



REDEFINING THE ROLE OF AIRPOWER FOR NATION BUILDING IN PEACETIME

HW Nirosch Wanasinghe

No 1 Flying Training Wing, Sri Lanka Air Force Academy, China-bay, Sri Lanka, wniroschw@gmail.com

AABDP Abewardhana

Tianjin University, Tianjin, Peoples Republic of China, dimuthu@tju.edu.cn

ABSTRACT

Airpower is offensive by nature. In the post conflict situation after the defeat of brutal terrorism in 2009, airpower was performing its traditional role of preserving the peace for almost a decade. However, economy and development of the nation crippled by two consecutive incidents. The Easter Sunday attack in 2019 and COVID-19 pandemic. These two incidents directly influenced fields such as trading, tourism, finance, education, transportation, development and so on. The high cost involved in maintaining airpower in battle ready condition has become an extra burden for the nation with the depleted economic status. Thus, gradually truncating of budgetary allocation for the maintenance of airpower occurred. Re-fleeting plans had to be suspended. Hence, an exploratory qualitative study was conducted with an inductive approach examining the present gap between sustenance of Air Force and national interest. Further, the potentials/competencies of airpower could be utilized in nation building without hampering its primary role of assuring security, and safety of the nation was examined. During this paper following key potentials were highlighted which can contribute for national growth. They are United Nations (UN) deployment of air assets, enhance surveillance and reconnaissance capabilities, restart manufacturing of military equipment, and improve research and development capabilities. Recommendations were made in order to achieve the improvements such as procuring aircraft for UN peacekeeping operation deployments, optimizing surveillance and recce, improve research and development facilities and recommencement of military equipment manufacturing. These recommendations would contribute for national growth, and support the sustenance of airpower in the long run.

KEYWORDS: *Airpower, Research and Development, Nation Building, Sustenance.*

1. INTRODUCTION

“Country without a strong Air Force is at the mercy of any aggressor.”

-Mohammad Ali Jinnah (First Prime Minister of Pakistan)-

Airpower is offensive by nature. Hence, role of airpower was utilized primarily for kinetic operations and secondarily for non-kinetic operations. However, the algorithms of modern airpower had expanded its limits beyond its orthodox roles thus contributing to myriads of disciplines for sustenance and growth. Sri Lanka employed its' limited airpower effectively during the humanitarian operations conducted during 2006-2009 against Liberation Tigers of Tamil Eelam (LTTE) terrorists, fought on the lines of ethnicity for nearly three decades. During the post conflict scenario, the national interest was focused for economic and infrastructure development, which had been curtailed for decades due to the higher expenses, incurred in mitigating terrorism. Same time the budgetary allocation for airpower faced a gradual decline due to its high maintenance and operational cost. The forecasted plans for re-fleeting had to be suspended. Further the potential of airpower and associated strengths were underutilized considering only the cost involved, thus neglecting their direct and indirect bearing on national security and development.

Hence, after more than a decade (2009-2020) from the victory against terror, under the present circumstances it is not too late to redefine the role of airpower in an effective and productive manner contributing for national growth without hindering its primary role of safeguarding the nation. This redirection could contribute for the holistic support requires from each and every stakeholder in the present context for a sustainable national development.

Problem identified is that if the role of Sri Lanka Air Force (SLAF) continues to be without any adaptation to the contemporary situation it will create a gap between national interests and sustenance of SLAF. Further, it will keep on widening until such time the organizational objectives are skew to national interests and national objectives.

Significance of this paper is that the researchers are studying this gap and means to bridge the gap in order to sustain SLAF as a fundamental organization whilst benefitting the national requirements through its capabilities and capacities thus, creating a win-win situation.

Hence, this paper is intending to find out the competencies and capacities, which, can be utilized in order to support national security and development beyond its hard assigned orthodox roles and propose viable recommendations based on facts. Objectives of the paper are as follows.

- To identify the difficulties in sustenance of the SLAF due to present constrains.
- To recognize the potentials, competencies and capacities of SLAF which can be utilized for nation building.
- Propose viable recommendations to contribute SLAF competencies, potentials and capacities for nation building efforts.

2. METHODOLOGY

An Inductive approach was followed to find means to the observed phenomenon. During the exploratory qualitative study, researchers have followed interpretivism as the philosophy whilst encompassing grounded theory strategy as the strategy. Cross sectional time horizon was employed as the time horizon and collection of primary data was conducted mainly through interviewing respondents from user formations of SLAF from different array of professionals employed for the roles discussed in this paper. Secondary data was collected through white papers published by SLAF, regional and global counterparts out of which some are classified in nature. Data collection and analysis has been the technique.

The conceptual framework has been elucidated, what the researchers expect to explore through this paper. Following conceptual framework has been developed in line with the three exploratory research objectives which intends to work as the outline of the paper.

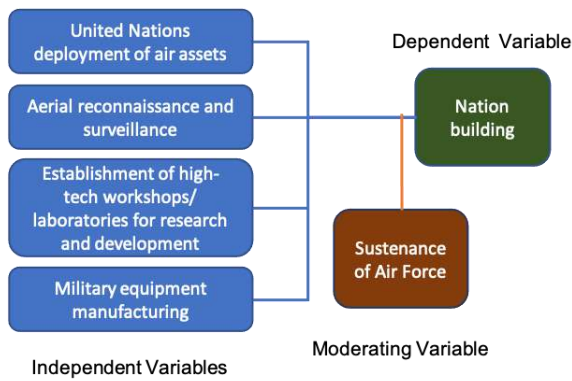


Figure 1: Conceptual Framework

Source: Author

3. BACKGROUND

3.1 Contemporary situation in Sri Lanka

After the defeat of LTTE terrorism in 2009, the economy of the nation started a new expedition since 2009 mainly based on tourism and construction. Number of foreign investors were keen to invest for the infrastructure development which happened to be a highly felt need such as a high-way road network, expansion of port and airport facilities, expansion of various kind of power plants, city developments, development in hotel and hospitality infrastructure, sports/recreational infrastructure...etc. A remarkable rise in tourists' inflow was a great strength in providing life to the conflict torn Island nation.

Unfortunately, on 21st April 2019 a series of bomb blasts were deliberately conducted by jihadists aiming churches and top hotels targeting Christians followers and foreign tourists thus, massacring more than 250 innocent people and badly injuring more than 500 people, both local and foreign nationals. Hence, the industry of tourism faced a prominent decline (approximately 20% drop) in tourists' inflow due to security and safety reasons. Alas COVID-19 pandemic completely devastated not only the industry of tourism which was recovering from the terrible memories of Ester Sunday massacre, but also the other fields such as trading, education, construction, transportation...etc. After closing of ports and airports for the foreign tourists in March 2020, only a limited essential function is in

action which involved with extra cost and effort due to COVID-19 protocols.

Countries with strong economies could have more options of alleviating the drawbacks generated by COVID-19 pandemic. Nevertheless, the small and developing economies like Sri Lanka encountered severe impact on its stability and survivability, which had two major blows consecutively on its economic income. Drawbacks the island nation is having at present are higher national debt, poor national production, and higher degree of dependence on imported goods, gradual dilution of foreign reserves, higher trade deficit, inflation...etc. Therefore, it is a demanding task to recover from present status and regain the track of development.

3.2 Requirement of national growth and security

Being a developing country there are many objectives to be met in order to uplift the general living standards of common public. Those requirements span across the sectors such as education, health, transportation, power generation...etc. Economic stability is proportional to the vulnerability if sufficient measures are not taken in order to ensure the security and safety. Primary responsibility of providing security and safety to the nation lies with the military. Furthermore, the forecasted economic development would not be met due to the limitations imposed by COVID-19 pandemic, like travel restrictions and disturbances to the global trading.

Being a responsible stakeholder, the SLAF could not remain indolent performing only their conventional roles, which, consumes a significant amount of defence budget. Hence, the time has come where; a new way forward is required to utilize the capabilities of airpower beyond orthodox options. The resources of airpower could support national growth without hindering the primary role of guaranteeing the safety and security of the nation. Formulating a proper security structure is a great relief for a nation speeding up on development.

Furthermore, nation building is an assigned task for the military forces during the peacetime, specifically in post war scenario, where a nation transits from war to peace. This period imposes responsibilities to the government

and private stakeholders' alike while, allowing more liberty to develop and growth. However, the manpower, machinery and technical knowhow of SLAF would be an immense support particularly for the technical sectors.

4. DISCUSSION

Areas, which could be supplemented by airpower for an effective output

Being a tech savvy organization, SLAF operates a fleet of aircraft, technical and logistical maintenance facilities, technical workshops and laboratories, technical training centres...etc. Furthermore, SLAF is strengthened by approximately 35000+ men in blues belonging to different array of professions such as flying, engineering, technical, logistical, administrative...etc. These professionals are highly trained and specialized particularly for their profession. Keeping such a capable and potential group in lagoon is not a productive employment. Instead, these highly trained personal could be employed in their own profession in order to make an outcome, which would have more orientation towards national security thus supporting growth. Hence, this paper was penned in order to ascertain an effective employment of existing strengths of SLAF airpower and the viable areas of improvement without exerting additional pressure to the state in long run.

It was revealed following areas which already exists in an ordinary scale, could be developed in to higher levels to have a greater output. All these options are being successfully practiced by regional and global counterparts. They are proved to have ever developing potential which are as follows.

- United Nations deployment of air assets
- Aerial reconnaissance and surveillance
- Establishment of high-tech workshops/ laboratories for research and development
- Military equipment manufacturing

4.1 United Nations (UN) deployment of air assets

UN deployment of air assets is an assured income to the national economy which had been already utilized by SLAF.

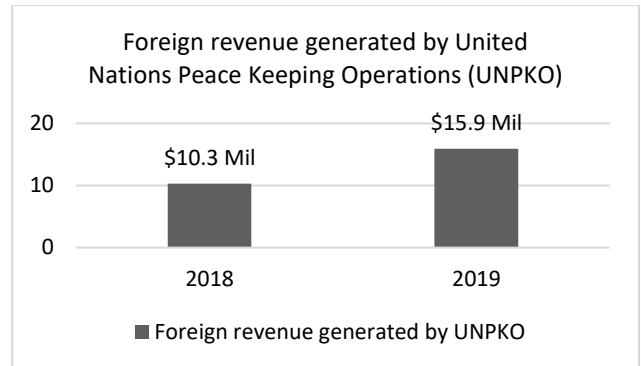


Figure 2: Foreign revenue generated by UNPKO

Source: SLAF Annual Performance Reports (2018&2019)

So far, SLAF had deployed two separate UN contingents for UNPKO in South Sudan and Central Africa comprised with three Mi-17 utility helicopters in each. In addition, SLAF was offered with more contingents where unavailability of required assets denied the opportunities. Moreover, fixed wing transport platforms also would be deployed for further growth. SLAF possess AN-32B medium transport aircraft fleet underutilized due to absence of clearly defined role and task. Deploying these aircraft for UN operations would open new opportunities for SLAF. Further, it would aid in utilizing the crew for better usage.



Figure 3: SLAF Mi-17 helicopters deployed for UNPKO

Source: www.airforce.lk

Nonetheless, there are regional counterparts such as Bangladesh Air Force who had employed a greater number of UN contingents with a greater number of air assets, which represents significant amount of their national income. Apart from the direct payment made by UN for the employment of air assets, ground assets and the crew for the operation of the contingent, there are indirect gains to the SLAF, which are as follows:

- Valuable flying experience for the aircrew employed in the contingent
- Motivation of the crew

1) *Valuable flying experience for the aircrew employed in the contingent:* Since the budgetary allocation for the SLAF is truncated which, is a natural phenomenon in a post conflict situation, aircrew get limited opportunities for both in operational and training aspects. Comparatively a UN deployed aircrew member logs a greater number of flying experiences during one year, which is the normal contract period for a UN employment. Apart from that, the associated supporting elements also get a good exposure for operational encounters, which, is no more available after the conclusion of anti-terrorism operations in 2009. This helps to retain and continue the invaluable operational experience, which becomes extremely vital in future operational requirements. There is a remarkable difference between operationally tested aircrew and who are not been operationally tested, mainly due to the increased life threat and pressure in actual operational environment. Gaining air experience with additional benefits during UN deployments become a win-win situation for both states' financial capacity and the SLAF.

2) *Motivation of the crew:* In addition, the motivation of the UN employed aircrew is apparently higher with compared to the others due to higher personal income which is approximately 8 million LKR in addition to their usual pay during one fiscal year of employment. Further, foreign exposure and the operational experience they log, helps to uplift their professionalism / crew ratings in the long run. Therefore, the more the number of air assets and crew can be deployed for UN missions more will be the income for national economy and the more competent and

experienced aircrew and supporting crew will be the SLAF would retain.

4.2 Aerial reconnaissance (rece) and surveillance

Aerial rece is relatively important for an Island nation like Sri Lanka. Being located in the maritime center of Indian Ocean having a significant and important sea territory to safeguard, it inevitably becomes a joint effort and responsibility of Sri Lanka Navy (SLN) and SLAF. However, only the air assets enjoy the required height, speed and reach within the specified region with minimum time delay. The area of responsibility expands up to the Exclusive Economic Zone (EEZ), which is approximately 200 nm from the coastline to north, east and south. (Lonneville, 2020). However, continental shelf is believed to expand up to 75000 km² in addition to present EEZ.

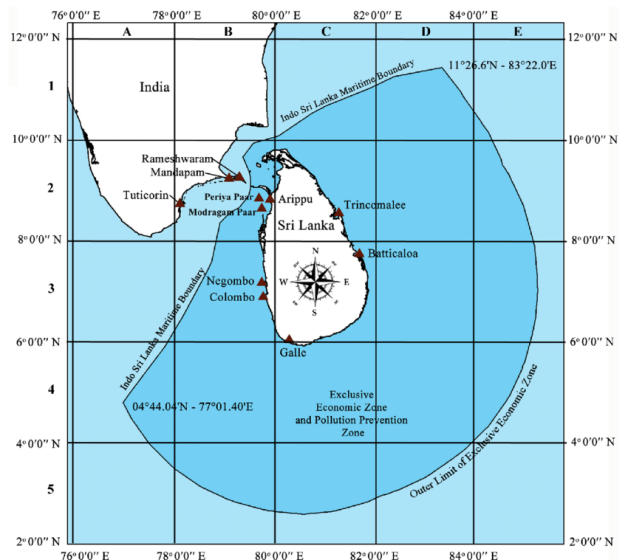


Figure 4 : EEZ of Sri Lanka

Source: Maritime Boundaries Geodatabase, Flanders Marine Institute

At present SLAF conducts aerial rece over land and over sea both. However, because of depletion of the fleet due to limited maintenance budget, this function is gradually becoming unrealistic. Now SLAF is in a situation where, it can provide rece support for SLN and Sri Lanka Coast Guards (SLCG) on request still with limitations. Now the expected output from the SLAF would not be delivered even at critical instances such as breach of security and territorial violations. The

maritime reconnaissance is of key importance particularly due to following reasons.

- Illegal fishing
- Illegal migrants
- Smuggling and illegal trafficking of goods
- Piracy

1) *Illegal fishing:* Sri Lankan sea harvest was continuously purloined by Indian fishermen who, especially approach from North and North West of the Island. They found to be using advanced technology, larger trawlers and illegal poaching methods. Bottom trawling method used by Indian fishermen damages seabed for many years to come depleting potential and threatening the sustenance of environmental balance. This issue has been more prominent in post COVID-19 pandemic. These fishermen are great in numbers and capacity of fishing. Therefore, they are capable of making a significant loss to national sea harvest. Losing the income inflicts short-term losses while their illegal fishing techniques perpetrate the future fishing income and destabilizing the natural habitats of sea creatures.



Figure 5: Increased illegal Indian migrants/sea poachers across IMBL

Source: Classified

2) *Illegal migrants:* Illegal migrants from neighbouring countries have been an issue for a long time. However, illegal migrants especially from India showed a rise during COVID-19 pandemic. Especially at night, significant increment of vessel movements across Indo Sri Lanka Maritime Boundary (IMBL) is observed during worldwide locked down and SLAF was continuously called for aerial support for SLN. However, limited number of platforms, which are in SLAF

possession at present, restricts the effective usage of the airpower for such requirements.

3) *Smuggling and illegal trafficking of goods:* Location of the Island nation is effectively utilized for smuggling, human trafficking and drug trafficking. Sri Lanka is identified as a transit hub for illegal activities, which, utilizes the veil of high sea traffic encountered throughout the year, which exceeds the monitoring capacity of SLAF. Most prominent activity is trafficking of drugs. These monitoring tasks requires sophisticated equipment and platforms. Traditional recce wherewithal is not capable to cater such demand.

4) *Piracy:* One of the most vulnerable areas for piracy is Gulf of Aden and eastwards towards Sri Lanka. This is a prime threat to the one of the worlds' busiest Sea Line of Communications (SLOC) which lies 3-4 nm from Islands' Southern coast. These issues are co-monitored by SLN and coast guards with the aerial support of SLAF on request at present. However, to implement a more productive mechanism it requires continuous surveillance of these aspects by aerial means. Once detected and reported, onward actions are been taken by SLN and SLCG.

Apart from the maritime recce operations, SLAF conducts recce over natural reserves over land where, increased illegal activities were observed such as deforestation, illegal sand mining, cannabis plantation...etc. Monitoring and reporting of these illegal activities have a serious impact on the economy of the country, safety of the natural resources, peaceful environment and image of the nation. However, SLAF requires making more platforms available for such requirements.

Effective effort for proper surveillance and recce is vital in addressing the unique issues highlighted above. The political hierarchy often perceives these efforts as expenses. However, in actual case these efforts act as an investment rather than an expense, though the affair is costly. Only this exclusive role of airpower could provide the real time information for speedy actions, which can diminish the possible long-term damages they would cause. The cost of possible damage these

illegitimate activities could cause in in long run would be incomparable to the expenses to mitigate the same.

4.3 Establishment of high-tech workshops / laboratories for research and development

At present Sri Lanka is not actively interested in research and development. Long practiced open economy concept since 1977 resulted following long-term consequences. The national production was gradually declined, and importation was gradually increased. Many products, which were self-sufficient such as rice, salt, spices, dairy products...etc., started depending on imports. Along with the deterioration of national production, the requirement of research and development was hardly felt thus dwindling the facilities for such efforts.

As at now we do not possess sufficient magnitude of workshop / laboratory facilities and they are not at the required level of sophistication, capacity and potential except few such as Colombo dockyard, Sri Lanka Atomic Energy institute, SLAF...etc. Reminding the phrase which *“Every dark cloud has a silver lining”*, during the COVID-19 pandemic an increased interest was waved across the country for related protective measures which were restricted to import due to travel and transportation bans. During the period, military and civil research and development facilities delivered speedy and effective solutions. Now a trend has been setup to encourage the national production, which obviously requires the insight of proper research and development work.



Figure 6: SLAF R&D project for an Unmanned Aerial Vehicle (UAV)

Source: www.dailynews.lk

In developed countries the military research and development plays a vital role in partnership with their civilian counterparts. Maintenance of such hi-tech laboratory /workshop complexes are challenging for profit-oriented entities due to the time, resources and effort, which is usually unpredictable irrespective of the objectives. Thus, making market penetration for a total new entity in this sector is a costly and a risky affair.

At present SLAF operates moderate workshop / laboratory facilities for non-destructive testing (NDT), heat treatments, carbon fiber production, limited engine and airframe overhauling facilities...etc. These facilities could be expanded and upgraded up to higher levels in order to function in partnership with other entities, which seek services in such nature. They are sister services, universities and civilian organizations. Maintenance and management of the complex could be included to the existing setup with ease due to the available human capital and effective leadership along with management capabilities inherited by military organizations. This would be developed for limited areas initially and could expand gradually to the other important disciplines such as construction, engineering, medical...etc. Present laboratory and workshop facilities would provide a great foundation to kick off facilities that are more sophisticated in future.

4.4 Military equipment manufacturing

Military equipment are usually high in cost mainly due to the monopolistic nature of the venture. Sustenance of an elongated military encounter depends on timely supply of the required war making potentials. However, the government admin and financial regulations does not facilitate a speedy delivery of items required. On the other hand, the alternative quick procurement procedures are embedded with higher cost factor.

Decades ago, SLAF was in process of manufacturing limited improvised explosive devises and another minor military hardware, which was a good start-up. Unfortunately, the open economy concept and higher demand for the military hardware during the peaks of anti-terrorism operations against LTTE rendered further development of the line of manufacturing thus forcing the facilities and capabilities to perish. The bitter lessons

due to sole dependence on military equipment importation was learned in a hard way at the face of military equipment embargos imposed especially by state sympathizers of western world who, supported the clear cause of terrorism of LTTE throughout the conflict.

Post conflict situation has eased the rapid requirement of military equipment. Sufficient number of stocks are still available which bulk purchased during the time of conflict were. It is the best time to restart the manufacturing of military equipment in combination with the research and development efforts discussed above. The efforts can be start with minor projects such as manufacturing of military clothing and accessories, small arms and munitions, improvised explosive devices, communication equipment...etc. and gradually expand to the higher-level productions with time for self-sustenance. Effective and quality product could be put into the international market for greater income. Countries like Israel, Singapore, Brazil, Indonesia and Malaysia are classic examples for such approaches.

Further, modern airpower is heavily depended upon the avionics. The military software development also a possible and feasible option considering the tech savviness of the modern generation of the nation. An increased brain drain could be observed in the field of Information Technology due to the absence of lucrative gains and limited job opportunities. Establishment of military software development program could retain a portion of the skilled and young workforce which a sector with significant brain drain as well as it can save a significant amount of money which is expended for the avionics related software and equipment. This facility could be easily enhanced in order to cater the requirements of sister services who shares the techno requirement of communication, data links and associated navigational measures. This effort would develop state avionics related technology as we provide an opportunity for the new generation Information Technology professionals to work on.

5. RECOMMENDATIONS

In line with the points discussed above, following recommendations could be made which, are feasible

with the present capabilities and resources, which, could develop into greater levels with experience. Capital cost of these recommendations would be comparatively high due to the nature of the field and furthermore not all outcomes could be financially measured. Nonetheless, all these recommendations would have definite long-term benefits to the nation in general and to the SLAF in particular.

5.1 Procuring of aircraft for UN deployment.

Procure a greater number of utility helicopters and fixed wing aircraft in order to deploy in UN missions supplementing the existing fleet is a prime recommendation. Return of income within few years of time is assured considering the past employments of air assets in UN missions though; the capital cost of the effort would be high. As elaborated, it will not only make financial income to the national economy, but also will provide experience and motivated men in blues for the future security demands of the nation.

5.2 Procuring of aircraft for surveillance and recce

Procure suitable and sufficient number of platforms for the purpose of effective surveillance and recce supplementing the current aging fleet is a highly felt requirement as of now. They should have the capability to cover the total area of EEZ. This can ensure effective mitigation of illegal activities such as illegal fishing, human / drug trafficking and illegal migration in combination with SLN and SLGC. Further, monitoring and reporting of plantation of cannabis, deforestation and illegal sand mining in coordination with law enforcement agencies, which have an indirect bearing towards national economy and solid bearing towards the national image, is of prime importance for the fostering of tourism and global trading.

5.3 Improve research and development facilities

“The first essential of air power necessary for our national security is preeminence in Research.”

- General Henry “Hap” Arnold-

Expansion and improvement of existing research and development facilities with long-term objectives is required. This venture could be progressed as a partnership with universities and civilian institutions who shares the same interest in the areas, which, are not classified. This effort can foster the local manufacturing efforts and save unnecessary expenditure of importation.

5.4 Manufacturing of military equipment

Restart the manufacturing of military hardware and software from the basic level in coordination with research and development projects so as to achieve long term and more advanced manufacturing objectives is a timely requirement. This step could retain significant amount of money spent for foreign military procurement. Further, with the development, Sri Lanka could enter in to the international military market, which would provide noteworthy contribution to the national economy. In addition, this could create more high-tech job opportunities possibly reducing brain draining in respective fields.

6. CONCLUSION

In peacetime, the primary role of the airpower happened to be the preserving peace. Modern day security and politico-economic dynamics are such that we will never know the demand for kinetic force. To maintain an airpower, which is the deciding factor in modern warfare in operational ready status, needs deliberately, planned long-term training and development program. It inevitably consumes significant number of resources. For a developing nation like Sri Lanka with a small economy, it would be a difficult task to maintain such a costly affair. However, it is difficult obtain new forms of airpower which encounters heavy geopolitical influences, money, effort and time. Therefore, it would be advisable to retain the knowledge, skills and equipment related to air power, which we already have until such time we are capable of developing into greater heights in future.

Nevertheless, airpower demands continuous support from the state in its elongated process of expansion. It is required to maintain the hard-earned airpower and, in the meantime, it is required to ease out the burden on tax

paying citizenry for maintaining such a costly affair. During this paper, it was revealed that there are resources, competencies and potentials with SLAF, underutilized as at now. In order to achieve sustenance and effective utilization of SLAF to a reasonable degree this paper provides viable recommendations. The thematic recommendations made in this paper are an extensions and further developments of existing facilities / capabilities. Beginning of the process could be of small scale, which obviously could be developed into greater levels with time and effort. Medium of air would be utilized by more sectors in future as it provides many effective options. Therefore, the development of aerial capabilities would be a significant factor for future development in any nation.

7. ACKNOWLEDGMENT

For the successful completion of the study followed by this research paper, authors would like to offer their sincere gratitude to SLAF and in particularly to the professionals from flying and engineering formations whose valuable insight which enriched this effort.

8. REFERENCES

- Air Force Magazine (1997). 'The core competencies of air force'. Proceedings of the Air Force Academy Symposium, Colorado, United States. pp.24-29.
- Bangladesh Air Force (2021). BAF in peacekeeping Mission, Available at: <https://baf.mil.bd/website/un-deployments.php> [Accessed :11th Jul 2021].
- Beckly, M (2010). Economic development and military effectiveness, *Journal of strategic studies* 33 (1), pp 43-79 DOI: <https://DOI.org/10.1080/01402391003603581> [Accessed: 15th Oct 2020]
- Brzoska, M. Trends in Global Military and Civilian Research and Development (R&D) and their Changing Interface pp 16-18. Available: https://ifsh.de/pdf/aktuelles/india_brzoska.pdf [Accessed 10th Jul 2021].
- British air and space power doctrine AP300, 4th ed. Swindon, UK. pp 21-24
- Department of peace operations & Department of operational support, United Nations (2021). United Nations Peacekeeping Missions Military Aviation Unit

- Manual April 2021, pp 30-53. Available: <https://pcrs.un.org/Lists/Resources/07-%20UN%20Military%20Units%20Manuals/UN%20Military%20Aviation%20Manual/2021.04%20UNMUM%20-%20Aviation%20Unit%20Manual.pdf?Mobile=1&Source=%2F%5FLayouts%2F15%2Fmobile%2Fviewa%2Easpx%3FList%3D2f346e67%2Dff86%2D44f2%2D9242%2D0022ddd6df62%26View%3Dba3b3224%2D08c9%2D4d00%2D897f%2D85d87221488c%26RootFolder%3D%252FLists%252FResources%252F07%2D%2BUN%2BMilitary%2BUnits%2BManuals%252FUN%2BMilitary%2BAviation%2BManual%26ViewMode%3DDetail%26wdFCCState%3D1> [Accessed: 04th Jan 2021].
- Dorn, W (2021). Wings for Peace: The Four Facets of Air Power in UN Operations, *Pensées les ailes françaises* (journal of the French Air Force), pp 34-45. Available: <https://www.walterdorn.net/?id=224> [Accessed: 14th Jul 2021].
- Douglas D. Noble (1991). *The Classroom Arsenal: Military Research, Information Technology and Public Education*, DOI: <https://DOI.org/10.4324/9780203730317> [Accessed: 09th Jul 2020].
- Herbert F. York & G. Allen Greb (1997). Military research and development: a postwar history: Changing role of scientists and engineers in shaping U.S. military technology programs , *Bulletin of the Atomic scientists* 33 (1) pp. 13-26 Available: <https://www.tandfonline.com/DOI/abs/10.1080/00963402.1977.11458319> [Accessed on 12th Jul 2021].
- Haico te K. & Wim S. (2003). Civilian–military co-operation strategies in developing new technologies. Volume 32, Issue 6, June 2003, pp 955-970, DOI: [https://DOI.org/10.1016/S0048-7333\(02\)00105-1](https://DOI.org/10.1016/S0048-7333(02)00105-1) [Accessed: 7th August 2020].
- IAF, (2012). *Basic Air Power Doctrine*. 12th ed. New Delhi: IAF HQ, p.117-124.
- Kainikara, D. S. (2016). *The Cassandra Effect: Future Perceptios on airpower*. 1st ed. Delhi: VIJ books.
- Kainikara, S. (2011). *At the Critical Juncture : The Predicament of Small Air Forces*. 2nd ed. Canberra: Air Power Development Centre.
- Lonneville, B. (2020). *eezdetails*. Available at: <https://www.marineregions.org/gazetteer.php?p=details&id=8346> [Accessed on 30th Sep 2020].
- Nakamura H, Dando M (1993). Japan's military research and development: A high technology deterrent, *The Pacific Review* 6 (2) pp. 176-190.
- Novosseloff, A (2017). “Keeping peace from above: Air assets in UN peace operations.” *International Peace Institute*, October 2017. pp 20-23. Available: https://www.ipinst.org/wp-content/uploads/2017/10/1710_Keeping-Peace-from-Above.pdf [Accessed on 12th Jul 2021].
- Olsen, J. A. (2015). *Airpower Reborn: The Strategic Concepts of John Warden and John Boyd*. USA: Naval Institute Press.
- Sri Lanka Air Force (2019). *AFCW Material Engineering Laboratory*, Available: <http://www.airforce.lk/afcw/>, [Accessed: 12th Jul 2020].
- SLAF, 2018. *SLAF Basic Doctrine*. 1st ed. Colombo: AFHQ, p.179-181.
- Sri Lanka Tourism Development Authority (2019). *Annual Statistical Report 2019*. sltda.gov.lk Available: https://sltda.gov.lk/storage/common_media/AAnnual%20Statistical%20Report%20new%202109%20Word3889144215.pdf [Accessed 26th Jul 2020].
- UASF United States Air Force). (2019). *Science and Technology strategy: Strengthening USAF science and technology strategy for 2030 and beyond*, United States, United States Air Force. pp 04-20.
- Vego M., (2017). *Maritime strategy and sea control: Theory and practice*, 1st ed, Rhode Island . USA. pp 13-42.
- Wanasinghe, N. (2016): *Effective application of Airpower in countering threats to national security in IOR: A Sri Lankan Perspective*. Proceedings of the Kothelawala Defence University International Research Conference, Rathmalana. Sri Lanka