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Circularity as a New Imperative in Plastics Waste Management in Kenya

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*Circular Economy,
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Plastic Pollution,
Adaptive Management,
Self-Regulation*

Plastics are a major source of pollution in Kenya and present a wicked problem for the country, drawing in several players; the national and county governments, private sector, NGOs and street families each with their own agenda. The government has taken steps to control the plastic pollution problem through recent policy action including a ban on single use plastics and development of regulations. Producers have responded spontaneously through formation of collective Producer Responsibility Organizations to handle delegated extended responsibility over products they introduce into the market throughout the life cycle including the post consumption phase. The objective of the study is to analyse if the Responsibility Organizations are adequately designed to deliver on sustainability objectives in the plastics waste value chains. A case study approach was adopted using a review of secondary data. It is a finding of this study that two voluntary Producer Responsibility Organizations are operational in the plastics sector with commitments towards sustainability that work through member contributions and incentives to plastics waste collectors. A number of enabling policies and legislation are still in Draft form and need to be finalized. Comprehensive data on plastic production remains a challenge to assess the effect of the extended responsibility efforts so far. The plastics waste sector offers opportunity for employment for marginalized groups. Adaptive management practice offers opportunity for self-regulation by plastic producers with minimal government policing. The environmental, social, and governance aspects of the Producer Responsibility Organizations need to be strengthened.

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INTRODUCTION

The daily waste generation in Nairobi was estimated at 2,400 tons with a per capita rate of 0.75 kg per day (Soezer, n.d.). Of this quantity 62% ends up in illegal dumpsites with less than 10 % collected and recycled (Soezer, n.d.). The average collection of waste for disposal was estimated at about 60%, the remaining 40% being uncollected or disposed of at illegal dumpsites, openly burnt or swept into storm drains. Waste composition in Nairobi is mostly food waste (above 60 % in high- and middle-income areas), paper at around 11% and plastics at around 10 % (JICA, 2010).

Plastics pollution is a worldwide problem that affects peoples livelihoods food productivity and social well-being (UNEP, n.d.-a). Approximately 23 million tonnes find their way into aquatic and marine ecosystems annually (UNEP, n.d.-a). The plastics problem is driven by a number of factors including their wide application; population growth; urbanization; and inadequate infrastructure for management of plastic waste (Kibria et al., 2023). At the United Nations Environmental Assembly in 2022 in Nairobi 175 nations committed to develop a legally binding pact on plastics by 2024 to reduce both plastic pollution and the attendant Greenhouse Gas (GHG) emissions that takes a holistic life cycle approach to plastics (UNEP, n.d.-b). An Intergovernmental Negotiation Committee has already been established to this end (UNEP, n.d.-b)

The Cabinet Secretary, Ministry of Environment and Forestry through Gazette Notice Nos. 2334 dated 28th February, 2017(RoK, 2017) banned the use, importation and manufacture of plastic bags used for commercial and household packaging. The Ban took effect on the 28th of August 2017.

The ban was aimed at curbing the rampant plastic pollution that had littered the landscape, clogged drainage channels, and further became a serious source of marine and fresh water pollution.

Noting that a total ban on plastic packaging was technically not feasible, the country considered technical grounds for exempting users/importers and manufacturers of plastic packaging in a number of critical areas including packaging for hygiene and public health; for security reasons; For maintenance of product integrity during; the plastic packaging being an industry standard for which no other feasible non-plastic packaging option exists; and for water proofing among others. A key consideration was for enterprises to minimize over- packaging. Entities should demonstrate mechanisms for handling the resultant waste Efforts are underway to address other categories of plastics

In order to ensure an orderly implementation of the plastics and particular and waste in general the government enacted the requisite legislation: The Sustainable Waste Management Act (RoK, 2022) that places duty of care, by way of extended producer responsibility, on business enterprises based on products they place on the Kenyan market and the attendant waste. The act defines a producer as '*an entity that introduces goods, products, and packaging into the country*'(RoK, 2022). The Extended Producer Responsibility Regulations (*Draft*) provide, *inter alia*, for producers to bear extended responsibility for their products; all PROS to be registered; and members to be responsible for the governance of their PROs (RoK, 2020). The Country has also developed a Marine Litter Action Plan (RoK, n.d.) in order to stem waste pollution in Kenya's marine ecosystem whilst emphasizing the need for cooperative frameworks on the issue.

One of the current global principles in waste management is that of Circular Economy (CE) which emphasizes a move away from linearity and advocates for cradle-to cradle actions; waste elimination; and regeneration of nature (Ellen MacArthur Foundation, n.d.). This approach basically aims at keeping materials in circulation for as long as possible and reduce the extraction of virgin materials.

Self-regulation entails industries voluntarily setting rules and standards (Gunningham & Rees, 1997). Self-regulation can take many forms and be by way of individual entities or a collective (Gunningham & Rees, 1997) Self-regulation can complement strong policy environments. It has been shown to be effective and efficient and seen a surge in self-regulatory regimes in many parts of the advanced world (Gunningham & Rees, 1997) and minimizes use of the traditional ‘carrot- and-stick’ approaches by government agencies which have become increasingly less attractive and are wont to breed hostilities (Gunningham & Rees, 1997). Extended Producer Responsibility (EPR) is where the producer has obligations for a product to the post-consumer stage (OECD, n.d.-a). Extended Producer Responsibility regulations are in effect in 27 EU member states (Shi et al., 2023). A producer responsibility organization (PRO) on the other hand is the entity delegated by the producer to fulfil their EPR obligations (Enter Climate, n.d.). So EPR obligations and PROs offer opportunity for enterprises to self- regulate

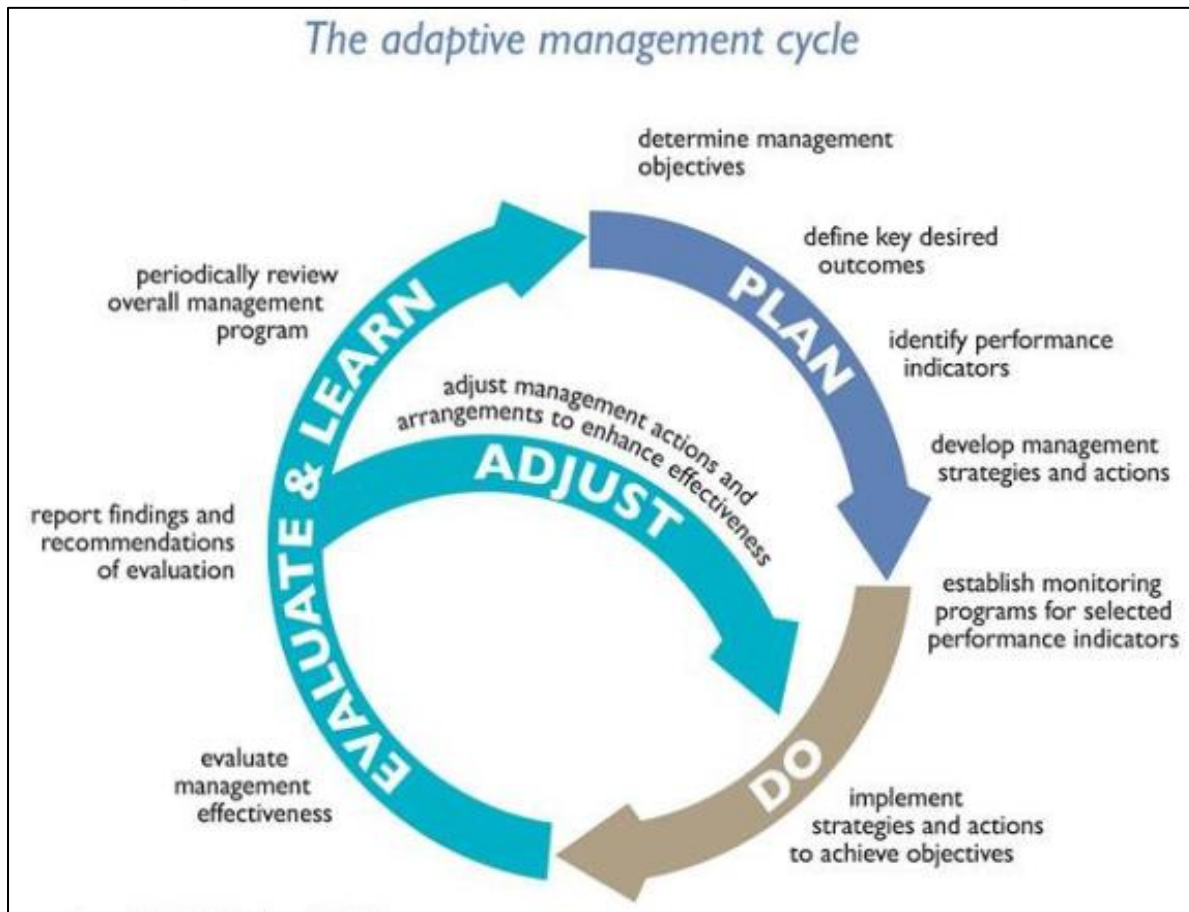
Research Question

How are the Producer Responsibility Organizations designed to deliver sustainability objectives in the plastic waste value chain in Kenya?

THEORETICAL FRAMEWORK

This study applied the Adaptive Management theory which embraces uncertainty and incorporates co-learning; experimentation with policies (the latter are treated as theories) to inform and improve decision making in an iterative process (Webb et al., 2017). In adaptive management multi- stakeholder and multidisciplinary approaches are embraced (Allan, 2007) and there is iterative linkage of learning to policy and implementation (Stankey et al., 2005). The theory lends itself well to the study on operations of extended producer responsibility in waste management and the advent of PROs in Kenya that is complex and draws in many players and governance scenarios but looking for ways for collective action to achieve a common agenda. Of significant note are the shared roles in waste management between the national and county governments on matters waste. Within the said debate are several critical factors including climate change, livelihoods, and environmental degradation. There will therefore be room for experimentation and collective learning

Figure 1: Adaptive Management Cycle Model



Source: Australian Aid; Monitoring and Evaluation for Adaptive Management Working paper series no. 2

METHODOLOGY

A case study approach looking at all the Producer Responsibility Organizations (PROs) formed in response to the plastics challenge in Kenya and the resultant policy and legislation including the Sustainable Waste Management Act and the Extended Producer Responsibility (EPR) Regulations (*Draft*).

This involved a comparative analysis of the PRO objectives, operations, employment creation, and environmental outcomes. Data collection was through review of secondary data; Data was collected from websites of relevant agencies including the National Environment Management Authority (NEMA); The Ministry of Environment, Kenya; and the two PROs. Additional data was collected from official presentations made by the PROs at stakeholder meetings early in 2023. Relevant Published Acts

and regulations on waste management and extended producer responsibility in Kenya were also reviewed.

RESULTS

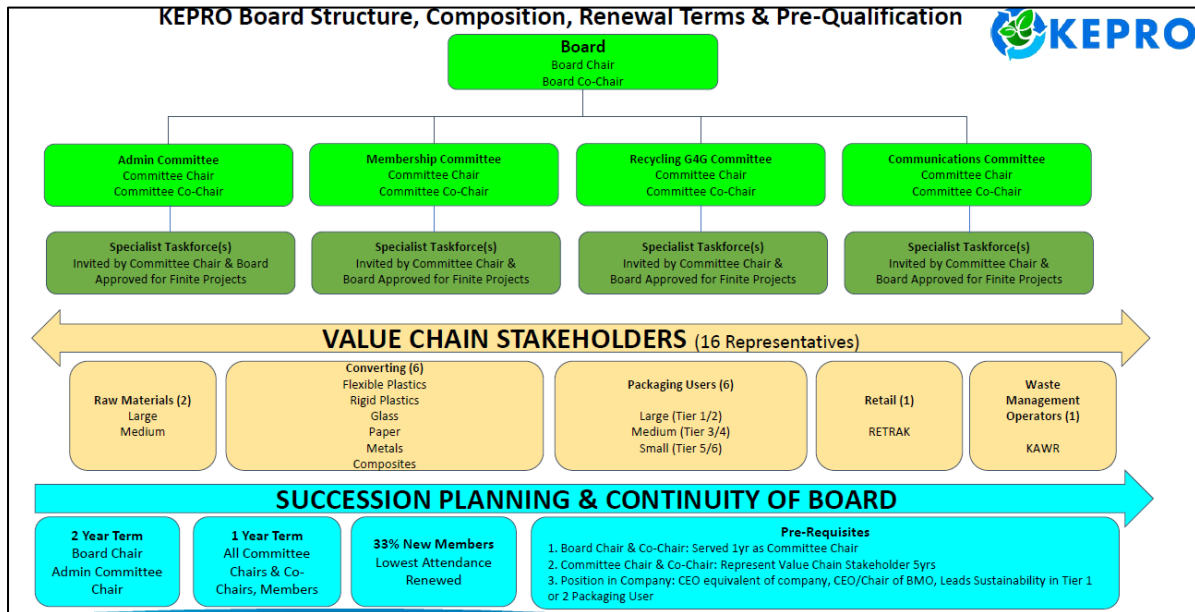
Currently in Kenya there are four producer responsibility organizations in Kenya namely the Kenya Extended Producer Responsibility Organization (KEPRO), the Packaging Producer Responsibility Organization (PAKPRO); Electronic Products Producer Responsibility of Kenya (EPROK), and the Kenya Hazardous Producer Responsibility Organization (KEHARPO). The only operational ones in the plastics sector are KEPRO and PAKPRO

KEPRO: Set up in 2021; The establishment was supported by the Kenya Association of Manufacturers and has strategic memberships in the areas of packaging users; retail traders; waste sorters; convertors; supply chain operators; waste

recyclers; raw materials; and waste collectors. Membership stands at 550. In essence KEPRO is co-run by an NGO (KAM) and the private sector. The producers are required to subscribe by paying membership fee to the PRO and pay extended producer Responsibility (EPR) fee which is modulated based on the volumes of products they introduce to the Market

It has a governance structure comprising of a board (with a chair), board committees; and value chain stakeholders. Its thematic areas are on networks and collaborations; circularity; sustainability and environment; and to the communities. Annual fees range from Ksh 200, 000 (USD 1333) to Ksh 5000/ USD 34 (KEPRO, 2023).

Figure 2: KEPRO Management Structure



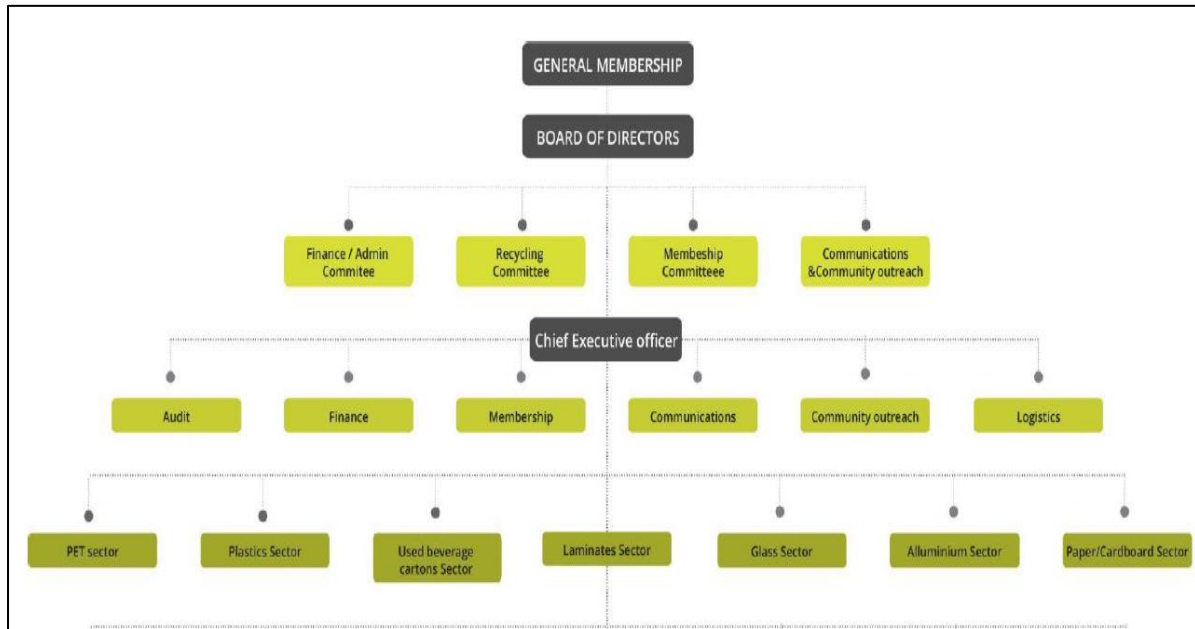
Source: KEPRO Presentation; August 2023; Nairobi

PAKPRO: The Kenya PET Recycling Company Limited, trades under the registered trademark PETCO (now rebranded PAKPRO) focuses on the post-consumer management of polyethylene terephthalate (PET) plastic. It is a company limited by guarantee. It has membership of companies from across the PET plastic value chain comprising of: Resin Importers, Converters, Brand Owners, Bottling Companies, the Retail Sector, Collectors, and Recyclers. Membership currently stands at 110. A monthly fee is levied on members for each tonne of PET placed on the market with the fees going towards subsidizing collection and recycling costs. Due to their intervention volumes of post-consumer PET

recovered have increased from 7-8% to 40%. (PAKPRO, 2023)

Further, each of the contracted recyclers has a pool of aggregators who supply material to their factories. The registered aggregators supplying material average to 249 male and 223 female, for whom each would have an estimate of 50 collectors who individually supply packaging material to them. This averages to over 20,000 collectors supplying material into our PET value chain on a daily basis. Areas of operation are consumer and industry awareness & compliance; growing collection and recycling; strategic partnerships; advocacy and knowledge management (PAKPRO, 2023)

Figure 3: PAKPRO management structure



Source: PAKPRO Presentation; August 2023; Nairobi

Table 1: Comparison of the two Producer Responsibility Organizations in Kenya

Pro	Governance Structure	Thematic Focus	Waste Outcome (S)	Livelihoods Outcomes
KEPRO	Well defined and inclusive with tiers covering the board, board committees and value chain stakeholder	Packaging waste	<ul style="list-style-type: none"> • 11 recyclers contracted • Recovered 9000 Mt of plastics to date • Seeking to engage material recovery facilities • Awareness & capacity building to 100+ individuals 	<ul style="list-style-type: none"> • Ksh 11.5 M paid to recyclers as subsidies • Ksh 4 M given to support waste initiatives in schools, churches, and CBOs
PAKPRO	Elaborate and inclusive board, CEO, Board committees and sector desks	PET bottles	<ul style="list-style-type: none"> • Over 1 billion PET bottles (25.616 Mt) collected • Over 2000 waste entrepreneurs trained in recovery and recycling of materials • Start to engage with all the 47 counties • Bins installed in markets, malls, estates 	<ul style="list-style-type: none"> • created over 2500 direct jobs

Source: Presentation by KEPRO and PAKPRO; August 2023; Nairobi

Environmental, Social, and Governance (ESG) aspects: The governance of both PROs is inclusive of the membership thereby pointing towards better accountability. KEPRO has gone further to outline issues of board tenure and succession planning. Both of the PROs official documentation speaks strongly on environment

and sustainability. However, none have additional accreditation to this end including the ISO 14001 standard, the Global Reporting Initiative, or the Global Compact.

Regulatory and management instruments: The regulations that are meant to give effect to the Sustainable Waste Management Act of 2022 i.e.,

the EPR regulations are yet to be gazetted. Some of the issues envisaged in the draft regulations were that producers will apply for registration with NEMA through a specialized form; NEMA will issue producers with a unique identifier; PROs will be issued with registration numbers; NEMA to develop national targets; NEMA to develop reporting templates among others. None of these instruments are in place to date as the regulations are yet to be gazette.

The upshot of this is that the regulatory functions of the National Environment Management Authority over the PROs are therefore yet to come into full effect in the absence of the said regulations. At the moment the PROs are only bearing extended producer responsibility at the downstream level by management of post-consumer products. This limits on upstream implementation on designing out waste, eco-design, design with durability.

DISCUSSION

There is a wide continuum with regard to design and governance of producer responsibility organizations. In Kenya the government has set up the legal framework but the PROs are have their own governance and fee arrangements; KEPRO is NGO-Private sector run while PAKPRO is purely private sector run. Australia has a mandatory scheme on television and computer recycling administered by the government which provides free collection and recycling services to households; the producers foot part of the cost for the scheme (OECD, n.d.-a). Belgium has a scheme focused on waste tyres; whereas the government sets policy on the same and importers have a reporting duty with regard to volumes of products and waste placed municipalities are not obligated to provide collection services (OECD, n.d.-b). This points to a possibility to formulate different designs to how extended producer responsibility organizations should work based on local contexts rather than adopt a one- size-fits- all approach

The Kenyan scenario shows an approach where top- down policy approaches have been used to

inform practice in a difficult thematic area such as plastics pollution. This is not a common practice in the modern era as current practice leverages public participation as the foundation of a policy directive such as the plastics ban that led to the birth of the PROs. The same is well stipulated in the Constitution of Kenya. This is what led to various legal challenges around the ban on plastics with the courts, luckily siding with government. The PROs point towards some form of self-regulation; membership fees and EPR fees remain as the main facilitators of the EPR operations. Despite these efforts the country is losing the benefits of using secondary PET raw material due to lack of recycling infrastructure- resulting to PET waste being exported. Investments need to be incentivized in the latter area.

Of the two PROs PAKPRO have an intervention on entrepreneurship and contrasted with PETCO which has a focus area on capacity building. It is necessary that PROs are made accountable in some way so they deliver on their commitments to the public and their memberships. It is instructive that the PROs have self-organized and are functional even in the absence of the requisite EPR regulations which are still in draft form. The EPR regulations (draft) only provide for members to be responsible for the governance of the PROs without stipulating how the governance arrangements should work. However, since both operational PROs have given commitments to sustainability, they should move a step up and sign up to some form of compliance scheme such as Global Compact or the ISO 14001 Standard. This would assess their governance, social, and environmental performance, among other elements.

Regarding compliance and governance some scholars argue that self-regulating bodies are more effective with an external coercive pressure (King & Lenox, 2000) such as a government body. Others point to benefits of self-regulation as including flexibility; sensitivity to market demands; flexibility; and speed (Gunningham & Rees, 1997). In certain settings self-regulation greatly enhances the survival of organizations due

to a number of factors including better relationships with government (Chen et al., 2022). PETCO presented a solution to a disruptive waste type i.e., PET that the government would otherwise have had to ban. This exemplifies the capacity for industry to innovate and support in sustainability solutions.

The vital element in both the PROs is the inclusion of street families and marginalized communities as waste collectors on a weekly wage. The latter is an opportunity to give them dignified livelihoods. One emerging challenge now is one of free riders in the absence of the legal framework for mandatory EPR membership (the EPR regulation is still in draft form). The implication of this being high volumes of post-consumer products against low EPR fees for reverse logistics; generally, membership of PROs remains low while the current PROs need higher numbers of members in order to generate fees to run their operations efficiently.

Data: The two PROs have invested strategically in data collection. However, the data types will need to increase to encapsulate all the requirements in the (draft) EPR Regulations, in addition to adopting of the reporting templates and the targets to be issued by the National Environment Management Authority (NEMA). Other data types will be informed by whichever compliance schemes they decide to subscribe to. The Sustainable Waste Management Act refers to producers to encompass manufacturing; importing; converting; filling; refilling; repackaging; or rebranding; a wide group indeed. Data on the volumes of waste from all these players versus what is collected and recycled is lacking making it difficult to gauge the impact of current PROs data available only captures those; it is impossible to capture other players especially employers. Since they will be holding a lot of data regarding their members, some of it confidential, the PROs will be expected to comply with provisions of the Data Protection Act (RoK, 2019) as they qualify as data controllers or processors under the said Act

Study Limitations

A key challenge which we could not surmount in this study was to get an exact number of plastics producers in Kenya together with the quantities of plastic products and subsequent waste they place in the environment in Kenya.

CONCLUSION

Kenyan PROs are in their nascent stages. The PROs offer a new governance model for plastics waste management in Kenya. Ways need to be found to scale sign-ups to the PROs. The operation of the current PROs show potential for nudging policy and reduction in hard enforcement approaches. Kenya needs to speed up gazettment of the revised Environment Act and all pending regulations with regard to plastics waste management

Areas for further Research

Areas for further research include factor that stand in the way of more producers joining the PROs and also the impact of PROs in the mop up of waste plastics in Kenya

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