



INSTITUTIONAL CONSTRAINTS TO MUNICIPAL SOLID WASTE MANAGEMENT IN KANO METROPOLIS, NIGERIA

Aliyu Baba NABEGU and Adamu MUSTAPHA

**Department of Geography, Faculty of Earth and Environmental Sciences,
Kano University of Science and Technology Wudil, P.M.B. 3244, Kano State, Nigeria**

E-mail of corresponding author: aliyunabegu@gmail.com

ABSTRACT

This paper assesses the current legal and institutional arrangement for the management of municipal solid waste in Kano metropolis, Nigeria and proffers an alternative based on decentralised private sector led operators and public regulatory framework. Data was collected through a desk study of the legal and institutional arrangement of solid waste management in Nigeria and of the Kano state agency responsible for solid waste management, the Refuse Management and Sanitation Board (REMASAB). Results indicate that the current institutional arrangement is weak and leads to inefficiency in service delivery. The legal provisions show clear lacuna leading to lack of coordination and conflict between the federal, states and local governments. The study concludes that improvement of solid waste management in Kano metropolis requires promotion of an institutional and legal framework that have well-defined roles and responsibilities for those involved in the chain and therefore recommends decentralisation of control to local governments; private sector participation; legally binding stakeholder involvement so that authorities and service providers should be accountable to the public in accordance with principles for good governance. Moreover, the professionalization of the solid waste management sector and its workers is essential to improve the provision of such an important service that affects the health, environment, and quality of life of urban populations.

Keywords: Environmental management, stakeholder; local government; private operators; decentralisation

INTRODUCTION

High population growth of 3% per annum, unprecedented urbanization of 40% per annum, (NPC, 2004) and rapid economic growth of 8% nationally has resulted in enormous increase in municipal solid waste generation in Kano metropolis, Nigeria. Management of the waste has not been commensurate with the rate of generation or efficiency of collection resulting in increase in volumes of unattended solid wastes with negative environmental impacts such as pollution of air, soil, water, generation of greenhouse gases from decomposing waste on the streets and in landfills, health and safety problems due to diseases spread by insects and rodents attracted by garbage heaps (Nabegu, 2008a). Increasing awareness by governments, the public, development and donor agencies has made the issue of proper waste management high on the policy domain - in fact it has become an important electoral issue in years. For instance the current Governor of the state on his inauguration on 29th May, 2015 declared a seven day period for municipal waste collection – and physically took part symbolically in the collection. However, despite the recognition of the problem and the attention given to the sector, the problem has continued to deteriorate threatening the long term well being and health of the residents of the metropolis as well as the global environment.

There are few studies on the institutional challenges on the management of municipal solid waste of cities in developing countries such as Kano metropolis. With exception of notable studies by Bartone (1991) and Contreau, (2001), most studies on the subject dwell on the financial and technical solutions or

benefits of efficient waste management services such as economic opportunities through, recycling, reuse and employment opportunities, reduction or elimination of health risks and better environmental quality associated with efficient waste management service (Nelson, et.al., 2007, Dyson and Chang, 2005, Zurbrugg, 2003, Emery, et. al., 2003, Medina, 1997, Deninson et. al.,1996, Contreau,1992). These studies which have proffered solutions that often involve often huge capital outlay and sophisticated technology have not yielded the desired results. More significantly even where the solutions appear feasible, the institutional structure upon which to base the programme is either weak or nonexistent. This paper assesses the current institutional and regulatory arrangements for waste management in Kano metropolis and proffers a strategy that will ensure efficient private sector led operation where the opportunities of the sector in terms of employment, technological innovations and sustainable environmental management can be achieved.

METHODOLOGY

Data for this study cover the period between July 2012 and March 2015. The study involved desk study in which documents relating to the legal provisions and institutional arrangements for the management of municipal waste by the Federal, States and local governments in Nigeria and records relating to municipal solid waste management in Kano metropolis by the refuse management and sanitation board (REMASAB) were evaluated to determine the current management practice in terms of waste composition, coverage and perception of the residents of the metropolis.

Study Area

Kano is the largest city in the Sudan Region of West Africa with a population of more than 6.5 million that is increasing rapidly and has for centuries been the most important commercial and industrial nerve centre attracting millions from all parts of the region and beyond. The rapid increase in population due mostly as a result of immigration has resulted in huge increase in municipal waste generation. The climate of the study area is the tropical wet and dry Aw by Koppen's classification. Climatic factors play a crucial role in the municipal waste management. For example, during the wet season, heat and humidity cause the municipal solid waste to be of higher moisture content thus increasing the weight of the refuse. In addition, high humidity with heat causes the organic portion of the waste to decompose quickly leading to problems in handling and disposal, which directly affects the environmental health of the waste workers and the inhabitants (Contreau, 1996).

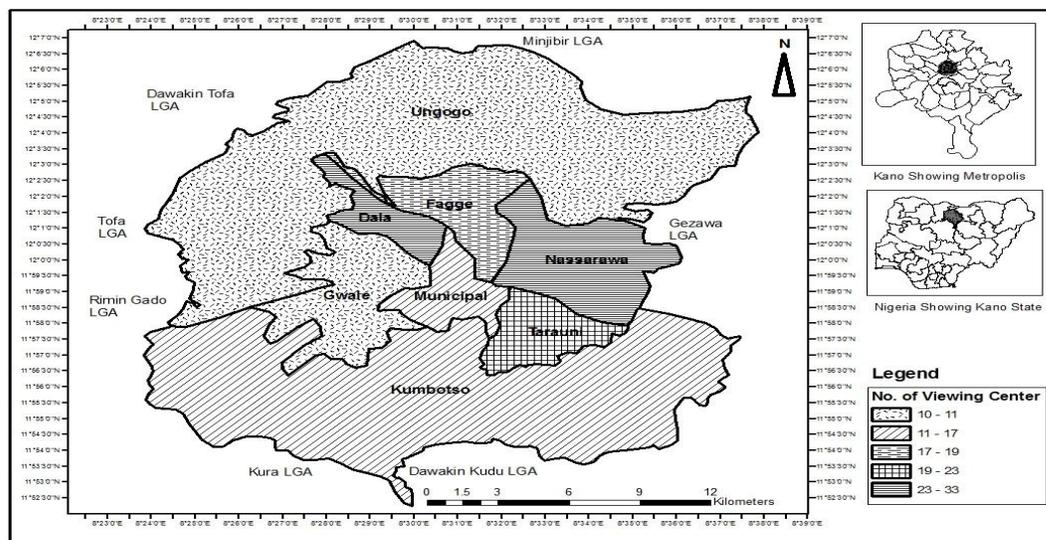


Figure1 Kano Metropolis

The waste composition is made up of 61% food scrap and vegetable, 20 % ash and dirt and plastics of various type, metal, wood, leather and textile account for 19% (Nabegu, 2008b). The organic content of waste is an important component in Kano metropolis, not only because it constitutes a sizable fraction of the solid waste stream but, as is the case in other developing countries, its potential adverse impact upon public health and environmental quality (Ramachandra and Bachamanda, 2007).

RESULTS AND DISCUSSION

Results of survey on the methods of waste disposal by residents of Kano metropolis indicated that 79.25% of the population do not use authorized dump site and residents blame the lack of adequate dump site close to their residence for disposal of waste in paths, riversides and road walkways. Waste collection service does not cover the entire population of Kano metropolis and involves the use of impoverished metal or plastic containers which are grossly inadequate or collection from road side, walkways, rivers and gutters. Transport systems include a great variety of vehicles that are not fit to negotiate the narrow roads and alleys. This hampers the overall efficiency of the collection process by up to 50% as most of the trucks are held up in traffic (Nabegu 2008b). Current management of waste in Kano metropolis is predominantly in unsanitary landfills where anaerobic degradation of organic material occur causing CH₄ emissions (IPCC, 2006, IPCC, 2000, Johannessen and Boyer, 1999).

The general assessment by the public of the services offered by REMASAB indicates that 68% of the residents of Kano metropolis consider the service as very poor, with respect to the provision of dump site, 51.25% say it is unsatisfactory, for frequency of collection 55% say it is unsatisfactory and for coverage 92.4% consider it very poor. These results are consistent with reports of earlier studies (Nabegu,2008b).

Institutional Arrangements for Municipal Waste Management in Kano Metropolis

Management of municipal solid waste in Kano metropolis has a long history. Through the colonial period in the 1900s to early independence in the 1960s, waste management was under the control of local authorities – with the health councillor (WAKILIN STAFTA) prominent as the unit in charge. In this period waste management was also decentralized within the council with a representative in the east, west, north and GRA areas of the metropolis. From the mid 1970s through to 1990s it was moved under various ministries and often several special task forces were established to handle the management of solid waste on adhoc basis such as mobilizing people to collect waste and de-silt choked gutters after a flood or for an occasion. With the advent of civil rule in 1999 solid waste management became an important election issue in Kano state culminating in the establishment of the Refuse Management and Sanitation Board (REMASAB) in the year 2003, re-enacting the lasting legacies of the many years of military rule in Nigeria characterised by centrally controlled agencies. The law that establishes REMASAB is contained in the Kano State Gazette No.7 Vol. 35 of November 2003 as law No.7. Section 4(1) of the law specifies the structure of the agency in terms of departments, mode of operation and sources of finance as well its functions which includes:

- (i) Refuse collection and disposal
- (ii) Management of refuse collection centres and dump sites
- (iii) Land reclamation.
- (iv) Street sweeping and cleaning.
- (v) Control of street hawking and random refuse disposal.
- (vi) Liaising with self-help group in relation to waste collection and disposal.
- (vii) Vector control (mosquito control) by means of fumigation and other mean of control.
- (viii) Inspection and enlightenment programs on sanitation.
- (ix) Liaising with all metropolitan local governments towards a sustainable sanitation operation.

The day to day operation of REMASB include collection, transfer, and transportation of solid waste, maintenance of equipment, fabrication of plant and equipment, prosecution of offenders, street cleaning and maintenance of five landfills. The mode of operation of REMASAB is divided in to two. First, there

is door to door collection and secondly there is collection from the approved dump collection sites. An important department is the enlightenment and enforcement department. Other directorates are those of finance, administration, environmental health, sanitation inspectorate and engineering.

Since, the establishment of REMASAB in 2003, great improvement have been achieved such as employment of 3500 street cleaners; purchase of assorted equipments including tippers, compactors, loaders; collection trucks etc. The agency is financed by contribution by the state government from 50%, the six local governments in the state that make up Kano metropolis now eight shown in Figure1, 45% and the other local Governments in the state 5%. In addition the agency receives grant on adhoc basis to perform specific services especially during special festivals or when important dignitaries are expected to visit.

The current institutional arrangement is for REMASAB to manage the waste in the existing local governments that make up Kano metropolis. The problem associated with this arrangement is clearly manifested in that in 2003 when REMASAB was created only four local governments make up Kano metropolis, however as a result of the physical expansion and rapid population growth, the number of local governments within Kano metropolis increased to six in 2007 and eight in 2013. This besides the increase in coverage area means a change in the financing dynamics which can be complicating leading to further inefficiency. Also, the current arrangement lumps all the areas of the metropolis as one ignoring variation in income, waste composition, generation rate and waste density. These are interrelated factors that are critical not only in the efficiency of waste management operations but in the choice of equipment and collection frequency.

Furthermore, evaluation of the functions of REMASAB clearly shows lack of focus in its objectives leading to its involvement in activities that are outside the normal purview of municipal solid waste management. Also, in Kano state, waste management service is a social service, ie it is free - yet there are numerous penalties for various offences even though there are no clear specifications as to who will enforce.

A survey of the financial operation of REMASAB suggests that economic and financial management are oriented mainly towards expenditure control and as with all other government agencies funding is well short of budget with the agency receiving 40% of its budget requirement in its best year.

Legal and Regulatory framework of municipal waste management in Kano metropolis

Under the current constitutional arrangement in Nigeria, issues relating to environmental management including waste management fall under the Exclusive, Concurrent and Residual lists, i.e., all tiers of governments – Federal, State and Local authorities can legislate. Accordingly, the Federal government has enacted several laws, such as:

- i) Petroleum Decree 1969,
- ii) Territorial Water Decree 1967,
- iii) Explosive Act 1964,
- iv) Federal Environmental Protection Agency Decree 58 of 1989,
- v) Harmful Waste (Special Criminal provision) Decree No. 42 of 1988,
- vi) Natural environmental protection (pollution abatement in industries and facilities generating wastes regulation, 1991,
- vii) Environmental impact Assessment Decree No. 86 of 1992
- viii) National Environmental (Sanitation and Wastes Control) Regulations of 2009
- ix) Several other regulations provided to enforce compliance with the requirement of sustainable standard of Environmental sanitation.

The Federal government has created as many agencies as the laws such as the national environmental standards regulations and enforcement agency (NESREA) often with similar jurisdiction. This has created problems of coordination not only between the various agencies, but also between states and local authorities which also set up their agencies leading to an unsustainable approach to waste management through lack of an integrated approach. A visible manifestation of this is with respect to the responsibility for matters relating to actual provision of waste management service, where, although the standards and

regulations were created by the national environmental standards regulations enforcement agency (NESREA) vide the National Environmental (Sanitation and Wastes control) Regulations of 2009, the state governments are now primarily responsible for solid waste management in the state, even though again by the states local government laws, it is the responsibility of the local governments. Consequently in the case of Kano metropolis, REMASAB a state government agency is responsible for the management of municipal waste. The state Ministry of environment plays the role in monitoring often leading to conflicts as there is no real definition as to what the Ministry would monitor. The local authorities that make up Kano metropolis are subsumed by the activities of REMASAB, whereas other local authorities use laws that were enacted at various times to ensure sanitation and environmental protection. Some of these laws originate from colonial to early independence period.

Thus, in the present set up in Nigeria, virtually every state of the federation has a waste management agency with its enabling laws, resulting in a situation where the agencies created by various local authorities, states and the Federal Government pursue their respective agenda with unclear and conflicting roles i.e. they are both often providers of service and regulators (they combine service delivery and regulatory functions). To compound the issue local authorities outside the state capitals are conspicuously unregulated and most often resort to colonial edicts and such similar contraptions.

Clearly, under the current institutional and regulatory framework, Kano metropolis and indeed all urban centres in Nigeria lack a comprehensive policy in the form of institutional structures, functional strategies, systems for inter-sectoral coordination and tariff setting for waste management. Different agencies at all tiers of government - Federal, State and Local Government pursue different agenda. This approach has ensured that waste management policy decisions such as service delivery, fees, regulations and environmental preservation have remained highly fragmented without coordination. This kind of fragmentation is at the core of waste management problems in Kano metropolis and indeed Nigeria. In the first week of November, in an attempt to open the waste sector to private participation, REMASAB engaged the services of sixty companies to provide waste collection service from designated areas of the metropolis on door to door collection and engaged one company for same service in health care facilities. The operators are to charge and collect fees from households for the service, however, under the current law that establishes REMASAB was collection service is a social service to residents. Clearly therefore, the present lacuna brings to the fore the challenge for a legal, regulatory and institutional framework for the waste sector in Kano metropolis.

Strategies for efficient private sector led waste management for Kano metropolis.

The strategy proffered is predicated on the enactment of legislations that will provide institutional framework that will allow for decentralisation of control of the entire waste management chain to local governments with provisions that will allow for private sector operation; sustainable financing mechanism; all-encompassing regulations; verifiable enforcement mechanism; independent monitoring and evaluation, dynamic information systems and mechanism for stakeholder participation. Other issues necessary for consideration include professionalizing the service, creating awareness and training.

Decentralization of Solid Waste Management System

The entire Solid Waste Management chain should be decentralized to the local authorities who should be responsible for collection, sweeping, storage, transfer, treatment, and final disposal of waste. This is predicated on the fact that local authorities are more accountable to the residents and business establishments they serve. Moving the decision making closer to the executing authority and beneficiaries allows functions to be handled more efficiently. A large and continuously expanding metropolis like Kano will obtain greater efficiency by dividing the municipality into zones for service provision. This mechanism will allow the zone to allocate available resources according to the particular needs. The powers delegated to the zones will ensure more effective supervision of the workforce as well as more effective handling of complaints from the public.

Private participation

Although the local government should ultimately be responsible for service delivery, some of the functions can be transferred to the private sector in the form of micro enterprises (MSEs) or Community

based organizations (CBOs) for more efficient service. The private sector can participate in virtually all the areas of solid waste management chain such as providing door-to-door collection of domestic, commercial and hospital waste; transportation which covers all types of operation to transport solid waste from its generation point to the transfer station and to the treatment and disposal site; treatment which includes separation, recycling of different types of waste, composting incineration etc.

A major advantage for private sector involvement in solid waste management services in Kano metropolis is the fact that it is highly labour intensive, and today, the single most visible problem facing our society is youth unemployment. Waste management – through decentralization of the operation into smaller locally based enterprises/micro businesses will provide employment to thousands as well as an efficient dust to cradle system that will benefit from local knowledge and eventually result in a sustainable operation because it will eventually be self-financing from the fees that will be collected from users of the service.

Sustainable Financing Mechanisms

Finance is the key to sustainable provision of waste management service and many countries employ different financing mechanism often involving a combination of many. For Kano metropolis as indeed many emerging economies, legislation should cover all the broad sources such as the following:

i) User charges: In many countries, user charges are being introduced. They are normally low for the majority of the citizens but for commercial and industrial sector, the charges could be high to meet the costs in accordance with the polluter's pay principle. Charges should aim to motivate waste generators to reduce the waste, thus volume-based charges can be used as well.

ii) Penalty, fine and levy: This form of direct income is also becoming an important financing tool to finance solid waste management. The terminology and rate of the penalty/fine/levy may vary and should be based on stakeholder consensus.

iii) Environmental Fund: a revolving fund to assist the micro enterprises and the community based organisations registered to provide waste management services in meeting their financing needs for equipment and infrastructure at the initial stage. This fund could be sourced through various modes including annual budget, loans from local/international financing institutions and international cooperation.

iv) Direct Loans: Local governments may take direct loans either from domestic sources such as the Infrastructure bank or State government to help the SMEs.

v) International Cooperation: International agencies are providing support to local governments to improve the local environment. Various bilateral initiatives, including sister cities, are also helping local governments to seek assistance for financing their development projects including solid waste management.

vi) Annual budget: Local governments should legally allocate substantial portion of their development budget to finance solid waste management. This can be transferred to the SMEs to fund their initial take-off.

Regulations

Clear and all-encompassing regulations that cover all aspects of the waste management chain which should include standards covering every stage of existing solid waste management chain, responsibilities and guidelines for compliance and enforcement with the related penalty must be provided. Some examples of regulations or standards could be:

i) Regulations on production and consumption – upstream measures

ii) Regulations on segregation of recyclable and non-recyclable waste

iii) Regulations on electronics waste including storage and collection, transportation, treatment, disposal, and recycling and recovery.

iv) Regulations on handling of hazardous waste

v) Regulations on collection and transportation of industrial waste

vii) Regulations on construction and operation of landfills

viii) Regulations on construction and operation of incinerators

ix) Regulations on construction and operation of composting plant

x) Regulation on Extended Producer Responsibility (EPR)

Enforcement

Enforcement of all regulations and standards is crucial to achieving best practice and thus is the most important aspect of policies for solid waste management as they could only make a difference if these are properly enforced at all levels. Assessment of the level of enforcement is vital at all times but may become a challenging task if the criteria or benchmarks to ascertain the level of enforcement is not available or clearly defined or the opinion on the enforcement levels differ between the different stakeholders. Hence, a consensus as to what is the minimum requirement by the major stakeholders should be sought to get a comparatively appropriate assessment.

Monitoring and Evaluation

Once control of waste management is domiciled at the local governments, they automatically also assume the position of a regulator and therefore need to implement monitoring mechanisms to evaluate performance, demonstrate achievements, ensure accountability and contract compliance among others. The monitoring agency should be able to show that each component of the system is performing in compliance with the existing laws and regulations and is meeting targets established in the plans so that the implementing agencies can identify and implement corrective actions. Planning for monitoring and evaluation systems should include the following:

- Select indicators that will help measure the achievement of solid waste management objectives.
- Define the benchmarks or targets against which to judge service performance.
- Define a method for collecting data.

Monitoring and evaluation should be done over time, and the methodology should include frequent reporting to show progress or gaps in provision of service. The local governments should appoint an independent body for this important task.

Information Systems

Good management requires the collection of relevant information for taking corrective measures as well as planning for the future. Information must be collected to obtain an overall idea of the prevalent situation, deficiencies in the system, and likely requirements for the future. Advances in information technology and geographic information systems can be integrated with existing information systems. Data that need to be recorded and studied include relevant information about the department for planning processes as well as specific information to ascertain whether everyone involved in the various services is performing his or her duty well. The latter includes information about workers, vehicles, materials, repair and maintenance, processing plants, landfills, and so on.

Stakeholder involvement

Major stakeholders include waste generators, regulators, service providers such as organizations involved in waste collection, disposal, recycling and recovery as well as the general public. Active role for stakeholder participation must be enshrined legally. A strong stakeholder committee is required as it ensures maximum participation and ownership of solid waste management initiatives and cooperation among stakeholders. The participation of all stakeholders creates perception of equality and justice and thus government authority should be low and political vested interests should be minimal while representation across all strata of society should be ensured. In order to be able to reach the entire metropolis, sub-committees should be formed at ward or zone levels, especially in Kano metropolis that is growing all the time. Sub-committees help in promoting a customized, decentralized, neighbourhood oriented approach that considers specific requirements and conditions as the basis for providing service and guidance to the various neighbourhood committees.

Other issues for Consideration

In addition to the above institutional and regulatory changes, there is also the need for consideration of professionalism training and creating awareness if the scheme is to succeed.

Professionalism

In Kano metropolis as most cities in Nigeria, engineers and health officers usually are placed in charge of the solid waste management agencies that generally lack the knowledge of environmental aspect. Solid

waste management needs to be professionalized, and solid waste departments should be managed by those trained to handle these systems. Local authorities need to understand how solid waste affects environment, health, and quality of life and to take appropriate actions toward improving the system. It is thus necessary to upgrade the profession of those working with waste as often, the profession is neglected and seen as very low status. Professionalizing the solid waste sector means building the capacity of workers to perform more effectively and efficiently. It also means that workers will perform their duties in a safe environment under healthy conditions, such as being provided with proper clothing and proper equipment to perform the job.

Creating Awareness

Owing to increased concerns for health and the environment, citizens have become highly sensitized and are willing to give some of their time for appropriate solid waste management endeavours. Solid waste management requires an approach that needs active citizen participation in identifying problems through a consultative process as well as finding alternatives and optimal solutions on the basis of consensus. Creating awareness as to the real benefits of a sustainable waste management is necessary in getting the cooperation and participation of the residents of Kano metropolis.

Many methods can be used to generate awareness among the public that include door-to-door awareness campaign; use of print materials such as posters, brochures, and pamphlets. Also on major occasions and festivals, waste management can be made a prominent activity along with the celebrations. Waste management activities should also be conducted by the community to build a sense of responsibility and the importance of the issue. Already in Kano metropolis every last Saturday of the month is observed as sanitation day during which all residents in the city stay in doors to clean up till 10.am.

Because school children are the beneficiaries of a better tomorrow, emphasis on educating them to be aware of the importance of a clean and green environment and of waste segregation is very significant. This education can be done by organizing activities such as painting competitions, slogan writing, and cleanup drives. Students should also be trained to use recycled products. The message can be reinforced by holding essay, debate on the subject and publicizing the winning contestants. Social clubs can be encouraged to sponsor such events and to keep the topic alive. The leading schools could be persuaded to work as role models for other schools in taking up awareness campaigns in the city through their students.

Training

The management of municipal solid waste is a complex endeavour requiring expertise in environmental impact assessment, spatial analysis, politics, engineering, public health, geographic information system, economics, finance and sociology among others. It is also dynamic with changes occasioned by technological developments, changes in demography, politics etc. Therefore training for all those involved from waste collectors, scavengers and their managers is crucial to the success of any scheme. Kano University of Science and Technology, Wudil, has commenced a diploma program in waste management. The course is tailored to the peculiar problems and context of Nigerian and indeed cities in developing countries and would thus be invaluable.

CONCLUSION

The waste sector includes public institutions and organization, the communities and business that generate it, private companies involved in collection, transportation, and final disposal of all types of solid waste as well as the legal and regulatory framework that guide all the people involved. A well-functioning solid waste management system ensures that all domestic, commercial, and industrial wastes are collected, transported, and disposed of in a hygienic and environmentally safe manner at sanitary landfills in a legal and regulatory framework that is socially financially and economically sustainable manner. In the past, these important elements of waste management were often regarded only from an engineering and technical viewpoint. It is essential to realize that these elements are embedded in the local, institutional, socio cultural, and economic context, which is further influenced by national politics, policies, and legislation as well as national and global and economic factors.

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