



Centre for Air Power Studies (CAPS)

Forum for National Security Studies (FNSS)

CAPS FELLOW SEMINAR RAPPORTEUR'S REPORT

HISTORY, EVOLUTION AND EMPLOYMENT OF UAVS

Chairperson: Wg Cdr M K Sharma, Research Fellow, CAPS

Speaker: Wg Cdr R K Narang, Research Fellow, CAPS

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As part of the ongoing activities at the Centre for Air Power Studies, a Fellows' Seminar titled; "History, Evolution and Employment of UAVs" was presented by Wg Cdr R K Narang, on Friday, May 08, 2015. The session was started with introductory remarks by the Chairperson, Wg Cdr M K Sharma, describing the ever-changing nature of warfare and the way we fight wars today. The Chairperson talked about the changing perceptions of warfare from traditional towards non-traditional, where the enemy has shifted from state to non-state actors enabling an increase in target surface. He also highlighted on the rise of media attention to such wars which has ensured that military attacks become more precise with lesser collateral damage. He placed before the listeners a question whether we are in a time where movies like Terminator 3 would become a reality? He ended his introductory remarks by highlighting the advantages of the UAVs such as its ability to fly longer than a manned aircraft, its accuracy in bombing targets and its lesser consumption of fuel.



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Wg Cdr R K Narang, started his presentation by giving a brief outline of his presentation. After quoting Gen. Henry H. "Hap" Arnold's definition on UAVs, the presenter talked about the use of the word 'Drones' which according to him was very controversial as it had a negative connotation. The Americans called it the UAVs since it was a combination of many machines and later as a result of many human rights protest changed and called it 'Remotely Piloted Aircraft' or RPA. The presenter, in a very lucid manner, was able to make a comparison between a cruise missile and a UAV, since the difference between the two is a very thin line. According to the presenter, UAVs are carriers of ammunition whereas cruise missiles in themselves are ammunition.

Wg Cdr R K Narang presented a detailed historical background on UAVs starting with the Austrians who were amongst the first to test and use them in the 19th century. One of the key elements that the presenter wanted to highlight on the UAV's history was that many of the UAV projects were shelved mid-way which hampered their evolution. The presenter spoke on the role of the UAVs during the World War years, presenting facts such as the term 'Drone' being claimed to be coined by the Royal Navy of UK. Also, the emphasis was on converting manned aircraft to unmanned aircraft during the World War period. Post World War there was a decline in R & D on UAVs. The presenter provided instances such as the Korean War of 1950's, where the UAVs were used extensively; the shooting down of a US U-2 spy plane by the USSR in 1960 and the capturing of its pilot, helped rekindle US focus on developing UAVs. The presenter also highlighted the Yom Kippur War of 1973, and the failure of Israel in the war that made Israel seek alternative methods of warfare such as the use of UAVs. The progress made by Israel in developing UAVs with its added mission success in Syria, where its UAVs had a major role to play got the attention of the US who began to collaborate with Israel. The US Gulf War success also got the attention from the US Congress and funds were being allocated towards R&D in UAVs. The presenter also highlighted the Balkan conflict failure that showcased some of the major limitations of the UAVs and the further scope for its evolution.



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The US new doctrine that called for the lesser use of manned aircraft in combat, led to the extensive use of UAVs in its missions in Afghanistan and Pakistan. Human rights concerns on the use of UAVs were also highlighted in the presentation. The presenter also talked on the Israeli operations in Lebanon in November 14, 2012. During this operation the Israeli released media footage to show minimal loss of human life due to the use of UAVs, thus turning down human rights violation concerns. The presenter highlighted that the US in recent years gives only an account on the missions flown and not the casualties, a departure from its past where it gave an account of both.

The presenter highlighted some of the major challenges faced by UAVs- one being the projects getting shelved and the other being competition from manned aircraft. The presenter concluded by stating that only countries with a dedicated R&D programme in UAVs over a continued period of time have witnessed success, citing the example of Israel that witnessed immense success despite starting late. According to the presenter, India should follow the Israeli model in order to make advances in this field.

The session was followed by the remarks by the Discussant, Gp Capt Vivek Kapur, who stated that it was a well researched presentation covering many aspects on the historical part. He brought to the attention of the audience the reality of autonomous military systems and their ban due to ethical reasons. Gp Capt Kapur also mentioned the legal aspects of utilisation of UAVs and ended by giving some of his recommendations for future chapters.

During the Q & A it was pointed out that the operator of the UAV does not have a shared well-being with the machine as is the case with a manned aircraft? Major concerns were raised on the psychological implications as a result of the use of UAVs for targets and spying. It was pointed out that technology has to evolve to make UAVs worthwhile since till date UAVs have not been tested in an air-to-air combat. Therefore, to make UAV's combat compatible it was suggested that they need to have more manoeuvrability and other technologies such as automation. Continuing with the discussion on automation it was asked whether there is a need for a change in UAVs' development philosophy- that



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is, should automation of UAVs that existed in the past come back in place of the present ground control? To this, Wg Cdr R K Narang stated that there should be a combination of both strategies /combinations that can give the best outcome based on the mission. It was also pointed out that since automation comes through an algorithm or software, the day isn't far that this will become a reality. However, this view was rebutted, stating that automation is still a very far cry and the need for external pilot for UAVs still exists. There was also a question on the battery life of UAVs, giving the example of a video of a UAV carrying medicines in Africa having to stop for charging. The question then arose that could the charging of the UAV be done while it was airborne? In response, the presenter stated that it could become a reality and gave the examples of the recent Google tested UAV that could fly for six months. The other example was of China using solar power to charge the UAVs in air. Finally, a question was asked whether the presenter was also covering space planes; to which the presenter stated that he would take it as an input for consideration.

The session was followed by a second session where four interns from Christ University, Bangalore, each presented a ten minutes presentation. The first paper, titled "**India-Myanmar: The Way Forward**", was presented by **Ms Harshita Panwar**. The presenter started by giving the importance of Myanmar for India and the recent political shift in Myanmar and its implications. The presenter emphasised on the need for India to push for stronger relations with Myanmar since it still remains low in India's priority. According to the presenter, India needs to shift its strategy from idealism towards security while dealing with Myanmar. This would enable to resolve issues such as energy security, the instability issues in North-East India and also help counter the growing presence of China in Myanmar. Furthermore, the 2015 elections to be held in Myanmar also need to be studied in anticipation as it could pose a challenge to India according to the presenter. However, according to the presenter, despite the rocky way ahead there is scope for the relationship between the two nations to move forward, with Prime Minister Modi's pro-economic agenda and his Act East Policy.

The second presentation was titled; "**The Crisis in Yemen and its Implications**", presented by **Ms Vaishali Iyer**. According to the presenter, Yemen is on the brink of a civil war, however, the problem



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goes back to the Saudi-Yemen fallout. The presenter also pointed out the domestic factor, such as the existing tribal dynamics that drive domestic politics being a major issue for the current crisis. The presenter also highlighted the current cause of the problem in Yemen, such as, the recent change in its leadership that has caused significant instability. The rise of Houthis has also made this an Iranian threat; which could result in a Shia Vs Sunni conflict. The presenter talked about India's interest in Yemen and stated that it has a deep rooted relationship with Yemen. And despite India being non-aligned, it got involved in Yemen through its recent operation 'Rahat'. According to the presenter, the Saudi's view the current conflict in Yemen as a Shia Vs Sunni conflict and if it further escalates could take into its wings the Shia dominated regions of Yemen. The presenter concluded by stating that the root cause of the problem is the economic situation in Yemen and focus should be on improving it.

The third presentation was titled; **"The Inevitable Split of Ukraine and Its Implications"**, presented by **Mr Anubhav Gaur**. The presentation started with the presenter stressing on the inevitability in the split of Ukraine, based on historical and the current evidences. According to the presenter, if the split was to take place it would be towards the East and the South-East regions of Ukraine that consist of regions such as Donetsk, Kharkiv and Odessa, which also consist of pro-Russian groups. The presenter highlighted the reasons for this split, such as the large number of deaths, wounded and displacement in Ukraine as a result of the recent events. Other factors included ethnic asymmetry and economic alienation. The presenter also stated that if the split happens, the Western part of Ukraine would become a land-locked country, ensuring a geo-political ease to Russia. In conclusion, the presenter highlighted some of the issues that might arise post- split, such as the issue of water sharing, gas pipelines, mass mobilization and immigration.

The fourth presentation was titled, **"US Aid to Pakistan- Post 9/11"**, presented by **Ms Reshma Jose**. The presenter began by giving a brief historical background on US aid towards Pakistan since the 1940's. Despite relations getting strained during the Indo-Pak War and the subsequent nuclear test by Pakistan, US aid to Pakistan continued to flow into Pakistan mainly through NGOs. The presenter proposed that these aids were diverted towards the training of non-state actors such as the



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Taliban and the Al Qaeda, by Pakistan. The presenter also presented a table which showed that between 2001 to 2011, about US \$ 8.8 billion was given as non-military aid to Pakistan for aiding US sponsored 'War on Terror'. This aid according to the presenter was developmental War aid for Pakistan. However, it was diverted towards military/defence expenditure by the Pakistan military, which calls all the shots regarding economic-related assistance from the US. Despite Pakistan misappropriating US aid, the presenter concluded that the flow would continue since Pakistan remains a priority for the US, because of reasons such as Pakistan's nuclear arsenal. Pakistan is also seen as a substitute to Afghanistan for the US operations in the Middle East and US aid is likely to continue to ensure that political democracy remains and Pakistan doesn't become an Islamic law state.

(Disclaimer: The views and opinions expressed in this report are those of the speakers and do not necessarily reflect the position of the Centre for Air Power Studies [CAPS])

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