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Abstract

Sustainability of the aviation sector takes a multidimensional approach including economic sustainability, environmental sustainability and social sustainability. Thus, the sustainability of the aviation industry sector presents a challenging task in enhancing the three aspects of aviation industry sustainability. The three aspects in most instances conflict for instance as economic aspect of sustainability is enhanced, the environmental aspect of sustainability deteriorates. Formulation of aviation industrial policies requires multi-agency involvement. The aviation industry sector has many other bodies and agencies that must be considered for industrial advice, engagement and consultation. A particular aviation industrial policy formulated may conflict with policy guidelines from other partners and agencies. The purpose of this study was to undertake an empirical review on policy formulation and advocacy towards sustainability of aviation industry in Kenya. Literature based review was adopted in this paper. The planning theory, Functional Process Model and Dynamic Capabilities Theory anchored this paper. From the literature review, it was identified that sustainability of the aviation industry takes a multidimensional approach that include economic sustainability, environmental sustainability and social sustainability. The unique phenomenon presents a unique challenge in promoting satisfactory sustainability in the aviation industry. As such, the study recommends for prudent aviation policies, carefully and collaboratively formulated to balance the three aspects of sustainability in the aviation industry. The policies include environmental sustainability policies that ensure that airline operators use less pollutant fuels, economic sustainability policies including polices on excellent service delivery to customers, affordable airline maintenance practices and fair competition strategies among the participants in the industry. Social responsibilities policies to be adopted include clauses that promote active participation of the airline operators in building social services/amenities and protecting employees from abuse by the employer (s).

Key words: Policy formulation, sustainability, aviation industry, Kenya

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1. INTRODUCTION

Sustainability may be defined as the capacity to maintain or improve the state and availability of desirable materials or conditions over the long term without compromising future sustenance. According to Itani (2015), sustainability is the capacity to endure through renewal, maintenance, sustenance, or nourishment in contrast to durability, the capacity to endure through unchanging resistance to change. Achieving a sustainable aviation industry has become a well-accepted goal; however how to achieve the sustainability goal requires multidimensional approach (Lutte & Bartle, 2017). The challenge includes finding balance between the dimensions of sustainability (environmental aspects, economic, social aspects and financial) and the business strategies (Jordan & Turnpenny, 2015). The environmental, economic, social and financial aspects often conflict as when one aspect is improved, an equivalent effect is realized on the other aspects making the whole process of sustainability rather complex.

The aviation industry plays a major role in stimulating economic growth. One of the key elements to maintaining the vitality of civil aviation is to ensure safe, secure, efficient and environmentally sustainable operation at the global, regional and national levels (Karaman, Kilic & Uyar, 2018). The aviation industry is perceived as being unsustainable in the long term due to foreseen continuous growth and the use of finite natural resources. To become more sustainable, airlines need to address sustainability in their business model and policies (Lutte & Bartle, 2017). Thus, airlines in the world continue to formulate various business policies in order to improve on their product offer, enhance better service delivery, reduce on overall costs and cope with industry competition and increase profitability. The airline industry operates in an extremely competitive environment narrowing market share (Kahavya, 2015). In the recent years there has been an industry shakedown, which has had far reaching effects on the aviation industry's trend towards expanding domestic and international services.

Global demand for aviation has increased substantially since the first commercial jet airliner went into service in the 1950s. Over this 70 year period demand has risen 11 per cent pa, and this trend is projected to continue over the next 30-60 years although at a lesser rate of

between 3-7 per cent as the market matures globally. Two key industry statistics used to measure aviation activity, Available Seat Kilometres (ASK) and Revenue Passenger Kilometres (RPK), are projected to increase by 2.5 times over 25 years from 11 trillion in 2018 to nearly 16 trillion by 2043 with a small increase in passenger load factors from 67-71 per cent (IATA, 2019). According to ICAO's on airline annual global statistics, the total number of passengers carried on scheduled services rose to 4.3 billion in 2018, which is 6.4 per cent higher than 2017, while the number of departures reached 37.8 million in 2018, a 3.5 per cent increase from 2017.

Competition in the air industry has forced the airlines to react differently, engaging in productivity optimization, cost cutting, lease arrangements for short term flexibility. Further competition calls for more innovation since airlines run short of customers resulting to a fight for the same (Lutte & Bartle, 2017). Policy intervention in the form of regulation and deregulation is too affecting the sector, for example the open sky policy to allow for fair competition. Airlines have to show great flexibility in adjusting to the situation at every time ranging from supply demand related issues to policy framework (Karaman, et al., 2018). This complexity demand good planning and informed policy decisions in response to the dynamic environment and future requirements.

In Kenya, the aviation industry has an important role to play in achieving sustainable economic growth (Farah, Munga & Mbebe, 2018). More specifically is the expansion of air travel a necessary condition for the development of the transportation industry this region. In addition, improvements in the region's transport infrastructure would help to raise livelihood standards and stimulate economic growth by opening up international trade routes, employment creation and increasing personal mobility (Walala & Mutinda, 2013).

However, there exists weak predefined framework for aviation policy making in Kenya (Farah, Munga & Mbebe, 2018). While aviation policy planning in advanced aviation lines comes as a result of institutional and industry coordination and is embedded within other national policies addressing the welfare and growth of the country, it is found that in many cases in Kenya aviation industry, aviation policy planning lack clear business objectives (Kamau & Stanley, 2015). According to Olekamai (2018), the complexity of this situation in

the Kenyan Aviation industry results in aviation plans that represent standalone studies and attempt to find solutions to specific problems rather than comprehensive aviation plans which fit well the country,,s competitiveness profile and are properly coordinated with other national policies for achieving medium and long-term objectives.

The Kenya Civil Aviation Authority, Ministry of Transport, National Environment Management Authority (NEMA), Ministry of Environment, Kenya Airports Authority, Meteorology Department, Kenya Airways, Kenya Association of Air Operators, Kenya Aerotech, African Express Airways and ground handling service providers are the major policy-making agencies to regulate and promote the sustainability of the aviation industry (Gikonyo, 2018). In Kenya, the aviation industry has been facing turbulent times resulting from losses. Aviation lines have been in the run to formulate high-level policies to support their sustainability (Kamau & Stanley, 2015). Sustainability of the aviation industry requires careful thought and prudence policy formulation to the growth of the sector.

2. PROBLEM STATEMENT

Achieving a sustainable aviation industry has become a well-accepted goal; however how to achieve the sustainability goal requires multidimensional approach (Lutte & Bartle, 2017). The challenge includes finding balance between the dimensions of sustainability (environmental aspects, economic, social aspects and financial) and the business strategies (Jordan & Turnpenny, 2015). The environmental, economic, social and financial aspects often conflict as when one aspect is improved, an equivalent effect is realized on the other aspects making the whole process of sustainability rather complex.

The aviation industry has an important role to play in achieving sustainable economic growth. However, the aviation industry in Kenya has been facing turbulent times resulting from economic losses, and stringent international regulations that threaten its sustainability. Aviation lines have been in the run to formulate high-level policies to support their sustainability (Kamau & Stanley, 2015). Sustainability of the aviation industry requires careful thought and prudence policy formulation to the growth of the sector.

3. LITERATURE REVIEW

Policy formulation is important phase devoted to generating options about what to do about a public problem, and is inherent to most, if not all, forms of policymaking (Li, Sui, Xiao & Chahine, 2019). If the agenda-setting stage in the well-known policy cycle is essentially concerned with identifying where to go, the policy formulation stage is all about how to achieve a particular strategic goal (Itani, 2015). Policy formulation is the development of effective and acceptable courses of action for addressing what has been placed on the policy agenda. If policy formulation is a process of identifying and addressing possible solutions to policy problems or, to put it another way, exploring the various options or alternatives available for addressing a problem, then developing and/or using policy formulation tools is a vital part of that process (Lutte & Bartle, 2017). Policy formulation has far reaching impacts on the sustainability of the aviation industry. A policy in the aviation industry is meant to reduce operators costs in running the airline, increase consumer's benefits and choices, improve air connectivity, create more competitive business opportunities in the marketplace, social responsibility and environmental considerations thereby contributing to the sustainability of the sector.

The policy intervention of the aviation industry brought about exponential growth in this sector in developed countries such as USA France and some Asian countries. This growth has spread to Africa countries. This evolution has however raised concerns on the sustainability of aviation business (Karaman, Kilic & Uyar, 2018). This study considered the effect of aviation activities in regards to the triple bottom line (TBL) comprising of economic, social and environmental factors. It aimed to assess the sensitiveness of the aviation stakeholders in regards to the economic, social and environmental factors and the strategies which they have adopted to ensure that the aviation sector grows sustainability. Drawing from the UN Economic and Social Commission for Asia and the Pacific, Itani (2015) articulated four dimensions of sustainability in transportation: Environmental: integration of environmental concerns into transportation, economic: cost-effective transportation that achieves the highest social return on physical and natural capital, financial: generation of sufficient funds to cover capital and operating costs in the long run, and social: improving standard of living, quality of

life, and reducing poverty.

Different aviation agencies, aviation lines, government agencies and other international agencies are actively involved in aviation industry policy making. The policies are aimed at promoting the sustainability of the aviation sector by considering economic benefits, social benefits and environmental sustainability (Hu & Zhang, 2018). The Federal Aviation Administration (FAA) and the European Aviation Safety Agency (EASA) have come up with laws banning the use of propeller aircraft in populous areas. The legal cap put in place is to a threshold of 80dbs. This is to ensure the bio diversity is not harmed by the activities of the aerospace industry.

Efforts go beyond aircraft fleet to purchase of renewable energy for offices and properties, use of efficient lighting, improved computer power management, among other initiatives (Lutte & Bartle, 2017). Environmental sustainability involves reducing pollution waste and energy/resource consumption; minimizing or repairing environmental damage(for example, deforestation), controlling the disposal of harmful wastes, using renewable or recyclable materials and designs, reducing greenhouse gas (GHG) emissions and carbon footprint, educating supply chain and customers to support environmental practices and investing in green projects such renewable energy and land reclamation.

The aviation industry contributes to 3.1% of the world's total pollution. Further, the International Civil Aviation Organization (ICAO), a specialized agency of the United Nations (UN), sets policy and establishes standards to fulfill the following vision, “to achieve the sustainable growth of the global aviation system (ICAO, 2016). The ICAO Aviation System Block Upgrades (ASBU) initiative is designed to keep infrastructure needs and improvements in pace with air transport growth. The agency seeks to modernize air navigation and whether the policy addressed the goals of sustainability. Evidence of achieving this change in global air transport policy can provide an example for other policies, moving us one step closer to achieving the balance between the functions of air transport and sustainability.

Economic sustainability“ implies a system of production that satisfies present consumption levels without compromising future needs. The „sustainability“ that „economic sustainability“ seeks is the „sustainability“ of the economic system itself (Karaman, Kilic & Uyar, 2018). The economic sustainability means that the air operator is making profit to sustain its operations. Moreover, economic sustainability implies that the airliner is contributing to the economic growth of the country while offering employment opportunities (Sharma & Singh, 2017). As such as, the airline industry in Kenya recognize the need for radical economic policy changes to ensure its survival and prosperity due to the many challenges they face now and in future.

Further, the social dimension of sustainability relates to airline responsibility towards labor, the community and the regions in or with which a company conducts its business (Janic, 2017). Social cultural factors include: demographics character characteristics and trends; cultural norms, values and customs; lifestyle and fashion trends (green consumerism) and human resource management (Sharma & Singh, 2017). An airline that is not economically performing will have negative social impact to the social setting where persons working there may lose jobs making life sustenance unbearable.

4. THEORETICAL FRAMEWORK

4.1 The planning theory

Planning theory was advanced by Fainstein (2000). According to Fainstein (2000), the planning theory is characterized by the top-down and consensus-seeking approaches. Stiftel (2000) further contends that the planning theory is the engine that drives the formulation and implementation of policies. This implies that the planning theory is the source from which all planning for public policy process that culminates into formulation, emanates (Allmendinger, 2017).

In light of hereof, the planning theory for public policy formulation embodies the writings about activities and practices of planners as they undertake their planning tasks for an organizational entity or function (Watson, 2003). Ferreira *et al.* (2009) describe the planning theory as being a collaborative and process-oriented theory, meaning that it entails the involvement of a number of actors over protracted period of time (Fainstein & DeFilippis,

2015). Consequently, for the purpose of this study, the planning theory suggests integration, consensus seeking and project approaches towards pursuing public policy processes which entail formulating public policies.

In the context of the airline industry, policies are critical in the management of the sector. Thus, clear and prudent policies are formulated by the airliner in conjunction with aviation sector players. The policies are then implemented to address key business aspects of the airline sector including economic, environmental and social sustainability.

4.2 Functional Process Model

According to Mamburu (2004), the functional process model suggests a serious consideration of effective generation of other public policy process alternatives, which can be achieved through active grassroots participation during the public policy process. This model focuses on the functional activities involved in the policy making process and is concerned with the “how” aspect of policy making (Fox *et al.*, 2006). For this study and based on the above definitions, the functional process model could be defined as a comparative and all inclusive approach aimed at forging collaboration with the public policy process. In that sense, this model, through its comparative approach, suggests public policy enhancing strategies such as consulting actors involved at grassroots level in the public policy process.

The airline sector comprises many players that must work harmoniously for the benefit of the industry. These players include international aviation organization like IATA and ICAO that work in collaboration with local agencies like Kenya Civil Aviation Authority, Kenya Airports Authority, Meteorology Department and Aviation Ground Handlers to make industry policies that promote sustainability of the sector. As such, comprehensive aviation policies formulation calls for the participation of all the parties concerned.

4.3 Dynamic Capabilities Theory

The Dynamic-Capabilities Theory was established by Teece *et al.* in (1997). It is an extension of the resource-based view theory of the firm. The theory examines how firms integrate, build, and reconfigure their internal and external firm-specific competencies into new competencies that match their turbulent environment (Amankwah-Amoah & Debrah, 2011). Dynamic-

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Capabilities Theory identifies three classes of processes that relate to dynamic capabilities. The three classes are coordination, which they also call integration, guided learning and configuration, which they also term as transformation.

Formulated policies can only be implemented if there are sufficient dynamic capabilities. Specific competencies are requirement in the formulation of airline industry policies. As such Dynamic-Capabilities Theory shed some light on how aviation lines can enhance sustainability through policy formulation.

5. EMPIRICAL REVIEW

Itani (2015) undertook a study on policy development framework for aviation strategic planning in developing countries. This study provides a three-stage policy development framework for aviation strategic planning based on situational analysis and performance benchmarking practices in order to assemble policy elements and produce a best-fit aviation strategy. The framework builds on study results that indicate an association between air transport sector performance and aviation policy strategies, arguing that it is not sufficient to simply describe performance but also to be able to assess it and understand how policymakers can use strategic planning tools to affect the air transport industry efficiency levels. However, this study did not show how aviation policies are formulated.

Kotze (2017) conducted a study, sustainability analysis of the airline industry—low cost carriers and full service carriers. The study utilized a generic three-lense viewpoint being: strategy, operations and culture, together with a more specific viewpoint of environmental stewardship strategy, to review how Ryanair and SAS have addressed sustainability within the airline.

Ryanair and SAS are both doing well in the strategic integration of sustainability due to their large investments in fleet renewal and advancements, which reduce fuel consumption and emissions, thereby contributing to sustainability. Ryanair is not succeeding, however, with regard to operational and cultural integration and environmental stewardship. Ryanair’s low cost strategy focus is providing the lowest possible airfare for customers therefore sustainability is not a priority. Ryanair has poorly addressed sustainability in the following

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areas: leadership, communication, reporting, stakeholder pressure, embedding environmental consciousness, diffusion and translation of best practices and so forth. However, the study did not indicate the industry policies formulated for sustainability.

Walala and Mutinda (2013) did a study on evaluation of sustainable development in aviation industry: A case study of Kenya Airways (KQ) and Eldoret international airport. The research primarily employed open ended interview-based methods of data collection. The study indicated that employees were not effectively sensitive to Aviation Sustainability hence not doing enough to achieve TBL balance. Aviation industrial policies were not elaborated in the study.

Mwikya and Mulwa (2018) conducted a study on the implementation of aviation safety standards and performance of air transport industry: a conceptual perspective. From the literature reviewed it is evident that the operational performance of the air transport industry in Kenya is closely dependent on monitoring of implementation of aviation safety standards which include continuous aviation training programs, proper and quality aviation personnel certification procedures, aviation infrastructure and proper data management on aviation safety procedures and concerns. The monitoring of the implementation of aviation safety standards is done by Civil Aviation Authority of Kenya. Aviation industry policies were not highlighted in this study.

Lutte and Bartle (2017) conducted a study on sustainability in the Air: The Modernization of International Air Navigation. The study examined this call by exploring the case of an international aviation initiative. The International Civil Aviation Organization (ICAO) Aviation System Block Upgrades (ASBU) policy has been developed to provide a road map to modernize global air navigation. This article explores the case of the ASBU as an example of meeting the call for the new role for public administrators to implement sustainable practices. The study found that this policy improves international air transportation sustainability in several dimensions, and that this approach is a model for implementing sustainable policies.

6. SUMMARY OF FINDINGS FROM EMPIRICAL REVIEW

Sustainability of aviation industry according to past empirical researches is a broad concept that needs critical consideration. Balancing environmental sustainability, economic sustainability, social sustainability without undermining one aspect is the most challenging task. The environmental, economic, social and financial aspects often conflict as when one aspect is improved, an equivalent effect is realized on the other aspects making the whole process of sustainability rather complex. As such, properly formulated policies are required to put environmental sustainability, economic sustainability and social sustainability at optimal level in the aviation industry.

Lutte and Bartle (2017) while studying sustainability in the Air found that this policy improves international air transportation sustainability in several dimensions, and that this approach is a model for implementing sustainable policies. Itani (2015) in a study on policy development framework for aviation strategic planning in developing countries indicated an association between air transport sector performance and aviation policy strategies, arguing that it is not sufficient to simply describe performance but also to be able to assess it and understand how policymakers can use strategic planning tools to affect the air transport industry efficiency levels. However, this study did not show how aviation policies are formulated. Kotze (2017) while studying sustainability analysis of the airline industry—low cost carriers and full service carriers revealed that strategic integration of sustainability due to large investments in fleet renewal and advancements reduces fuel consumption and emissions, thereby contributing to sustainability. However, the study did not indicate the industry policies formulated for sustainability.

Walala and Mutinda (2013) while evaluating sustainability in aviation industry indicated that employees were not effectively sensitive to Aviation Sustainability hence not doing enough to achieve TBL balance. Aviation industrial policies were not elaborated in the study. Mwikya and Mulwa (2018) in the implementation of aviation safety standards and performance of air transport industry noted that operational performance of the air transport industry in Kenya is closely dependent on monitoring of implementation of aviation safety standards which include

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continuous aviation training programs, proper and quality aviation personnel certification procedures, aviation infrastructure and proper data management on aviation safety procedures and concerns.

7. CONCLUSIONS

Sustainability of the aviation sector takes a multidimensional approach including economic sustainability, environmental sustainability and social sustainability. Thus, the sustainability of the aviation industry sector presents a challenging task in enhancing the three aspects of aviation industry sustainability. The three aspects in most instances conflict for instance as economic aspect of sustainability is enhanced, the environmental aspect of sustainability deteriorates.

Formulation of aviation industrial policies requires multi-agency involvement. The aviation industry sector has many other bodies and agencies that must be considered for industrial advice, engagement and consultation. A particular aviation industrial policy formulated may conflict with policy guidelines from other partners and agencies.

8. POLICY IMPLICATIONS

From the literature review, it was identified that sustainability of the aviation industry takes a multidimensional approach that include economic sustainability, environmental sustainability and social sustainability. The unique phenomenon presents a unique challenge in promoting satisfactory sustainability in the aviation industry. As such, the study recommends for prudent aviation policies, carefully and collaboratively formulated to balance the three aspects of sustainability in the aviation industry.

Policy formulation should be a collaborative task. This is because, aviation industry is not a standalone sector and thus the suggestions and contribution of the regulators (IATA, ICAO), government, Kenya Civil Aviation Authority, Ministry of Transport, National Environment Management Authority (NEMA), Ministry of Environment, Kenya Airports Authority, Meteorology Department, Kenya Association of Air Operators and Kenya Aerotech may need to work closely in formulated better policies that shall prove appropriate in in enhancing

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sustainability of the aviation industry.

The policies to be formulated and implemented include environmental sustainability policies that ensure that airline operators, use less pollutant fuels, economic sustainability policies including policies on excellent service delivery to customers, affordable airline maintenance practices and fair competition strategies among the participants in the industry. Social responsibilities policies to be adopted include clauses that promote active participation of the airline operators in building social services/amenities and protecting employees from abuse by the employer (s).

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