildings and injured persons to be worse.

And throughout the country, more gas refill stations seem to be coming up in residential areas despite the warning by the DPR and the closure of some outlets.

One of the survivors in the Ajegunle explosion, Destiny Wanikefe, told *The PUNCH* that the government needs to check the siting of gas refill outlets in residential areas.

Wanikefe also sustained injuries in the incident and had an instant bone dislocation as he tried to remove his clothes after sustaining some burns.

In a later interview with *The PUNCH*, he said "People are desperate to make money and that is why they open gas stations in residential areas. And government is at fault for allowing people to run gas depots in residential areas. It is very wrong. We have a government; is this government not sensitive enough to know what is happening? Is this government not after the safety of the people?"

"Government should stop every gas station operating in residential areas. Even for the

ones located along the roads are wrong. You see houses close to gas stations. It is wrong. Why do we have such situations in Nigeria? The system is not just working. It is like the government doesn't consider safety measures. Stopping the sale of gas in residential areas is the first step towards curbing incidents like this."

SON devises new solution

But in its new approach to solving the gas cylinder explosions across the country, the SON had set up a committee, headed by Ms Nwaoma Oluji, to look into the issue and proffer solutions.

In an interview with our correspondent on Monday, she said all stakeholders had to be involved in the efforts to promote safety and reduce the proliferation of substandard cylinders in the sector.

She said, "Both regulators and the operators have to be involved so we can be in tune with what obtains in other climes and ensure the safety of lives. In Nigeria, the lifespan of a gas cylinder is 15 years and after that you scrap it. Within the 15 years, you are supposed to do requalification every five years, but for now we have not been doing requalification because there are no test centres."

When asked why the SON could not provide the test centres since there is none in the country so far, she said the duty of the organisation was to regulate while the private sector should provide the centres.

"People are expecting that SON should set up the test centres, but it's for the private sectors while SON regulates. SON has already set the standards for setting up the centres vis-à-vis the requalification and reconditioning of cylinders," she said.

She added, "We are looking at the enforcement of the 15 years, which can only be done when you want to fill your cylinder and the plant operator would decline if the cylinder has expired."

"But at the moment, if one marketer says no, people would simply go to the next one."

When asked about the solution, she said there would be increased awareness. "With awareness, more people are now using gas for cooking, and now they are becoming aware of the quality of the cylinders that they purchase. People won't just buy any cylinder now."

In line with the findings of our correspondent, Oluji noted that there are artisans or fabricators that weld joints with metals or at the bottom where it would not be visible so as to salvage poor cylinders, which, according to her, is not good.

"But, if the consumer is aware of safety measures, it would be better and SON is monitoring the quality of cylinders imported," she added.

Worried by the explosion, she pointed out that the SON had in November launched a safety audit checklist that covers all the value chain and is self-regulatory.

Meanwhile, when asked about the update on the initial idea by the SON that individuals would no longer own cylinders but only marketers would, she said the issue was still in consideration, but that in the interim, the organisation was looking at how the cylinders could be maintained.

She noted that a major challenge so far was that when consumers buy cylinders from marketers, they often go to other gas stations to refill, which, according to her, makes the marketers to feel they are not maximising their profit.

She added, "It's still on the table and we are discussing it. You know it's been a long standing issue. So, overall, we are monitoring import, we are increasing awareness and we are monitoring safety audit checks, which cuts across the value chain, which was drawn by the joint working committee."

Meanwhile, the DPR had also said it would not relent in its enforcement of safety standards in the LPG sector.



•Some cylinders (left) and a burnt cylinder after an explosion. Photo: File