Introduction

Conflicts over the exploitation, utilisation and management of economic benefits of natural resources in Nigeria, especially in the Niger Delta area, have led to many negative outcomes. In Nigeria, the foremost natural resource that has created contestations, disputes or disagreements over access is crude oil. It contributes over 90% of the foreign exchange earnings of Nigeria and about 80% of capital and recurrent expenditure (PricewaterhouseCoopers 2022). The production of crude oil in Nigeria has always been characterised by conflicts, with scholars documenting and analysing how these confrontations have affected host communities, multinational corporations and the state. For example, Obi (2010) studied how oil extraction and the dispossession of the people of the Niger Delta resulted in violence – clashes between rival armed groups, militias and government troops. There were killings, oil pipelines and installations sabotaged, a thriving
transnational trade in stolen oil, and illegal oil bunkering. Frynas (2000) also examined the consequences of foreign oil production in rural communities of the Niger Delta, providing a comprehensive overview of the environmental and social impact of oil operations which were little understood. He argued that the country’s environmental and land laws, court system and law enforcement methods were biased in favour of multinational oil corporations. This resulted in multiple conflicts and litigation by aggrieved individuals and communities. Several studies have thus focused on the nature and negative outcomes of the conflict over resources in the Niger Delta (Bayramov 2018; Onuh et al. 2021). While some attention has been given to some positive aspects of this conflict, the link between conflicts in the region and the development of innovative strategies for petroleum refining by indigenous people has not been fully explored.

This briefing therefore examines how conflicts over the exploitation and management of natural resources in the Niger Delta have contributed to innovative strategies for petroleum refining and what lessons can be learnt from this. These issues were examined using primary data from key informant interviews. Snowballing sampling was used to identify respondents from Delta and Bayelsa states in the Niger Delta who were innovators during conflict. The interviews took place at a time when respondents’ innovation activities were considered illegal by the Nigeria state and as such they are not identified here. Secondary data from published material were used to complement findings from the interviews.

**Violent conflict in the Niger Delta**

Violent conflict in the Niger Delta has a long history, with events before political independence in 1960 pointing towards future challenges. For example, the fear of domination and marginalisation expressed by minority groups such as the Ijaw, Urhobo and Itsekiri led to the establishment of the Willink Commission by the erstwhile colonial government. The Commission was expected to recommend strategies for allaying such fears and for the development of the Niger Delta. Its report in 1958 (Willink 1958) recommended that the Niger Delta should be made a special area for development, leading the federal government to establish the Niger Delta Development Board (NDDB) in 1960 to cater for the area’s unique development needs (Ikporukpo 1981, 119–129). After 1960, some cases of violent conflicts were recorded in the Niger Delta, before the situation became volatile in the 1990s and early 2000s (Ukeje 2004). Conflict in the area became more extensive and more widely publicised with the formation of the Movement for the Survival of the Ogoni People (MOSOP) in 1990. Of particular importance was the role played by its charismatic leader, Ken Saro-Wiwa, who was later executed by the military regime in 1995. In 1997, violent conflict escalated and reached an unprecedented intensity. Major outbreaks of violence occurred in May 1997, June 1999 and February 2003, involving Urhobo, Itsekiri and Ijaw ethnic groups in Warri, Delta State. Violent struggles, comprising intercommunal violence, increasing clashes between armed militant groups and government security forces, and attacks against transnational oil companies, intensified. At the end of 1999, following the kidnapping and killing of 12 police officers in Odi, Bayelsa State, government security forces destroyed the town in which the perpetrators were suspected to live and killed many people (Hazen and Horner 2007, 15). According to the International Crisis Group (2006, 6), ‘estimates … ranged from the government’s 23 dead to a list of 2,483 dead and
missing reportedly compiled by local activist groups’. Banjo (2008, 57) reports that in clashes between Itsekiri and Urhobo ethnic groups in February 2003 alone ‘an estimated 400 people’ were killed (Mähler 2010). To reduce the scale of the conflict in the region, the federal government introduced an amnesty programme for all militants with a view to disarming and rehabilitating them, which ran from 6 August 2009 to 4 October 2009. The implementation of this programme helped to bring relative peace to the Niger Delta.

**Conflict and innovative strategies for petroleum refining**

One of the positive developments that emerged during the Niger Delta resource conflicts is the locally contextualised innovative strategy for petroleum refining. This is typically called artisanal refining, referring to the small-scale distillation of crude oil through the application of heat to produce petroleum products such as diesel and kerosene. The process involves traditional knowledge and skills with little reliance on advanced technology. Artisanal refineries use a simplified version of fractional distillation. This involves cooking barrels of crude oil with firewood and other mixtures in sealed metal tanks. The crude then evaporates and passes through two parallel pipes joined to the tank through a cooling water bath usually constructed with wood. The quality of the product obtained varies widely. To address this, artisanal refineries sometimes purify diesel by mixing it with kerosene to reach a refinery standard. Artisanal refineries rely on illegal oil bunkering (the theft of crude oil) for supplies of crude petroleum, their primary raw material (Naanen and Tolani 2014).

Artisanal refining of petroleum in the Niger Delta originated, according to key informants in the Burutu and Ughelli South areas of Delta State, and the Southern Ijaw area in Bayelsa State, because of the negative environmental impacts of oil production by multinational corporations, whose activities resulted in the loss of livelihood support and violent conflicts. Respondents asserted that the origin of the innovative technology for artisanal refining can be traced to producers of a local dry gin popularly called *ogogoro*, who modified the equipment and methods used to produce the gin to the refining of crude oil. The local gin producers abandoned their trade for crude oil refining because of scarcity of raffia palm, which was the source of raw material for the gin. This scarcity was caused by oil spillages. Environmental pollution has also destroyed farmlands, crops and fish supplies which were the major livelihood sources for the local inhabitants. These challenges fuelled violent conflicts. During a period of intense conflict, artisanal refining of crude oil became an alternative source of employment and livelihood. Key informants in the Patani area of Delta mentioned that the relative financial success of the artisanal refiners encouraged other people, whose livelihoods have been adversely affected, especially youths, to learn the refining process and engage in the new business. Although men dominated artisanal refining, young women are also involved. They also received support from community leaders and some political elites.

The refineries are non-automated and labour intensive, but simple and inexpensive to establish. Their relatively low initial investment cost allows indigenous private investors to readily enter the refining business (Asuru and Amadi 2016). Some key informants in Ughelli South noted that, in addition to the negative effects of oil exploitation by multinational corporations on livelihood support systems driving artisanal refining, some people engaged in the business with the desire to serve the needs of people living in the riverine
areas. This is because of the scarcity of refined products in such areas and people’s inability to travel to the city to buy refined petroleum products during periods of violent conflict. Artisanal refineries respond to the perennial scarcity of petrol, diesel and kerosene which are used for vehicles, producing electricity and domestic cooking (Omoweh 1995).

All the key informants indicated that in parts of the Niger Delta where petroleum products cannot be easily obtained, products from illegal refineries have become indispensable. Established marketers of petroleum products are also known to patronise artisanal refiners. Local refining of petroleum using artisanal refining methods has increased in the past few years and serves as steady sources of refined products like kerosene for communities in the riverine areas. The refined products are also sold in commercial quantities to other parts of Nigeria, thus providing sources of income and youth employment in rural areas of the Niger Delta. Key informants generally espoused the view that artisanal refining of petroleum fills an economic vacuum in rural communities.

The natural resource conflicts in the Niger Delta contributed to the development of locally contextualised solutions to the problem of petroleum refining. Although the activities of these refineries have been viewed as illegal over the years and attracted violent responses from the Nigerian security agencies, they seem to have contributed positively to livelihoods in the Niger Delta. Some respondents stated that the artisanal refining of crude oil helps to address some of the root causes of violent conflicts in the Niger Delta, such as unemployment and rising poverty. It also helps people to have adequate financial resources to feed their families and send their children to good schools. In Burutu area of Delta State, some respondents stated that the income from artisanal refining helped promote community development projects. The positive effects of artisanal refining have led some to suggest that it be legalised in the Niger Delta (Angela et al. 2019; Aborisade 2023).

The Nigerian government’s response to artisanal refining of crude oil

The government views artisanal refining of crude oil as illegal and its operators as criminals. When artisanal refiners are caught by the government security agencies, their equipment and products are often burnt. Failing to harness the innovative strategy for petroleum refining therefore also encourages further environmental pollution of the area. The federal government uses the Joint Task Force to fight oil theft and the proliferation of artisanal refineries. This is not an effective long-term strategy. After artisanal refineries and their products are destroyed by the Joint Task Force, camp owners quickly rebuild their operations in new locations. Some respondents stated that the government’s actions did not stop the business but rather led to efforts to improve the local technology to reduce smoke emissions. This is because the original approach used by the artisanal refiners generated excessive smoke which made their detection easier.

Conclusion

This briefing has demonstrated that natural resource conflicts do not only produce negative effects: there are also positive dimensions. For Nigeria’s Niger Delta, natural resource
conflicts and their associated challenges encouraged the indigenous population to develop a locally contextualised solution to the problem of petroleum refining. Instead of suppressing such innovative indigenous technology, efforts should be made to recognise, harness and improve it. Harnessing home-grown innovation can contribute to sustainable development. This requires promoting research and development, including investments by the government, business organisations and universities (Walshok 1997). Various institutions in the Niger Delta specialising in petroleum-related activities have important roles in future research and development. Key informants indicated that the artisanal refinery operators have also begun supporting research and development. They have learned new ways of minimising pollution during the refining process. One such method involves the use of gas cookers instead of wasted crude or wood to heat the crude oil during the process.

It is imperative that organisations both within and outside Nigeria assist researchers who are interested in finding ways to improve local technologies for petroleum refining. Lessons can be learned from US research universities that have been a model of innovation throughout the world, using available local resources and initiatives to address complex economic, social, scientific and technological problems (Cole 2010). In the 1970s, China and India funded research for innovative solutions and became economic superpowers. They looked inwards to find solutions to their challenges and implemented those that they believed would work best given their circumstances. They developed their own technologies and constructed production facilities that improved over time. These countries now provide their indigenous technological needs and export technologies and industrial products. The improvement of the indigenous technology for petroleum refining through research and development will likewise facilitate technological development in Nigeria.

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