

Eyes on the skies:

The dangerous and sustained impact of airstrikes on daily life in Myanmar

REPORT BY MYANMAR WITNESS, 27 January 2023 [Updated: 31 January 2023]

Executive Summary

Since the February 2021 coup, the Myanmar military has violently suppressed political opposition, set villages alight, and used disproportionate violence against civilians. As the Myanmar military struggles to exert control over areas of resistance, air strikes have become a key part of their offensive. This report by Myanmar Witness provides insight into the modus operandi of the Myanmar military.

Through a quantitative study, Myanmar Witness has identified 135 airwar incidents (AWIs) over the six month period investigated. As each incident almost certainly represents more than a single air strike, it is clear that the Myanmar military's airwar is fast becoming omnipresent in the lives of the people of Myanmar. Air strikes are an almost daily occurrence.

Reports of airstrike incidents were highest in August 2022. Although the data collection period for this report ended on 15 December 2022, the number of incidents during this month was above the average. Had data collection continued, Myanmar Witness believe that the number of incidents would have continued to increase. Emblematic incidents including the [airstrike on Camp Victoria](#), alongside ongoing monitoring by Myanmar Witness, indicates that airstrike allegations were increasing from September 2022 onwards.

The areas with the highest concentration of airstrike allegations correspond with areas of known resistance to the Myanmar military. The highest number of airstrikes were reported in the Sagaing region (စစ်ကိုင်းတိုင်းဒေသကြီး), followed by Kayin state (ကရင်ပြည်နယ်), Kachin state (ကချင်ပြည်နယ်) and Chin state (ချင်းပြည်နယ်) - all areas of notably active local defence forces. On at least three occasions, the Myanmar military have breached the airspace of neighbouring countries, and on two occasions airstrikes impacted the territorial sovereignty of India and Bangladesh.

This investigation reveals that the Myanmar military is heavily reliant upon aircraft manufactured abroad - namely Russian or Chinese air assets - for its almost daily attacks. The Russian-manufactured Mi-35 was the most sighted aircraft within reports of airstrikes collected by Myanmar Witness.

This report builds upon the conducted quantitative study through an exploration of five emblematic case studies of AWIs across Myanmar. Myanmar Witness has identified, verified,

analysed and reported on these incidents in an attempt to reveal the human impact of these airstrikes. The strikes conducted by the Myanmar military as part of their airwar campaign have hit schools, medical facilities, sites of religious significance, and, in all of the case studies included here, civilian homes and infrastructure. The case studies occurred in the following locations, on the date ranges included:

- Yinmarbin Township, Sagaing - 11 August 2022
- Loikaw Township, Kayah - 9 August 2022
- Tabayin Township, Sagaing - 16 September 2022
- Kyaikmaraw Township, Mon State - 12 November 2022
- Namhsan Township, Shan State - 7 to 11 December 2022

In the case studies explored, both a preemptive (proactive) and a retaliatory (reactive) aspect to the Myanmar military's conduct has been identified. Proactive strikes, largely targeting hard to reach areas, continue to focus on areas with EAO control (such as Camp Victoria). On the other hand, reactive strikes, accompanied by ground troop offensives (often in parallel with the use of fire), appear to target areas of active conflict with PDF and EAOs.

The Myanmar military's domination of the sky also serves as a method of intimidation and fear, particularly when facing an opponent with limited to no air response capability. Myanmar Witness views the conduct of airstrikes and the use of intentionally lit fires as two-tactical-sides of the same strategic coin. Although these two tactics are separate, they both serve to quell opposition and thus, serve a greater strategic goal. The intentional use of fire will be the subject of a forthcoming report by Myanmar Witness.

This report emphasises the prevalence of airstrikes in Myanmar and seeks to shed light on those who are responsible so that they can be held to account for all related atrocities.

Warning: This report contains graphic content.

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Background and Context

On 1 February 2021, the Myanmar military staged a coup that overthrew the democratically elected National League for Democracy (NLD) party, led by Aung San Suu Kyi and replaced it with members of the military, through the State Administration Council (SAC). In response to this, thousands of people took to the streets in protest and a civil disobedience movement (CDM) formed across Myanmar. Since then, the conflict in Myanmar has evolved and spread; what started as the violent repression of largely peaceful pro-democracy protests in major urban areas has developed into a country-wide civil war. Together with the increasing assault from the sky, there appears to be a concerted, escalating effort to violently suppress opposition to the military regime.

Myanmar Witness has actively monitored events following the February 2021 coup and continually investigated cases where alleged human rights interferences have occurred. Where this has involved the actions of the Myanmar military, Myanmar Witness has been able to provide valuable insight into their modus operandi. This has shown a clear shift in the tactics employed by the Myanmar military across the conflict.

Investigations into the military's [violent suppression](#) of protests demonstrated the brutality of the crackdowns and the disproportionate use of violence against [unarmed protestors](#). Violence against civilians has been a consistent occurrence across the conflict. Villages have continually been [set alight](#), and multiple [mass killings](#) have been verified. For example, December 2022 saw the highest number of identified fires across Myanmar, with a staggering 132+ incidents identified (an 84.7% increase from November 2022). There had also been a 247.6% increase the month before, from October 2022 to November 2022. Comparing December 2021 to December 2022, there has been more than a 400% increase in the occurrence of fire events. Coupled with the general increase of airwar incidents (AWI's) identified from July to December 2022, the intensity of the conflict in Myanmar is certainly increasing. Sagaing, anecdotally referred to as the 'battleground' of the conflict in Myanmar, continues to [bear the brunt](#) of these [arson attacks](#). Myanmar Witness has, and continues, to cover these incidents in depth utilising the [Fire Map](#) and consistent [reporting](#).

An analysis of open source user-generated content (UGC) pertaining to the alleged occurrence of air strikes across Myanmar from 1 July 2022 to 15 December 2022 provided further insight into the tactical shift of the Myanmar military. Essentially, the use of airstrikes is becoming a tactical mainstay across the conflict in Myanmar, focusing on areas of activity amongst People's Defence Force (PDF) and Ethnic Armed Organisation (EAO) troops; however, this isn't to suggest that only parties to the conflict are being affected by the occurrence of airwar in Myanmar. As this report will demonstrate, civilians continue to face the full and unjust force of indiscriminate attacks.

The conduct of airwar in Myanmar is inherently asymmetric. The air assets available to the Myanmar military are not held by PDF, EAO or other such parties to the conflict; however, cases of PDF and EAO drone use, largely in the form commercial drone weaponisation, are abundant. Myanmar Witness intends to produce a focus study on this facet of the airwar in Myanmar in the near future. The National Unity Government (NUG) has expressed its awareness of the importance of air assets across the conflict in Myanmar. In April 2022, the NUG offered a [reward](#) for any defecting member of the Myanmar military who brought with them a plane, jet or other vehicle. This demonstrates the strategic importance of the Myanmar military's air supremacy and the impact it has on the conflict.

The Myanmar Air Force inventory

The Myanmar Air Force (MAF) maintains an inventory of aircraft and weapons from a number of countries, with Chinese and Russian-made aircraft making up a significant proportion of the MAF asset inventory. Myanmar and Russia have had military ties since [1948](#), with renewed air asset orders and deliveries in recent years. The newest addition to the MAF inventory came in 2022, with the arrival of the Russian advanced multirole fighter jet, the [Sukhoi Su-30](#). Similarly, China has also continued supplying assets to the MAF. A recent agreement, [allegedly](#) concluded in 2020, led to the delivery of new Guizhou FTC-2000G fighter jets in 2022. Myanmar Witness has not been able to verify the exact delivery date of these new models; however, by analysing the aircraft presented at the 75th air force anniversary ceremony held in Yangon on 15 December 2022, it can be confirmed that both the Su-30 and FTC-2000G were commissioned for the first time during that event.

In its reporting, Myanmar Witness has continually highlighted the misuse of air assets such as these in the conduct of air strike events. The case studies explored herein provide evidence of the impact of the Myanmar military's ongoing airwar, demonstrating a consistent misuse and lack of distinction between military targets and civilian infrastructure. The acquisition of these air assets should raise concern amongst the international community, as they will continue to bolster the Myanmar military's attack capability.

The MAF has a range of aircraft within its inventory that are in use, three of which are documented in the [Myanmar Witness Aircraft Guide](#). The following four aircraft are featured in this report, either in relation to the quantitative study where their presence is alleged, or in the qualitative study where the asset has been verified as involved in an air strike event:

- **K-8:** The [Hongdu K-8 Karakorum](#) is a basic pilot trainer and light attack aircraft. This two-seater jet was designed by China's Hongdu Aviation Industry Co., Ltd. and jointly manufactured with Pakistan Aeronautical Complex. It first arrived in Myanmar in 1998/1999 and is known to be stationed at [Nampong and Taungoo airbases](#). Reports vary, suggesting an inventory of up to 62 K-8s. Myanmar Witness believes the actual number to be around 40, with the latest two batches of four (8 in total) commissioned in December 2021 and 2022. Before the regular deployment of the Yak-130 in active combat operations in April 2022, monitoring by Myanmar Witness' arms team revealed that the K-8 was the most frequently-used ground attack jet by the Myanmar military air force.

- **MiG-29:** The [Mikoyan MiG-29](#) is a multi-role Russian-manufactured fighter jet. The Myanmar military first signed a purchase agreement in 2001 and sources claim that the MAF has between 30 and 32 jets in their original inventory, which Myanmar Witness believes is a sensible estimate. The MiG-29 is known to be stationed at [Hmawbi, Magway and Taungoo airbases](#).
- **Yak-130:** The [Yakovlev Yak-130](#) is a Russian-manufactured advanced pilot training jet and light attack aircraft. In 2015, the Myanmar air force signed a purchase agreement with Russia and the Yak-130 was first commissioned in 2017. Six new Yak-130s were showcased at the 74th air force ceremony in December 2021, with 18 planes reportedly purchased in total, although information analysed by Myanmar Witness indicates the total fleet to amount to approximately 20. It is known to be stationed at [Tada-U and Hmawbi air bases](#).
- **Mi-35:** The [Mil Mi-35 \(P variant\)](#)¹ attack and transport helicopter is the export variant of the Russian Mi-24P gunship. The first batch of 10 helicopters was reportedly acquired in 2009 and was delivered to Myanmar between 2010 and 2015. Myanmar Witness believes the total number to be 14, with the latest batch of two – sent from Belarus – commissioned into the Myanmar military in 2019. It is known to be stationed at [Magway and Nampong air bases](#).

A fifth aircraft that is mentioned several times throughout this report - the Mil Mi-17 - is a Russian-made utility and transport helicopter that is commonly seen alongside Mi-35s, transporting troops into a given region after an air attack. Myanmar Mi-17's are not known to contain any cannons or other attack capabilities.

This report breaks down its references to the verification status of specific air assets between the quantitative and qualitative studies included. For the quantitative study, which is based on allegations of airstrike occurrences drawn from social media, any reference to a specific air asset should be viewed as an 'allegation'. Fully verifying the alleged air asset presence in the quantitative study presented a number of challenges, including (but not limited to), the identification of geolocatable footage of air assets in the area of the event occurrence, and including (where possible), the identification of geolocatable footage of the air asset dropping ordnance. Additionally, linking the sighting of an aircraft with visible damage to civilian infrastructure also proved challenging. Further details on the quantitative methodology are included within the body of this report.

Within the qualitative study airstrike cases which have been verified by Myanmar Witness are presented. Designations on the presence of a particular air asset (verified, alleged, etc.) can be found in each particular case, utilising Myanmar Witness' standard methodology.

¹ The addition of the Mil Mi-35 (P variant) to the Myanmar Witness Aircraft Guide is forthcoming.

Summary of Applied Methodologies

Two separate methodologies have been applied in the development of this report. Firstly, the Myanmar Witness standardised methodology was used in the identification, collection, verification and analysis of UGC pertaining to the embedded case studies. This can be viewed as the more ‘traditional’ work of Myanmar Witness - whereby an allegation is identified, and an in-depth investigation is undertaken to assess the veracity of the claim.

Secondly, for the quantitative side of this study, Myanmar Witness developed a methodology which allowed for allegations of airstrike events to be collected over nearly a 6 month period. This data was analysed, grouped and reported on under the umbrella term of an airwar incident (AWI). An AWI can be defined as: “**report(s) of airstrike(s) in a township on one day**”. Thus, the original number of allegations collected in this report is far larger than the final count of AWIs - this takes into account duplication, re-sharing, ambiguous posting, incomplete information, and a myriad of other factors. Essentially, the AWI count and mapping is a conservative, yet insightful, analysis on the occurrence of alleged airstrikes across Myanmar.

A full breakdown of the two methodologies is included at the end of this report.

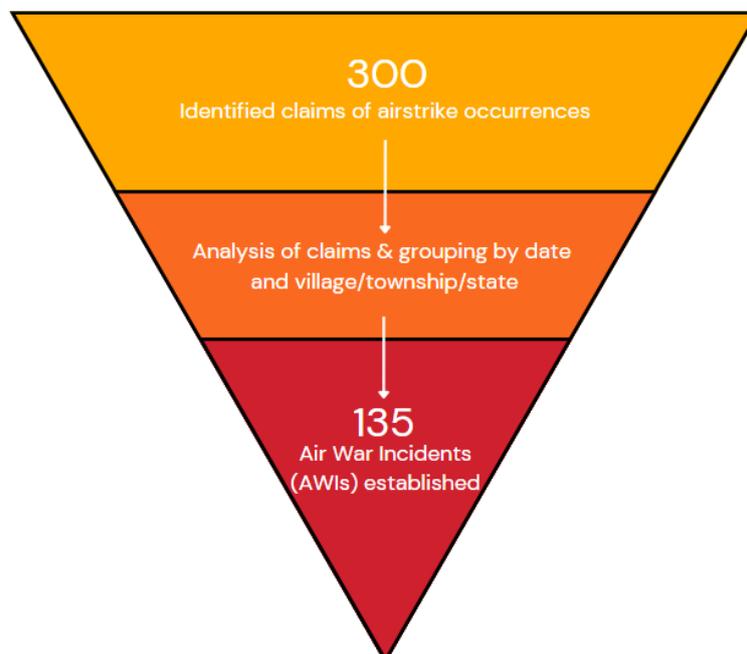


Figure 1: Flowchart of AWI establishment. Created with Canva.

Analysis

Myanmar Witness' identification of 135 AWI's across a near six month period, which is expected to be a conservative figure, paints a stark picture of daily life in Myanmar. As each AWI almost certainly represents more than a single air strike, it is clear that the Myanmar military's airwar is fast becoming omnipresent in the lives of the people of Myanmar. Air strikes are an almost daily occurrence.

As the Myanmar military struggles to exert control, particularly in the northern region of Sagaing (where armed resistance has been high), air strikes have become a key part of the offensive. Ground attack aircraft, obtained through agreements with allied states, including Russia and China, are unobtainable for non-state armed groups (NSAGs) such as the PDF and various EAO groups, giving the Myanmar military a tactical and strategic edge across the conflict.

Although the Myanmar military may retain air supremacy, the PDF and EAO's they are in conflict with have continually demonstrated the effectiveness of asymmetric, guerilla-style air strikes using commercial drones. For example, the 27 October 2022 [bombing](#) of Myanmar military soldiers in Suuphyukone village (ဆူးပွဲကျွန်း) provides an example of this, which allegedly resulted in the death of five Myanmar military members. Future reporting by Myanmar Witness will provide further coverage on the use of drones in combat across Myanmar.

The increase in reported airstrikes towards the end of 2022 comes at a time when Myanmar Witness recorded a dramatic rise in the number of intentionally lit fires across the country (247.6% from October to November 2022). December was the worst month on record since Myanmar Witness started gathering data in June 2021, with over 133 incidents identified. These figures represent the destruction of countless homes and livelihoods and causes the mass displacement of civilians. Myanmar Witness views these tactics as two-sides to the same strategic coin - with a ground offensive using fire to target PDF, EAO and those otherwise aligned with the pro-democracy movement, coupled with aerial attacks against targets which are difficult to reach on-the-ground. Neither of these tactics are being applied in isolation, suggesting a coordinated approach, particularly in areas such as Sagaing. It is noteworthy that, in places such as Sagaing, the presence of fires and AWIs can be seen in both the southern and central regions.

This investigation has revealed a number of patterns in the use of airstrikes on communities in Myanmar. This was accomplished by the pooling of claims into AWIs for analysis on different claims of airstrikes. The sections below provide a monthly and geographic breakdown of reported airwar incidents. Additionally, a section on potential air asset involvement is also included. This, as noted in the methodology section, is based on the inclusion of reference to a specific air asset in the identified allegation. As part of the qualitative analysis in this report, Myanmar Witness identified a number of emblematic airstrike case studies which provide an insight into the Myanmar military's modus operandi. These will be discussed in the following section.

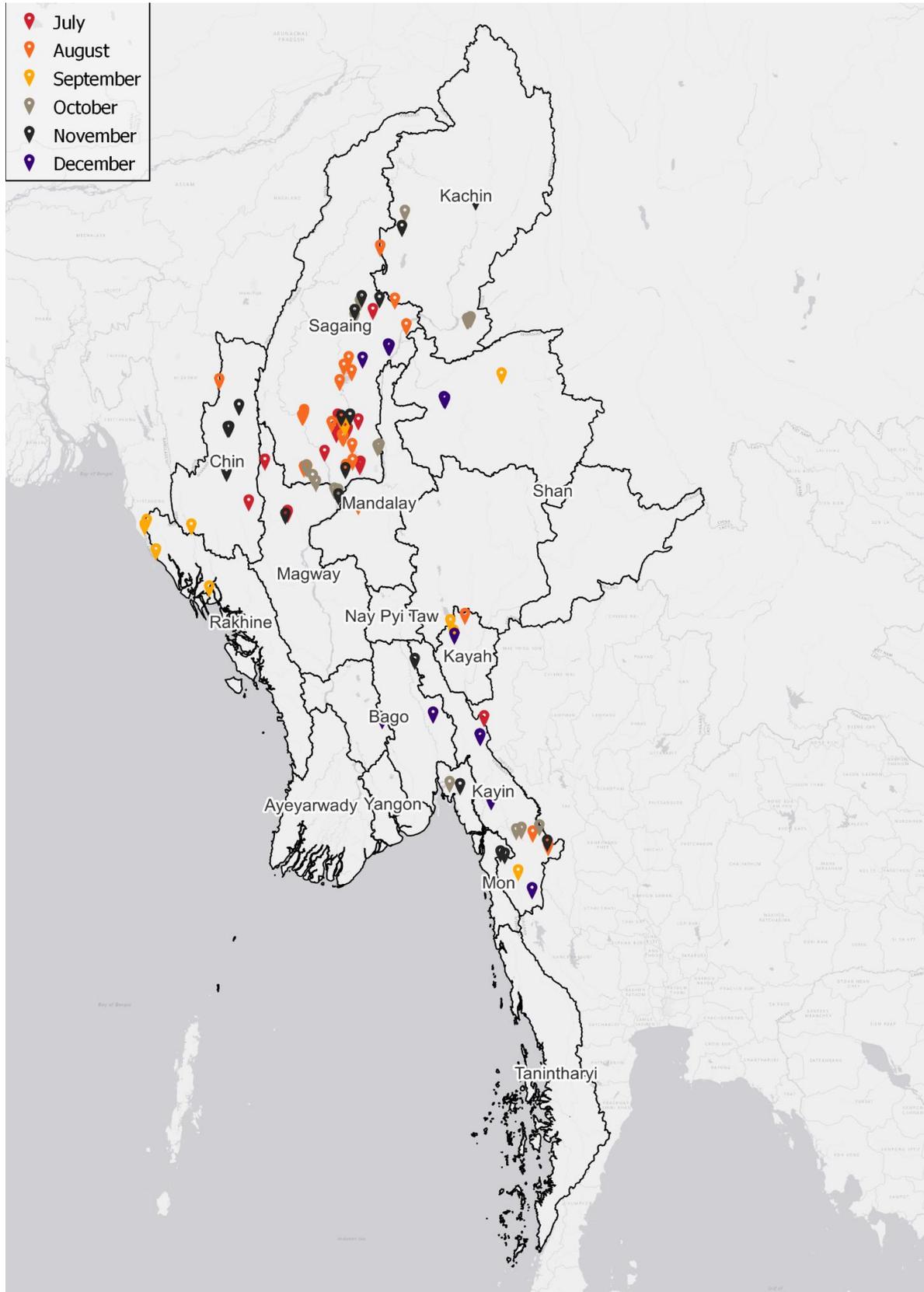


Figure 2: Map of AWIs by month, separated by colour. The highest concentration is located in Sagaing region. Map created with QGIS.

Monthly and Fortnightly Breakdown

Within the six-month period analysed by Myanmar Witness, reports of airstrike incidents were highest in August 2022 (34 AWIs), the vast majority of which were in Sagaing state. These reports fell, then rose, from September 2022 (14 AWIs) to November 2022 (27 AWIs).

Although analysed data was only available for the period 1 to 15 December 2022, reported airstrikes were higher than average (17 AWIs) for this month. Incidents such as the [airstrike on Camp Victoria](#), alongside ongoing monitoring by Myanmar Witness, indicates that the actual AWI figure for December 2022 is expected to be substantially higher, following the identified trend increase from September 2022 onwards. Coupled with previous commentary on intentional fire usage, and the events of December 2022 as a whole, this trend should be highlighted.

September had the lowest number of reported airwar incidents: a total of 14. However, this included an attack on a school in Let Yet Kone, which was verified by Myanmar Witness, and reported on widely by [international media](#). This event is included as an [emblematic case study](#) within this report. As the data collection period ended on 15 December 2022, Figure 3 showing monthly data does not include December's data. Figure 4 shows the fortnightly data, including 1-15 December.

AWI Count by Month (excluding December 2022)

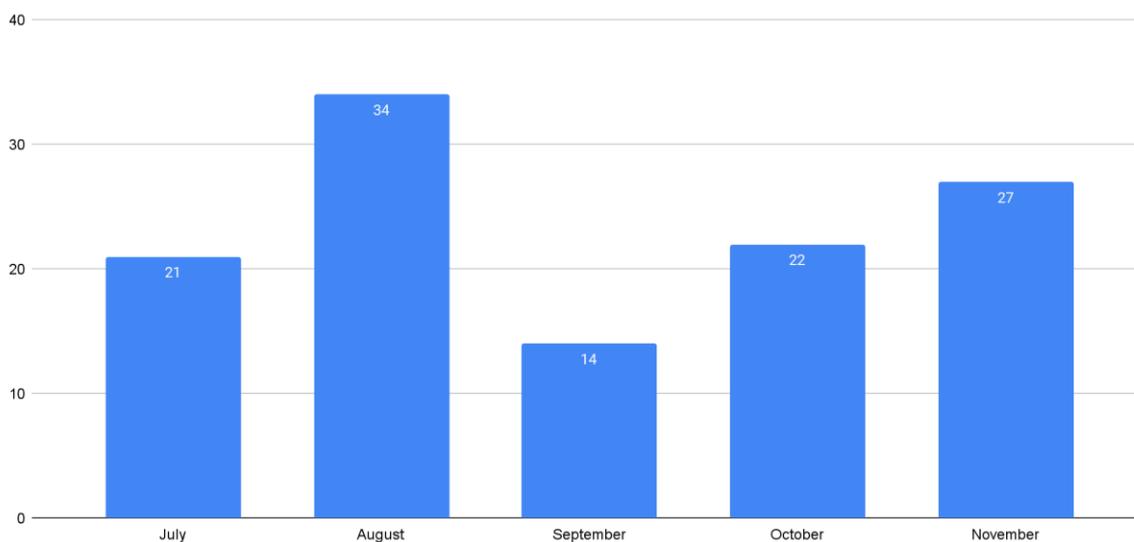


Figure 3: Bar chart breakdown of monthly AWIs collected and analysed by Myanmar Witness. Graph created with Google Sheets.

AWI Count by Fortnight

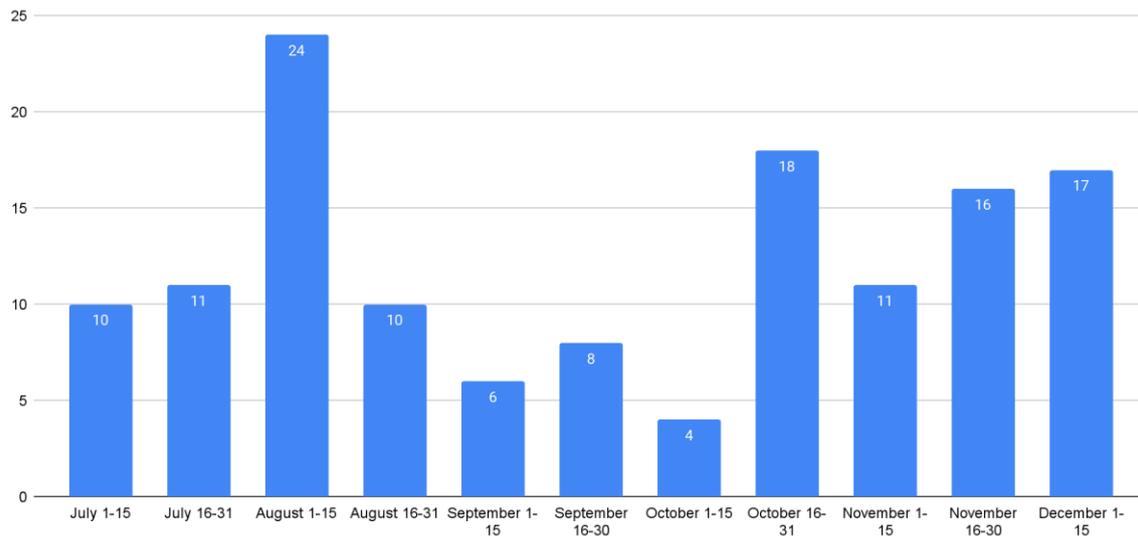


Figure 4: Bar chart breakdown of AWIs collected fortnightly and analysed by Myanmar Witness. Graph created with Google Sheets.

Geographic Breakdown

There are geographic differences in the number of reported airwar incidents. Of note, the areas with the most AWIs correspond with areas of known major resistance to the Myanmar military. For example, the highest number of airstrikes were reported in Sagaing, followed by Kayin state, Kachin state and Chin state - all areas of notably active local defence forces.

Sagaing (58 AWIs, 43.0%) and Kayin (22 AWIs, 16.3%) were the states which saw the most reported airstrike incidents. The data points provide insight into the ongoing conflict within Sagaing, particularly when viewed alongside fire data collected by Myanmar Witness. Sagaing is the area which continues to be most affected by intentionally lit fires and, as shown in this study, reported airstrike incidents.

Since September 2021, the North of Myanmar, including Sagaing, has been a site of resistance and conflict. Myanmar Witness has previously [reported](#) on military activity in the North of Myanmar. The 'dry zone', which is made up of Sagaing region, Chin state and part of Magway region (မကွေးတိုင်းဒေသကြီး) has a majority Bamar buddhist population. These regions have been the location of intense fighting between the Myanmar military and a range of opposition groups. These incidents have been highlighted in Myanmar Witness' previous reports, including '[Civilian Harm: the impact of military operations in North-West Myanmar](#)'.

Since the coup, conflict has also increased in Kayin state. Myanmar Witness has reported on and continues to monitor conflict between specialised local defence forces - the Karen National Union - and the military. These include attacks on areas designated before the coup as sites of [peace and reconciliation](#), such as Lay Kay Kaw, as detailed in the report '[Residents forced to flee symbolic peace town](#)'.

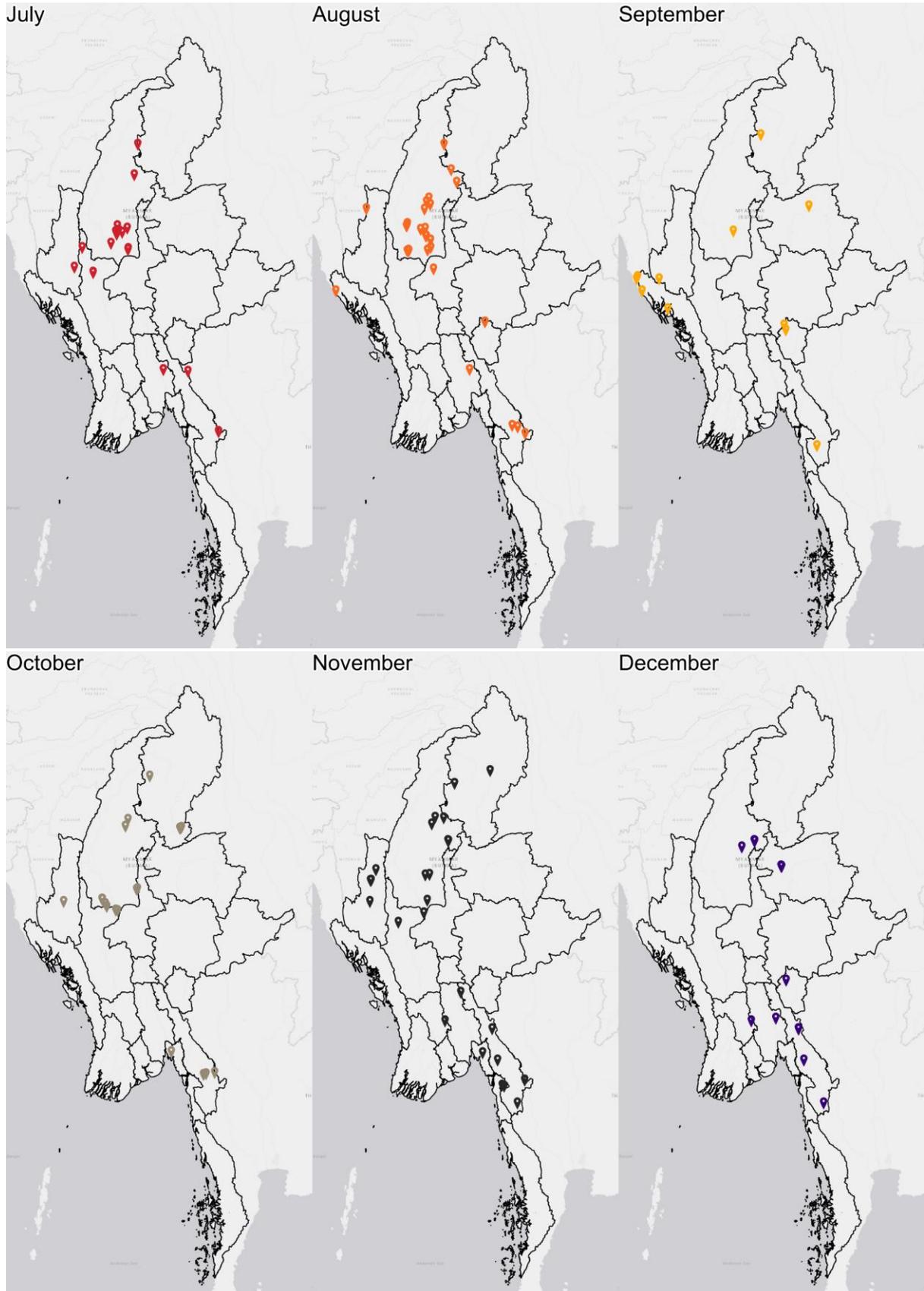


Figure 5: Breakdown of AWIs by month in Myanmar mapped by location. Map created with QGIS.

While the majority of airwar incidents were concentrated in a few states, the analysis also reveals that 10 out of 14 administrative divisions in Myanmar reportedly faced airstrikes across the period of analysis. This provides stark evidence that the conflict is not contained to localised areas. It shows that the conflict is far reaching, as over 70% of administrative divisions faced airstrikes in the nearly six month period investigated.

AWI Count and Proportion by State

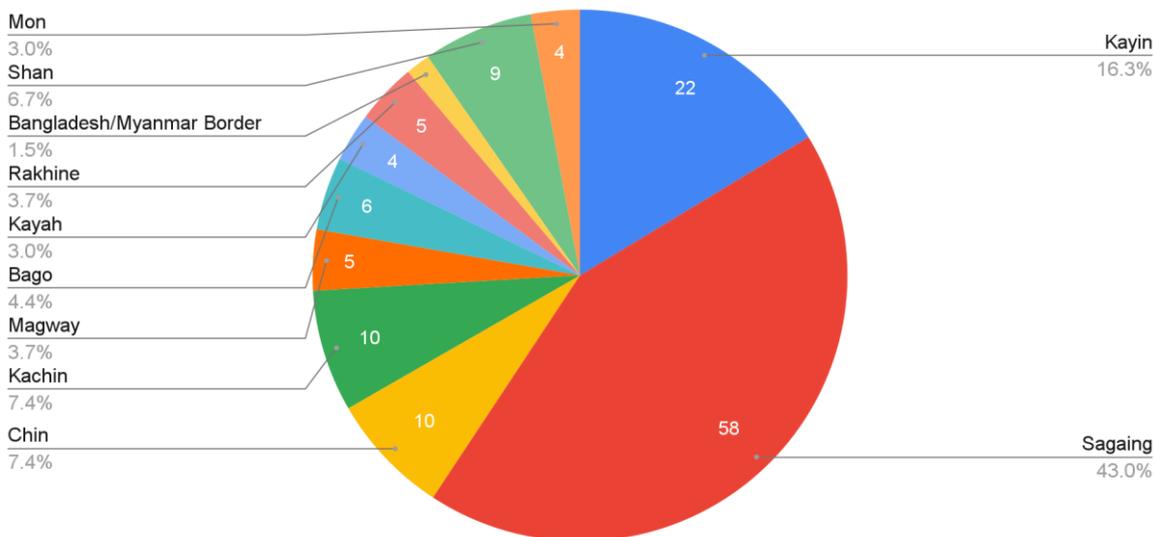


Figure 6: Pie chart showing the geographic split of AWIs (count and proportion) established by Myanmar Witness. Graph created with Google Sheets.

Aircraft

This investigation reveals that the Myanmar military is heavily reliant upon aircraft manufactured abroad for its almost daily attacks. Together, Russia and China have supplied the majority of the aircraft fleet the Myanmar military employs in operations that have been conducted since the coup. The Myanmar air force also seems dependent on foreign provision of sophisticated (and less sophisticated) ordnance employed by its fleet of aircraft. Myanmar Witness has not seen evidence of domestic production capabilities for such ordnance, but has, on the contrary, verified the foreign origin of aircraft-launched munitions on multiple occasions

During this investigation, Myanmar Witness documented the use of aircraft within the reported air attacks. The Russian-manufactured Mi-35 was the most reported aircraft in claims of AWIs between July 2022 and December 2022. Unspecified fighter aircraft and helicopters made up the largest number of reports overall (Figure 7). 36 of 135 airwar incidents reportedly involved the Mi-35s, 12 involved the Russian-manufactured YAK-130s, three involved Russian-manufactured MiG-29s, and there was a mention of a Chinese-manufactured Nanchang Q-5 (A-5 variant) aircraft - it is listed as 'Other'. The A-5 is a Chinese ground attack jet.

Myanmar Witness has gathered and analysed data about the use and delivery of jet aircraft with ground strike capability. Since at least early 2021, aircraft manufactured in Russia continue to be delivered to Myanmar. Most recently, this included delivery of the Su-30 aircraft.

The case studies explored in this report involve reports of unnamed aircraft, the Mi-35 and Yak-130. For example, the Tabayin school attack allegedly involved a Russian-manufactured Mi-35 and resulted in significant damage to civilian infrastructure. Yak-130s have been identified in [several previous investigations](#) by Myanmar Witness, and are believed to have been used within attacks on civilian populated areas.

AWI Count and Proportion by Aircraft

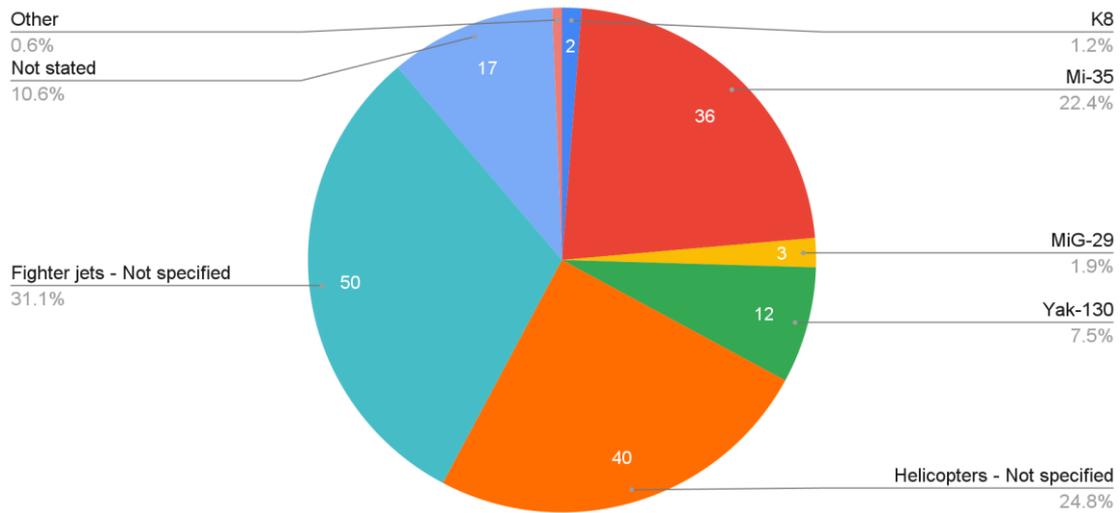


Figure 7: A pie chart showing the aircraft reported within the airwar incidents analysed by Myanmar Witness. Graph created with Google Sheets.

During the period investigated, the K-8 was reportedly sighted in airstrikes in both Kachin and Shan state. The MiG-29 was reported in claims of airstrikes in Kachin and Kayin state. By far the most prominent aircraft reported in claims identified by Myanmar Witness were the Yak-130 and Mi-35, which appear to have been sighted in many different regions. For example, the Yak-130 has been implicated in airstrikes in Chin, Kachin, Kayin, Mon, Sagaing, and Shan state. The majority of claims related to the Mi-35 were in Sagaing state, while sightings also were reported in Kayin, Magway, Mon, Rakhine, and Shan state.

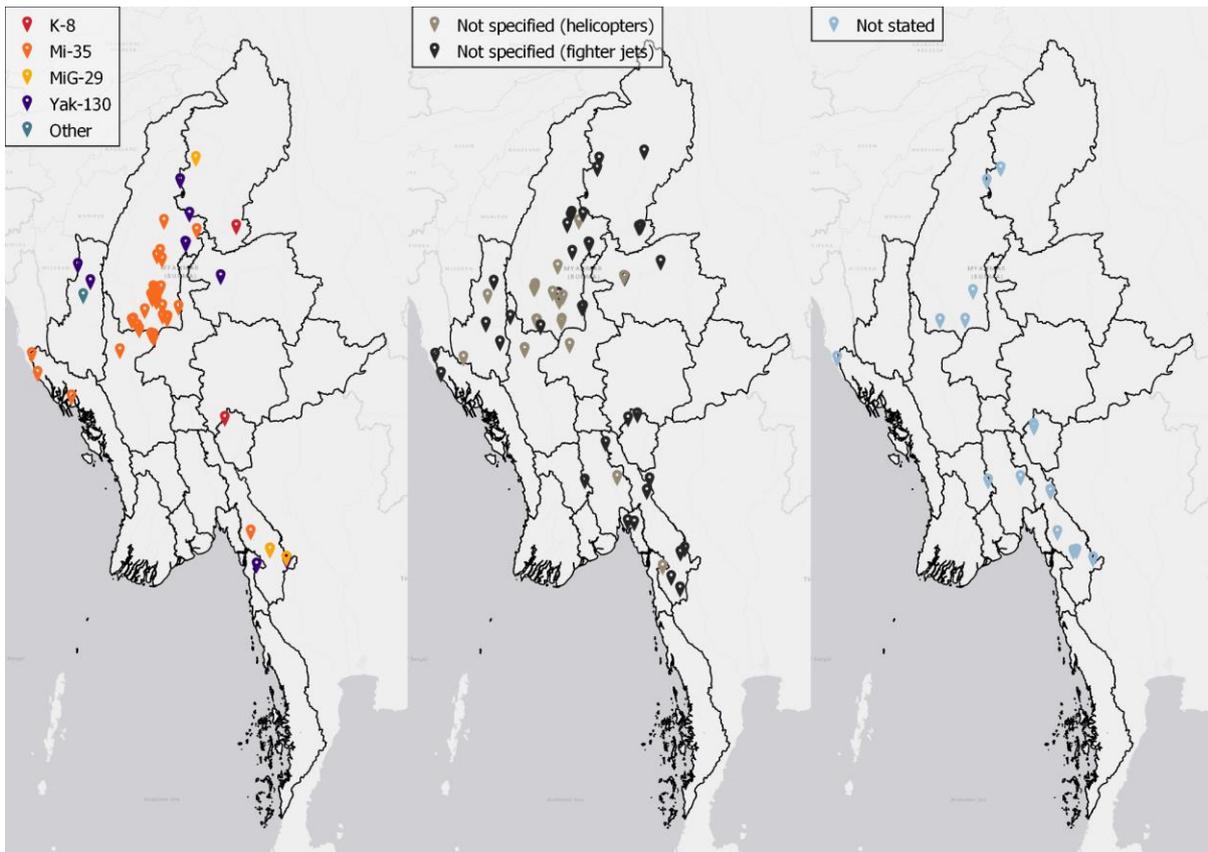


Figure 8: Map showing the geographical breakdown of claims of aircraft used in airwar incidents. Map created with QGIS.

Myanmar Witness has identified six air bases that aircraft are likely to have been deployed from during the conduct of the alleged AWIs. These include:

- Hmawbi Airbase [17.122343, 96.065658] - hosts the Yak-130 and MiG-29
- Magway Airbase [20.165753, 94.967275] - hosts the MiG-29 and Mi-35
- Nampong Airbase [25.351388, 97.300444] - hosts the K-8 and Mi-35
- Shante Airbase [20.931788, 95.917538] - hosts the Yak-130 and K-8
- Tada-U Airbase [21.683678, 95.983436] - hosts the Yak-130
- Taungoo Airbase [19.032054, 96.397516] - hosts the K-8 and MiG-29

The locations of these air bases are identified on Myanmar Witness’ [Air Base map](#) and are shown in Figure 9 below. The comment on a particular base ‘hosting’ an aircraft is based on analysis conducted by Myanmar Witness - see the above air base map for further details.

There are claims that Mi-35 helicopters have been sighted coming from Monywa(r)’s Namakha military base (Northwestern Command) [22.227038, 95.108631]², but this cannot be verified at this time.

² The coordinates are those of the airport. The base is claimed to be located on the eastern side of the airport, which also houses military buildings and heli-pads.

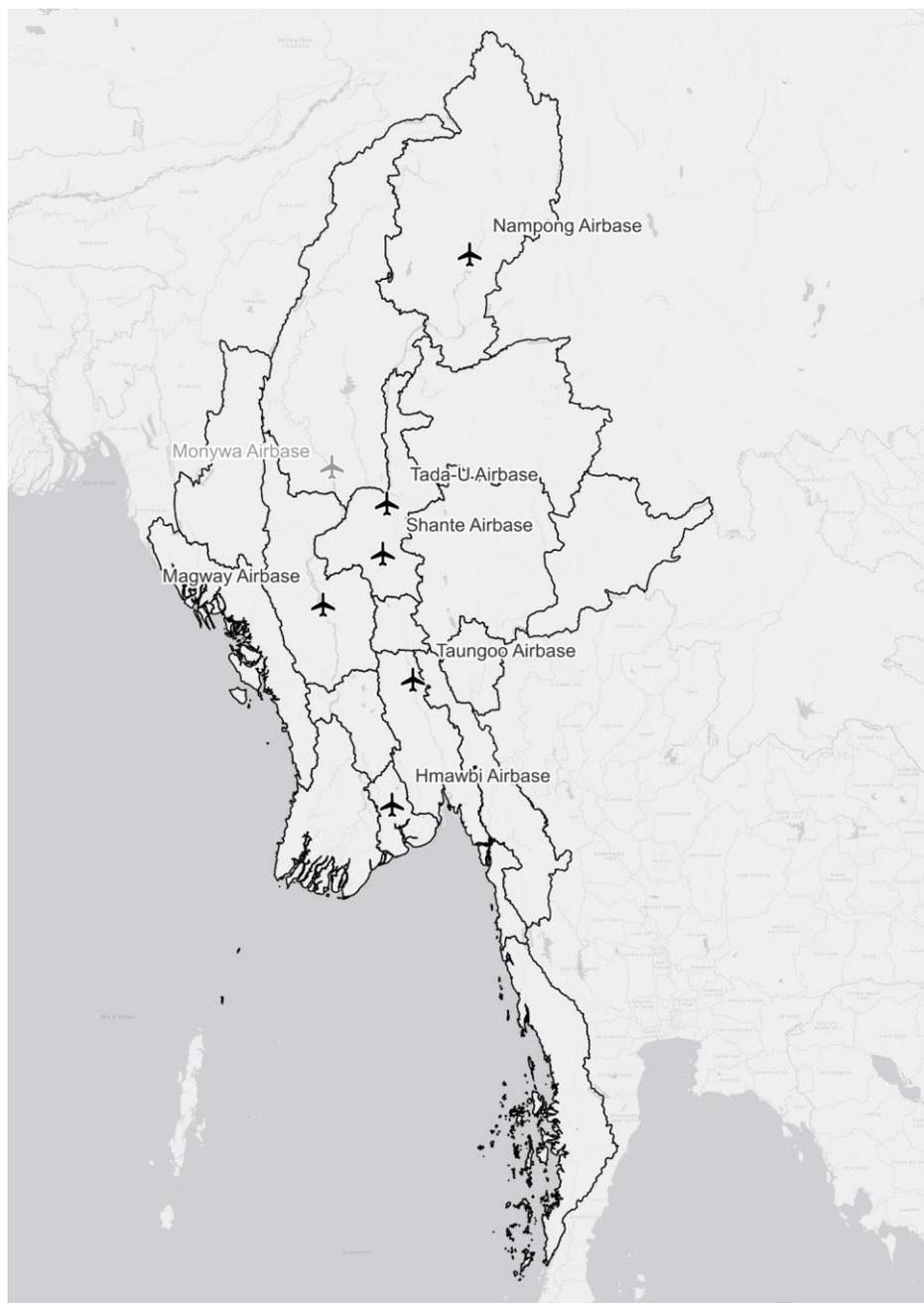


Figure 9: Airbases and airports in Myanmar highlighted with location markers in reference to AWI's recorded by Myanmar Witness. The airports are signified with an aeroplane logo, coded black for confirmed and grey for unconfirmed. Map created with QGIS.

Incursions into Neighbouring Countries

Since the February 2021 coup, three separate countries bordering Myanmar have been directly affected by the actions of the Myanmar military, either through an airspace incursion, or when a strike has hit the sovereign territory of the neighbouring country.

On 30 June 2022, a MiG-29 entered [Thai airspace](#) in Tak province, Phop Phra district, in an attack on a military base in Kayin state that was claimed to have been overtaken by local

defence forces. Thailand [responded](#) by dispatching two F-16 fighter jets to patrol the area in case of further airspace violations. The SAC [apologised](#) for this incursion the next day, stating Myanmar and Thailand were on good terms.

Over the Summer of 2022, following clashes between the Myanmar military and Arakan Army (AA) in the North of Rakhine state, the Myanmar Ambassador to Bangladesh was summoned before the Bangladesh Ministry of Foreign Affairs on three separate occasions within a period of 15 days. This was in response to repeated violations of Bangladeshi airspace, alongside [repeated allegations](#) of Myanmar military launched strikes impacting Bangladeshi sovereign territory. The Myanmar military [responded](#) by claiming that the AA were at fault for these attacks, despite sightings of attack aircraft in the region, of which only the Myanmar military have access to.

Most recently, on 10 and 11 January 2023, the Myanmar military's aerial assault on Camp Victoria, the headquarters of the Chin National Front (CNF), violated Indian airspace and at least one ordinance impacted Indian sovereign territory. Myanmar Witness' report on this event can be viewed [here](#).

The case of both Bangladesh and India demonstrate a lack of distinction by the Myanmar military during military operations. The attack on Camp Victoria in particular showed a blatant disregard for the presence of the red cross symbol, shown clearly above a [medical facility](#) known to provide services to civilians.

Case Studies

During this investigation, Myanmar Witness documented, analysed, and attempted to verify 135 different AWIs. Many of the reported air attacks appear to target locations with known local defence force presence or support. A number of the attacks also appear to be retaliatory, following offensives by local defence forces.

A worrying trend identified during this research is that many of these air attacks reportedly hit places of worship, schools, medical facilities and civilians' homes. Myanmar Witness has been able to verify the destruction of critical civilian infrastructure through the geolocation of UGC. However, unless footage was uploaded showing the air assets dropping ordnance on the sites of interest, Myanmar Witness has been unable to confirm that the damage was caused by an aircraft. Instead, by cross-referencing the claims against UGC and satellite imagery, Myanmar Witness can conclude that an airstrike event was highly likely.

Five emblematic case studies have been included in this report, with partial level of verification, to provide a snapshot of the overall dataset. A number of factors impact the level of verification, as outlined within the methodology. This includes but is not limited to, whether there are air assets verified as being active nearby, proximity to an air base, available UGC of destruction and UGC of an aircraft dropping ordnance.

While this research does not verify the intentions of the Myanmar military, the nature of the attacks, the location, and intensity, provides an insight into their modus operandi. For example, as the data reveals, there is a concentration of attacks in Sagaing region, Kayin state, Kachin state and Chin state, where local resistance is high.

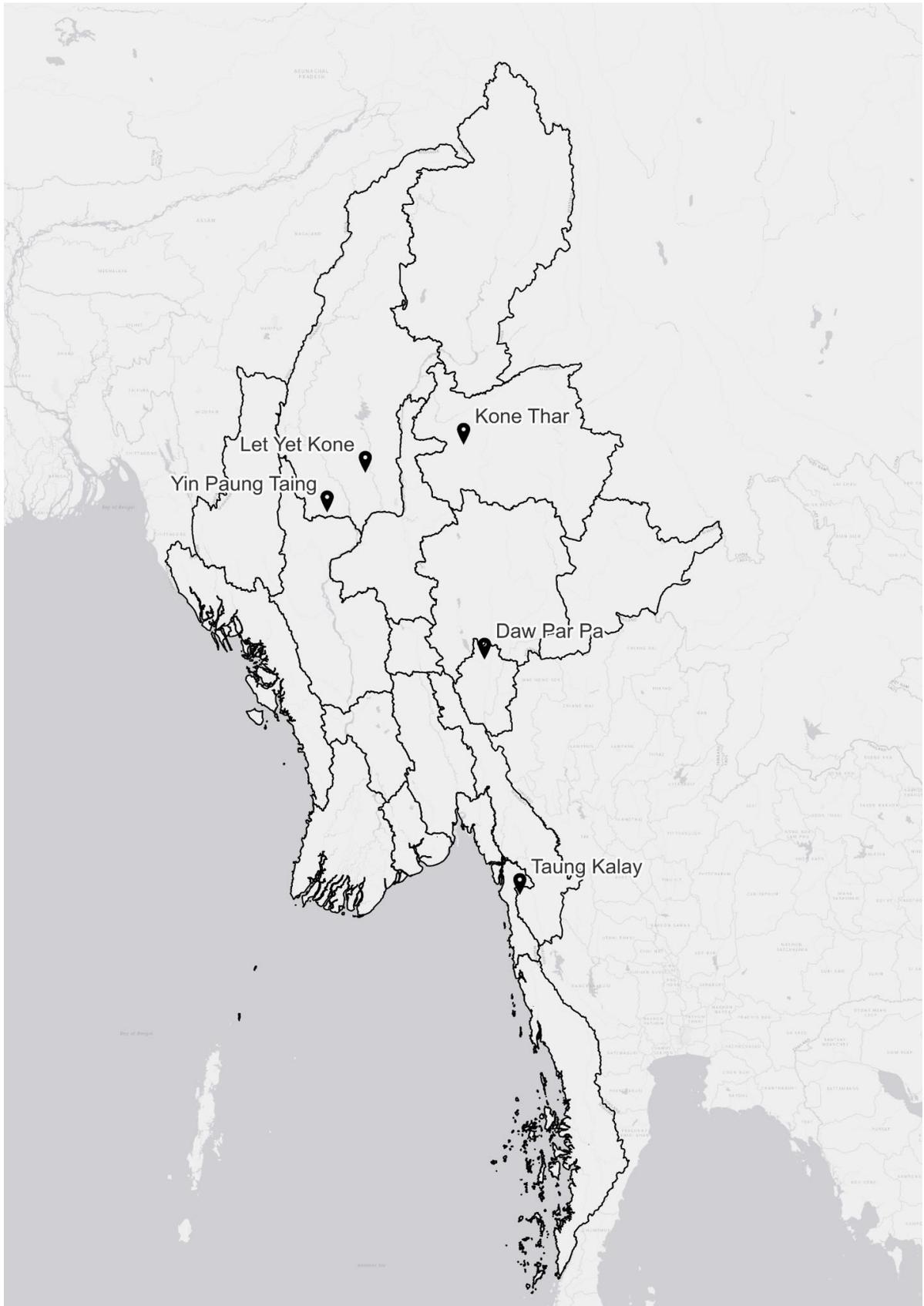


Figure 10: Location of the AWI case studies explored in this report. Map created with QGIS.

1. Yinmarbin Township, Sagaing - August 2022 (partially verified)

Background

On 11 August 2022, three Mi-35 helicopters were reportedly involved in an hour-long airstrike in Yin Paung Taing village (ရင်ပေါင်တိုင်), Yinmarbin township (ယင်းမာပင်မြို့), Sagaing region (စစ်ကိုင်း တိုင်းဒေသကြီး). According to local residents, Myanmar military troops entered the village after the airstrikes and remained there for three days. When the Myanmar military left, fires were reported across the village. Multiple bodies were found, although casualty figures differ online. One report stated that [40 bodies](#) were found in a truck, whilst [Myanmar Now](#) reported that an initial 12 bodies were identified, followed by a further 6.

[Burma VJ](#) reported that on the same day as this airwar incident, airstrikes were also conducted less than a kilometre away in Pu Htoe Thar village (ပုထိုးသာ), Pale township (ပုလဲမြို့နယ်). On

20 October 2022, the same village was [reportedly](#) attacked again by aircraft, leading to the death of a pregnant woman and her elderly mother. Witnesses of this second attack told [Myanmar Now](#) that the firing of the aircraft was contained to within the village in the Yin Paung Taing village attack, while the second alleged attack affected the surrounding villages of Pu Htoe Thar.

While the motive for the attack cannot be confirmed by an analysis of UGC, a correlation has been found between anti-military activity and air attacks. On 9 August 2022, anti-military demonstrations reportedly took place in northern and eastern Yinmarbin township. As a result, it is likely that these were retaliatory attacks or that they targeted a location with known opposition.

Incident Verification [Warning: Graphic]

Myanmar Witness geolocated multiple images associated with this airwar incident which contributed to its partial verification. This included: the presence of a helicopter close to the village; the destruction of buildings and burnt vehicles; images of deceased individuals; and, further UGC including seized ammunition.

Location, time and presence of helicopters

Myanmar Witness geolocated footage of plain clothed individuals that could be local defence forces - uploaded by anti-military news channel [Mandalay Free Press](#) - shooting at what appears to be a helicopter in the sky close to the village at around 22.080551, 94.785400 (Figure 11). The video quality is not high enough to make a positive identification of the exact helicopter. Additionally, the video does not show the helicopter dropping ordnance. Shooting can be heard; however, it is unclear whether this is solely from ground forces or whether the helicopter is also firing. As a result, Myanmar Witness cannot fully verify that the destruction photographed in UGC was caused by this helicopter.



Figure 11: Individuals, likely from local defence forces, shoot at a helicopter overhead (Source: [Mandalay Free Press](#))

Although the location was verified, the video cannot be chronolocated due to a lack of shadows for shadow analysis. Following investigation, Myanmar Witness concluded that the videos were likely from the period of time specified as they were original (i.e. they had not been posted to social media before the allegation of the airwar incident emerged on the day and/or in the location specified).



Figure 12: Geolocation of individuals - in the area of the red circle - shooting at a helicopter at around 22.080551, 94.785400. (Source: [Mandalay Free Press](#)).

Damage to buildings and vehicles



Figure 13: Image of a fire in Yin Paung Taing village, geolocated to around 22.071472, 94.791664.

Images uploaded to Facebook show damage to infrastructure in the village. The village was allegedly targeted by an air attack and subsequently raided. A [pagoda in the village](#) (Figure 14 - geolocated to around 22.073160,94.789388), appears to have sustained damage which could have been caused by an air attack. There is fire damage to other buildings. For example, images of damaged civilian houses were identified on Facebook, including totally destroyed [civilian](#) structures, possibly part of a village market, geolocated to 22.072520, 94.789816 (Figure 14).



Figure 14: UGC collected and analysed by Myanmar Witness that demonstrates damage to civilian infrastructure and pagodas (source: [Myanmar Now](#) and [မြေလတ်အသံ - Myaelatt Athan](#)).

One building in particular stood out to Myanmar Witness investigators. A view from the inside of a red-roofed building shows damage to the roofing and front of the building, which could lend credence to the claims this building was affected by an aerial attack.



Figure 15: The red roofed building, located at 22.073185, 94.789669, demonstrates damage to the building's roof. (Source: Private).

Outside this building is a truck which appeared central to a number of identified pieces of UGC related to this incident. Images of the [remains of a burnt-out truck](#) were geolocated to the location of Yin Paung Taing village [22.073199, 94.789400]. It is alleged that 40 bodies were found burned inside a truck; however, the presence of bodies was not verified by Myanmar Witness due to a lack of UGC available on these bodies.



Figure 16: Geolocation of a burned-out truck - marked with red circle - and the red-roofed building in Yin Paung Taing village (၇၉၆၀၂၆) [22.073199, 94.789400] (source: [Myanmar Now](#)).

Pro-Myanmar military channel, [Fifty Two News](#), uploaded images of what appears to be the same truck outside the same red-roofed building, but without fire damage (Figure 17, left). The building behind the truck has visible damage in images both before and after the truck was burned. As there is damage to the roof in both images, this implies that the truck was [likely burned](#) following an air attack. This lends credence to the idea that the village was raided and burned after the initial air attack, as was reported, and perhaps that this air attack was conducted by the Myanmar military to assist the on ground offensive.



Figure 17: Comparisons of the truck pre-and post burning (sources [warning graphic]: [Fifty Two News](#) and [People's Spring](#)).

Fires

Myanmar Witness has not been able to formally verify the presence of fires in the vicinity of the reported attack during the dates mentioned, largely due to a lack of satellite imagery and/or FIRMS data which identifies heat signatures. This is due to the season at which the fires occurred, obscuring the ability for Myanmar Witness to identify heat signatures. Cloud coverage prevented satellite imagery from being captured and NASA FIRMS data from detecting heat anomalies around the area in question.

Deceased individuals

The number of people killed in this incident varies across reports found online. The death toll could not be verified by Myanmar Witness. Myanmar Witness has geolocated one heavily burn-damaged body, allegedly a seven-year-old minor, to the village.

Through a number of factors and pieces of UGC related to this case, Myanmar Witness has geolocated the body of the corpse to around 22.072591, 94.789918 in Yin Paung Taing village (Figure 18).



Figure 18: Geolocated image of a corpse in high definition, alleged to be a minor killed during the raid. (Source: [Mawkun Magazine](#)).

Pro-military channel, [Fifty Two](#) (graphic content embedded), uploaded additional images to Telegram, supposedly of the bodies associated with this clash. However, Myanmar Witness have not been able to verify whether the graphic images are related to this case.

Further UGC useful for geolocation and verification of events

Images posted by pro-military sources on social media show weapons, ammunition and other items which were allegedly taken from local Kachin Independence Army (KIA) and PDF during a raid of Yin Paung Taing. The pro-military news channels not only imply that a raid took place, only that the village was housing KIA forces and PDF.

The distinctive red and green floor common in both images (Figure 19) could indicate that the images were taken in the same room. For example, a building in Yinmarbin township (ယင်းမာပင်မြို့) [22.073485, 94.789224] has the same distinctive floor pattern and blue walls (Figures 19 and 20). The building shown below is less than 50 m from the burnt out truck geolocated by Myanmar Witness. This increases the likelihood that these images are related to the same air strike and subsequent raid.



Figure 19: Images captured and uploaded by pro-military groups of weapons allegedly taken from PDF forces. The floor is very distinctive. (Source: [Fifty Two News](#) and [Mandalay Free Press](#)).



Figure 20: A building with distinctive red and green floor patterning as well as blue backwalls in Yin Paung Taing (ရင်ပေါင်တိုင်). (Source: Private).

Aircraft Identification

Myanmar Witness analysed [drone footage](#) showing the destruction to the village and unverified footage of aircraft.

The drone footage focuses first on one helicopter, filmed from the right side and then from the bottom. Myanmar Witness has identified this as an Mi-17 military helicopter. From the side, the helicopter looks like it is sporting a white livery, but that may be because of the reflection of direct sunlight. Mi-17's, in the service of the Myanmar military, usually sport a dark green livery, but several aircraft have been seen to sport a mostly-white livery (Figure 21).



Figure 21: Still extracted from [drone footage](#) as compared to a [reference image](#) of Myanmar Air Force Mi-17 helicopter.

Another rotary-wing aircraft was also identified in this footage. Given the image quality, Myanmar Witness has not been able to identify if this is the same Mi-17 shown above.



Figure 22: A [reference image](#) of Myanmar Air Force Mi-17 helicopter as compared to a still extracted from [drone footage](#).

Attacks in other villages

Posts related to the incident [also claim](#) that other villages in the area were also affected by airstrikes and raids in a similar timeframe. As previously mentioned, [Burma VJ](#) also claimed an attack took place in a nearby village, which Myanmar Witness further investigated. Identified UGC was geolocatable to a village only 1km away from Yin Paung Taing, in Pu Htoe Thar village, Pale Township.

A piece of UGC identified by Myanmar Witness (private) is of a building geolocated to around 22.064233, 94.793798. The building is of particular interest as it appears to have suffered from both burn damage and the complete destruction of brick structures that are reduced to rubble. This may be the result of heavy weapon use or possible aerial strikes (Figure 23).

This instance is highlighted as it represents an emblematic part of these aircraft attacks - they can be used systematically against villages close to one another, in quick succession, causing more destruction and limiting the movement of people from one location of attack to another of presumed safety.



Figure 23: A destroyed building next to another showing significant burn damage. It cannot be confirmed if this village was also attacked by aircraft but, due to the nature of the destruction, it is likely more than a raid utilising fire took place. (Source: Private).

Verification status

By cross-referencing the reports and UGC on social media with satellite imagery, Myanmar Witness concludes that an air attack was highly likely to have occurred, followed by a ground forces raid.

Although the helicopter could not be conclusively identified or connected with the damage to buildings which were geolocated to the village, the damage appears consistent with an air attack. This is determined from the visible damage to the building's roof.

The damaged building seen in the background of images of the vehicles (Figure 17, which shows an image before the vehicles were burnt and an image after they were burnt) shows that the damage to the building was sustained before the fires were lit. This, and the reported collection of weapons from anti-military forces, lends credence to the claim that a ground raid took place following the air attack in an area housing resistance forces.

This case study is emblematic of the situation in Myanmar as it reveals a potential tactic used by the military: airstrikes are being used ahead of ground raids in sites of resistance.

2. Loikaw Township, Kayah - August 2022 (partially verified)

Background

On 9 August 2022, a medical facility in Daw Parpa (ဒေါ်ပါပ) village, Loikaw township (လွိုင်ကော်မြို့နယ်) was [allegedly](#) hit by an airstrike, leading to the death of 60-year-old patient named U Ryoom. An eyewitness told [Myanmar Now](#), "There was a lot of bombing. The fighter jet has been around for three times." No other casualties from the air attack were reported. Following the attack, the Karenni Nationalities Defence Force ([KNDF](#)) and Radio Free Asia ([RFA](#)) reported that at around 1100, the military opened fire on Daw Parpa (ဒေါ်ပါပ) village with heavy weapons.

Myanmar Now [reported](#) that the medical centre that was hit previously served internally displaced persons (IDPs). More can be read on conflict in Kayah state in a previous Myanmar Witness report: [Moso Village Christmas Eve Killings](#).

Sources including the [People's Spring](#) and the [Irrawaddy News](#) posted videos that show children who were visibly frightened, hiding and praying. In the background, the sound of a plane firing and a machine gun can be heard. One [video](#) interview about the incident cites the negative consequences of these attacks on children's mental health.

Incident Verification

Myanmar Witness geolocated multiple pieces of UGC associated with this airwar incident which contributed to its partial verification. This included: UGC showing a destroyed clinic and a damaged civilian structure, likely a home, likely due to airstrikes. There is also footage of children hiding in a school and being evacuated.

The location

Using a range of UGC, Myanmar Witness was able to verify the location of the clinic, a destroyed house, and the school by matching the images of structures allegedly damaged by an airstrike with satellite footage.

The medical clinic, geolocated by Myanmar Witness to around 19.840594, 97.328525, could have been damaged by an airstrike in Daw Parpa village. The red roofed buildings seen in Figure 24 are the clinic; the roofs are visibly damaged. Furthermore, medical equipment was

visible inside the damaged building in private footage showing the inside of this structure. This footage corroborates claims that this was a medical facility (private). A civilian house was also damaged close to this location. It is difficult to verify if an airstrike caused the destruction as Myanmar Witness has been unable to identify footage showing an aircraft dropping ordnance on this location. Despite this, the damage is consistent with that caused by aerial attacks.



Figure 24: Geolocation image of Daw Parpa village, highlighting the destroyed clinic area - with red roofing - and residential buildings (source: private).

The school is located 0.4 km away from the medical clinic at 19.842241, 97.330577 (Figure 26). Myanmar Witness geolocated the school using [People's Spring](#) and [Irrawaddy News'](#) videos. During the footage identified of the school area, children are seen hiding in two separate buildings, marked with orange and red colours in Figure 25. After loud sounds adjacent to an airstrike, the children can be seen running from the school into the forest, with the help of plain clothed and uniformed armed men reported by these outlets to be school instructors and KNDF members (Figure 27).



Figure 25: Geolocation of the school located by Myanmar Witness [19.842241, 97.330577].



Figure 26: The footage demonstrates children fleeing from the back window in the school building into the forest.



Figure 27: Uniformed and plain clothed armed individuals assist children out of a school building and into the forest while what sounds like an airstrike is carried out. (Source: [People's Spring](#)).

In the footage of the children, it is possible to hear sounds which could be an aircraft. The close proximity of the school to the medical clinic which was allegedly hit and whose damaged structure Myanmar Witness has geolocated to the village - means that it is highly likely the sound of the plane could be heard from the school. Myanmar Witness was unable to verify the date or time the footage of the children was recorded, preventing full verification of this event.



Figure 28: The medical clinic, civilian home and the proximity of school children at a school building in relation to one another in Daw Parpa village.

Verification Status

By cross-referencing the reports and UGC on social media with satellite imagery, Myanmar Witness concluded that an air attack was highly likely to have occurred. The geolocated

damage seen to the clinic, house and school, and the video footage of the children suggests that the damage was almost certainly not caused by fire (there was also no appearance of scorch marks or ash). Additionally, the damage to the roofs implies that the homes were damaged from the air.

Video footage geolocated by Myanmar Witness of children hiding almost certainly suggests that something frightening is happening close to the school. The damaged medical clinic and house is only located 0.4 km from this location. The presence of plain clothed individuals and individuals wearing uniforms could imply that local defence forces were involved in the evacuation of children from the area. As a result, it is unlikely these individuals perpetrated the damage in the footage. While the uniform cannot be conclusively verified as KNDF, it bears similarities.

This case study is emblematic of the situation in Myanmar concerning the use of military aircraft as it demonstrates damage to civilian infrastructure, including vital sites for Myanmar's citizens: medical facilities. While Myanmar Witness has not been able to verify the death of the individual or its connection with this air attack, Myanmar Witness has geolocated footage that shows a disregard for the lives and general wellbeing of children.

3. Tabayin Township, Sagaing - September 2022 (partially verified)

Background

At around [1300](#) local time on 16 September 2022 Let Yet Kone village (လက်ယက်ကုန်း), Tabayin Township (ဒီပဲယင်းမြို့နယ်), Sagaing Region (စစ်ကိုင်းတိုင်းဒေသကြီး), was reportedly [attacked](#) by two helicopters for approximately one hour. A 'local watch' page on Facebook posted a claim that helicopters entered from the east side of Let Yet Kone village from the direction of Naung Hla village, and could have possibly flown from Namakha (နမခ) in Monywa (မုံရွာမြို့), Monywa township, Sagaing region, where the Northwestern Military Command for the Myanmar military is [located](#).

During the attack, a school and monastery were affected. Since the February 2021 Coup, CDM and NUG-funded [schools](#) started emerging in rural areas under resistance control, which were [facing](#) education holes. The Let Yet Kone school is in an area which has seen a [rise](#) in CDM and NUG supported schools, given educational resource shortages. Myanmar Witness has been monitoring threats and attacks on schools, specifically in areas where education initiatives have been led, or supported, by the NUG and CDM.

Reports (private) suggest that between [11](#) and [14](#) people were killed, including volunteers at the school and at least [six](#) children. Additional reporting states that between [15](#) and [20 people](#) were taken alive by Myanmar military troops, as well as the bodies of the child casualties. Their bodies were either [buried or cremated](#) seven miles away in Ye-U township. Reports state that the injured were [treated](#) at the nearby [Ye-U hospital](#) and some of the injured [reportedly](#) lost limbs.

The SAC [responded](#) to these allegations by accepting the event's occurrence, but alleged that PDF and members of the KIA were [stationed](#) in the village, using villagers as [human shields](#). The Military also [claimed](#) that KIA and PDF forces were moving weapons, and that they discovered and seized mines and explosives from the village during their raid. Two female teenagers also reiterated the military's claims in a press conference [delivered](#) live on a SAC-affiliated media channel before they were returned back to the village. Within the [statements](#), the girls mentioned that Let Yet Kone was a NUG funded school. Locals rejected the teenager's statements, [stating](#) that they were forced and full of SAC 'propaganda'. Locals also [denied](#) the presence of PDF and KIA troops in the area. Myanmar Witness has published a detailed report of this case: [The Tabayin School Attack](#).

Incident Verification

Based on open source analysis and the verification of UGC emanating from this location, Myanmar Witness has partially verified the claim that the Myanmar military conducted a helicopter attack. This conclusion was reached following extensive geolocations and analysis of UGC, including images of a structure that was damaged in the attack, where children reportedly died.

Myanmar Witness geolocated multiple pieces of UGC associated with this airwar incident which contributed to its partial verification. This included UGC showing a damaged school building, possibly due to airstrikes as well as alleged ordinance from the scene which suggests an aircraft usage in the village.

The location

The image below shows a building with a damaged roof. This was geolocated by Myanmar Witness to Let Yet Kone village, at around 22.679376, 95.400381 (Figures 29-31). While chronolocation of the images could not be conducted, social media posts gathered by Myanmar Witness align with the reported time of the air attack. A scout network Telegram channel announced the news of an attack in Let Yet Kone village around 1610 on 16 September 2022, stating that many people had fled the area due to the violence. Prior to this post, there were multiple mentions of Mi-35 and Mi-17 helicopter sightings in the area of Tabayin and Let Yet Kone, with one post specifying that the Eastern Tabayin region south of Ye-U was under attack at 1306 on 16 September 2022 from the same channel. This aligned with other online reports, including by [Irrawaddy](#) media and user-generated content from [Facebook](#) and Twitter which claimed that the attack began roughly around 1300 in Tabayin township.³

³ Links have been removed from this section due to privacy concerns. Myanmar Witness maintains archives of the content.



Figure 29: Image widely shared on social media of a damaged building at 22.679376, 95.400381, shared online on 17 September 2022 (source: [Khit Thit Media](#)).



Figure 30: Geolocation of a damaged school building in Let Yet Kone village.



Figure 31: Further geolocations of damaged buildings in Let Yet Kone village.

Footage [appears](#) to show heavy damage to the school's infrastructure, with what looks like bullet holes through the walls and furniture, allegedly inflicted by the Myanmar military's Mi-35 helicopters. Video footage uploaded to Youtube of the outside of the school [shows](#) significant damage: caved in areas of roofing and large gaps within walls (Figures 32 - 34).



Figure 32: Several different angles of destruction of one building identified by Myanmar Witness to be located at 22.679200, 95.400131 (Source: [Khit Thit Media](#)).



Figure 33: Outside building damage in Let Yet Kone village, showing large gaps allegedly from airstrikes on 16 September 2022 (Source: Private).



Figure 34: The entrance to the school and monastery with notable buildings in the background that were allegedly hit with the airstrikes on 16 September 2022, located at 22.679161, 95.400366 (Source: [Burma VJ Media](#)).

Ammunition and ordnance at the scene

Debris from shelling and the airstrike left casings, including the verified remnants of S-5 rockets reportedly from the scene, shown in Figure 35. The S-5 rocket can only be fired by compatible fighter helicopters and jets which are used mainly for ground area targets. The MAF are the only known party to the conflict in Myanmar that has aircraft suitable for S-5 rocket use.



Figure 35: Aftermath of airstrike debris allegedly gathered from the 16 September 2022 airstrike attack in Let Yet Kone village, Sagaing region (စစ်ကိုင်းတိုင်းဒေသကြီး). Identified S-5 rocket remnants are shown. (Source: Private).

Verification Status

By cross-referencing the reports and UGC on social media with satellite imagery, Myanmar Witness concludes that an air attack was highly likely to have occurred. The geolocated damage on the school was not likely to have been caused by a fire, as there were no signs of the appearance of scorching or ash. Parts of the building appear to have been hit by something that could have created small and large holes. There was a high level of damage outside as well as inside the buildings. The damage to the roofs and walls showing circular holes likely indicates that the homes were damaged from above or from a high altitude and that large weapons could have been used.

Myanmar Witness has verified the presence of S-5 rocket remnants in images of munitions which were reportedly found in the village. These are used by aircraft that are compatible with this rocket type, including Mi-35s. They were originally designed by the Union of Soviet Socialist Republics (USSR), but are now manufactured by many countries. Myanmar Witness has not observed any domestic capability in manufacturing this type of rocket.

While Myanmar Witness has been unable to verify with absolute certainty that the NUG and CDM links with the school were the direct rationale for the attack, it reflects a wider pattern of targeting of pro-NUG and CDM schools. The Let Yet Kone school attack is not the only time an alleged NUG or CDM supported school has been targeted. Other schools, specifically in Sagaing region (စစ်ကိုင်းတိုင်းဒေသကြီး), have been targeted by the military in the past. For example, NUG school programmes have seen threats and [attacks](#), including the violent [attack](#) on 16 October 2022 in Taung Myint village (တောင်မြင့်ရွာ) in Magway region (မကွေးတိုင်းဒေသကြီး). This incident was investigated by Myanmar Witness in the spot report [School teacher killed and body mutilated](#).

This case study is emblematic of the situation in Myanmar concerning the use of military aircraft as it demonstrates damage to civilian infrastructure, including sites vital for the wellbeing and protection of children in Myanmar: schools. While Myanmar Witness has not been able to verify the death of the individual or its connection with this air attack, Myanmar Witness has geolocated footage that shows a disregard for the lives and mental wellbeing of children.

4. Kyaikmaraw Township, Mon State - November 2022 (partially verified)

Background

The ethnic groups who inhabit Mon State were divided by the military coup in 2021. Some Mon citizens opted to cooperate with the Myanmar military, including but not limited to the [Mon Unity Party \(MUP\)](#), which allied with the military soon after the February 2021 coup, and [since October 2022](#), local pro-military militia the Mon Peace Defense Force (MPDF). Other groups have taken up arms to fight the Myanmar military, including the Mon State Interim Coordination Committee (MSICC).

On 12 November 2022, local defence forces in the Mon area [reportedly](#) attacked the Taung Kalay (တောင်ကလေး) village police station and seized ammunition and weapons (Figure 36)

The attack was reported by [Myanmar Now](#) to have resulted in the death of three Myanmar military troops and the capture of four.



Figure 36: Image that allege to be military weapons and ammunition seized by local defence forces.
(Source: [Myanmar Now](#) and [Red News Agency](#)).

On 21 November 2022, the military allegedly carried out a retaliatory attack on Taung Kalay using aircraft. [Myanmar Now](#) reported that three civilians - two men and a 13-year-old girl called Phyo Khine - were killed, and at least 10 people were injured.

According to several online sources, an airstrike was carried out by 'jet fighters' and Mi-35 helicopters in a mountainous area close to the border with Kayin state (ကရင်ပြည်နယ်). It is [claimed](#) that there were around three helicopters and one fighter jet.

Several houses and religious buildings, including a monastery in a neighbouring village, were also damaged in the attack. Myanmar Witness has been able to verify damage to one place of worship in the township and geolocated footage of plain clothed armed individuals walking around the area. In the background of this footage, it is possible to hear the sound of what could be ordinance hitting the ground and weapons firing.

Incident Verification

Myanmar Witness has documented, analysed and verified UGC allegedly related to an air attack in Taung Kalay. Myanmar Witness has partially verified these events by geolocating UGC showing the damage to a religious site and video footage of a helicopter in the attack vicinity. Several pieces of footage, alleged to be from the area, show aircraft firing and munitions, possibly from aircraft-mounted guns.

The location and aircraft

Myanmar Witness geolocated footage showing damage to a religious site in Taung Kalay village, Mon state, to 16.193331, 97.899448. Additional [footage](#) uploaded to Facebook shows active fighting in the same village near 16.189488, 97.901266 and a sighting of a possible aircraft (Figure 37 and 38).



Figure 37: Geolocation of a religious site, whose structure appears to be damaged in several places to around 16.193331, 97.899448. (Source: Private).

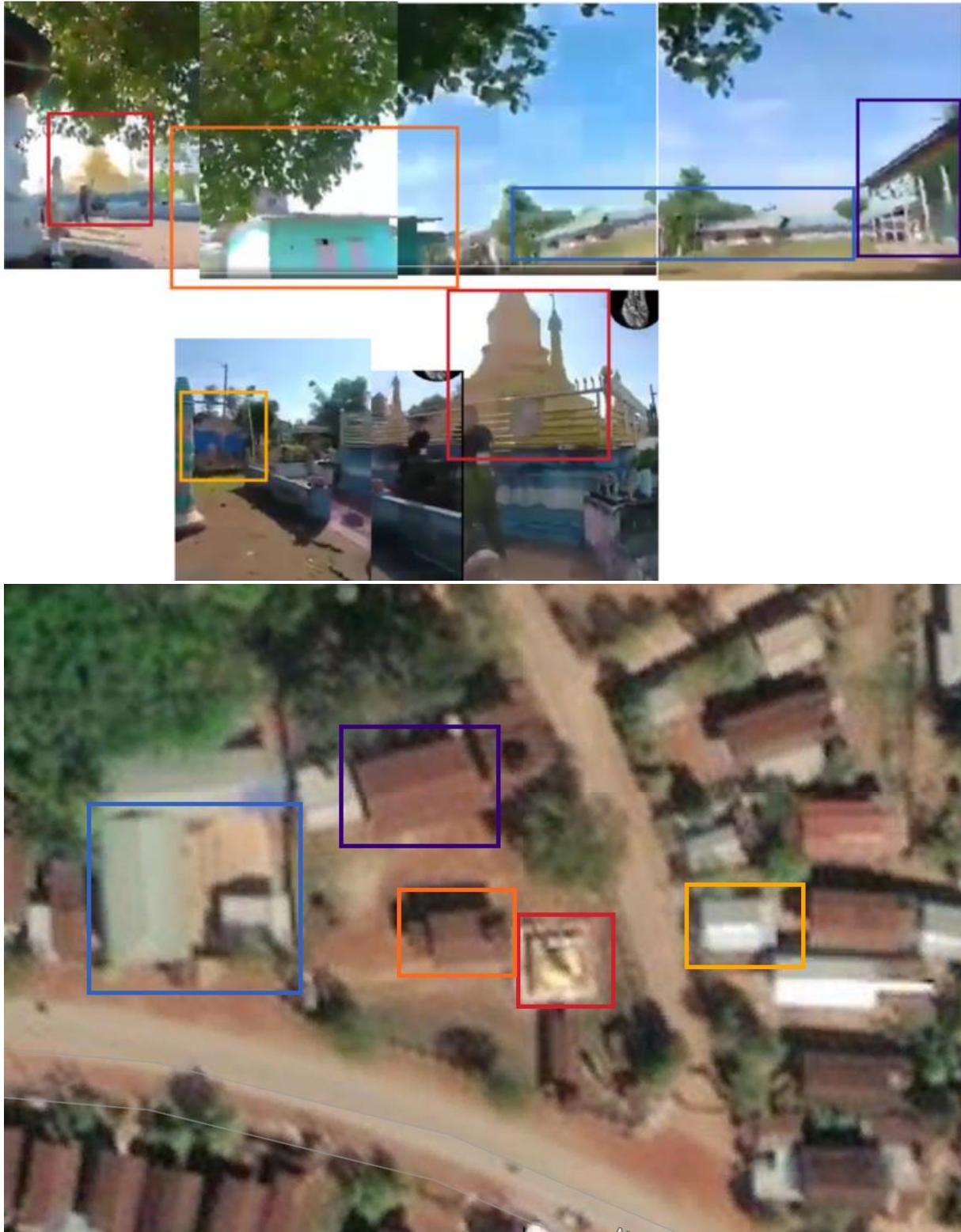


Figure 38: Geolocation of the helicopter video in the village at around 16.189488, 97.901266. At 0.35, 0.35, 3.48 seconds time stamps in the video, the sound of an aircraft can be heard ([Source: News Ambassador-TV](#)).

The aircraft involved

The sound of an aircraft can also be heard in the [video](#) mentioned previously (Figure 38, above) which Myanmar Witness geolocated to the same village. Following an analysis of the audio, Myanmar Witness concludes that it is highly likely that a helicopter using munitions at two separate timestamps can be heard (0.35 and 3.48 in the video footage). However, without visual evidence to support this claim, Myanmar Witness cannot confirm that this is fully-verified. For example, the possibility that a helicopter flew by at the same time that ground gunfire occurred cannot be ruled out. Additionally, this footage has not been able to be chronolocated and thus cannot be fully verified to have happened on 21 November 2022.

Additional [video footage](#) identified online which was allegedly related to this attack shows an aircraft flying through the sky. Myanmar Witness believes the aircraft is likely a Russian-made Yak-130. However, due to a lack of geolocatable features within the video, this cannot be conclusively linked to the attack on the village (Figure 39).



Figure 39: large pointed fuselage and wide horizontal stabiliser identified this aircraft as a Yak-130.
(Source: [Facebook](#)).

Similarly, footage [uploaded to facebook](#) shows what appears to be a Mi-35, firing (Figure 40).



Figure 40: Helicopter alleged to be from the Taung Kalay village attack. The helicopter has been identified as a Mi-35, and can be seen firing (Source: [Facebook](#)).

Meanwhile, other [images](#) posted to twitter show a helicopter firing (potentially a Mi-35) rounds from aircraft-mounted guns (Figure 41). While the social media user alleges these are from the attack on the village, Myanmar Witness cannot confirm that this is the case without further information or visual evidence. There are claims of remnants found within this attack.



Figure 41: Helicopter alleged to be from the Taung Kalay village attack. The helicopter has been identified as a Mi-35. (Source: [Twitter](#)).

Verification Status

By cross-referencing the reports and UGC on social media with satellite imagery, Myanmar Witness concludes that an air attack was highly likely to have occurred. The geolocated damage seen to the religious site, and the video footage of what appears to be local defence forces fighting in the village, including sightings of what appears to be a helicopter, point to the fact that the damage was likely not caused by a fire. Instead, the damage to the roofs implies that the buildings were damaged from the air.

Although Myanmar Witness analysed video footage of individuals firing at a helicopter and another video showing a Mi-35 firing, neither video could be geolocated to the village.

This case study is emblematic of the situation in Myanmar concerning the use of military aircraft as it demonstrates damage to civilian infrastructure, in this case a religious site. Myanmar Witness has geolocated footage that shows an aircraft was present around the village, alleged to be on this date but the footage has not been able to be chronolocated to confirm this.

5. Namhsan Township, Shan State - December 2022 (partially verified)

Background

Between the 7-11 December 2022, the Myanmar military [reportedly](#) carried out airstrikes in Kone Thar village (ကုန်းသာ), Namhsan township (နမ့်ဆန်မြို့နယ်), northern Shan state (ရှမ်းပြည်နယ်). It's reported that the Myanmar military began its campaign against the local defence forces in the area, the Ta'ang National Liberation Army (TNLA) on 7 December 2022 near the group's base in Kone Thar village, 10 miles north of Namhsan town. These reports say that the Myanmar military were seen firing heavy artillery and dropping large bombs on the area and the surrounding villages.

The TNLA is an EAO which is active in the area of Shan State. TNLA initially began as a group fighting the [drug trade](#) in Shan state, but were [disarmed](#) in 2005. They declared their support for the NUG in opposition to the Myanmar military and the 2021 coup. [News reports](#) also claim that the Arakan Army, who have reportedly [allied with the TNLA](#) on occasion, were also involved in clashes against the military in Shan State.

In the attack, residential buildings were allegedly destroyed along with the village monastery. [Myanmar Now](#) reports that more than 1,000 people from the villages of Kone Thar and the surrounding area have been displaced by the military's offensive.

Incident Verification

Myanmar Witness has partially verified an attack in Kone Thar village, Namhsan township. The location of a damaged monastery was verified through the geolocation of UGC, possibly due to airstrikes. Footage showing smoke and aircraft in the sky were also analysed. Footage showing smoke and multiple aircraft in the sky were analysed by Myanmar Witness, some appear to be involved in attacks on the village, others appear at a distance, but close to the surrounding villages.

The location

UGC showing the destruction of a monastery was uploaded online and geolocated by Myanmar Witness to Kone Thar village monastery [23.098341, 96.990789]. Figure 42 shows imagery from after the attack, compared to satellite imagery taken before 2 November 2022 on Google Earth.



Figure 42: Geolocation of images of a destroyed monastery in Kone Thar village. The bottom image shows the monastery before the attack. (Source: Private).

Myanmar Witness has geolocated footage of an aircraft flying over Kone Thar village. In the video the sound of an explosion can be heard and the creation of smoke can be seen. Although the aircraft itself cannot be identified due to the quality of the video footage, it is possible that the aircraft dropped ordnance and is therefore responsible for the damage seen in Kone Thar village (Figure 43).



Figure 43: Video timestamped at 0.05s showing what appears to be an aircraft, before the sound of possible ordinance is heard and video timestamped at 0.28s showing what could be smoke from the ordinance hitting the village. (Source: Private).

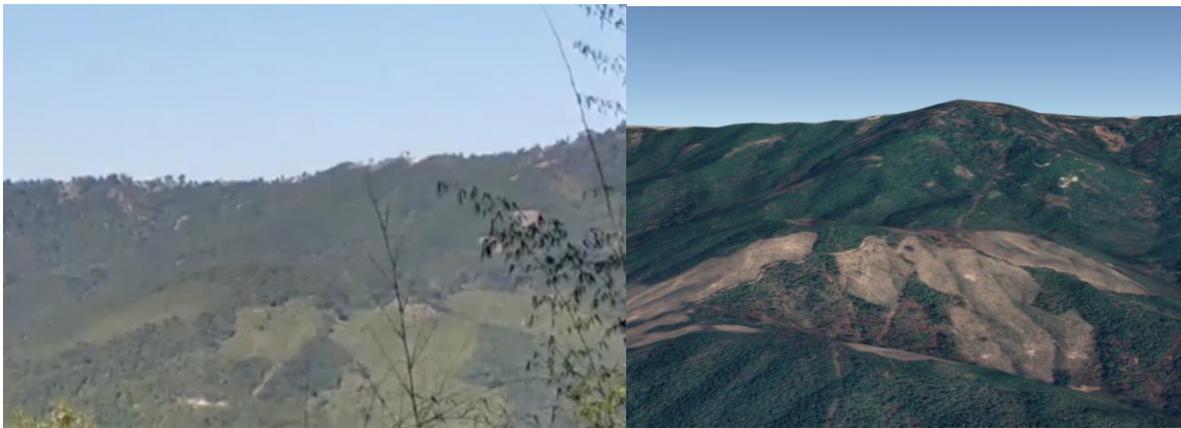


Figure 44: Geolocation of a video, showing an aircraft flying over Kone Thar village at around 23.081062, 96.989195. (Source: Private).

Additional footage shows two separate helicopters, one that appears to be hovering close to a mountain and another further away from the area, closer to Kone Thar (Figure 45).

Footage uploaded by [People's Spring](#) shows an attack in the same area (Figure 46). The footage is taken from a similar angle. The People's Spring footage can also be found online, uploaded by the same private uploader as the helicopter footage.



Figure 45: Video footage demonstrates two helicopters in the area of Kone Thar, alleged to be from the day Kone Thar was attacked. This video footage has not been found in an earlier iteration online by Myanmar Witness. (Source: Private).



Figure 46: Video footage that appears to show Kone Thar having been attacked; the video is from, or close to, the same location of the footage of two helicopters in the area. (Source: [People's Spring](#)).

Multiple sources of UGC appear to confirm that there was an attack and fighting on the same day in Namhsan township. For example, video footage showing monks and [smoke in the sky](#) - which could be consistent with the firing of heavy weapons - was geolocated by Myanmar Witness to around 22.963389, 97.161654, south-east along the road from Kone Thar village in Namhsan township. This is around 24km from the village where the airstrike occurred and could imply fighting with local forces was happening at the same time. Smoke was also seen [emanating](#) from an area in the mountains, which Myanmar Witness geolocated to Yae Pong village [23.205579, 96.954353]. The individual responsible for posting this footage suggests that villages in Namhsan were affected by fighting on the same day as the alleged airwar incident and that three fighter jets were reportedly attacking Kone Thar village.

Despite footage of aircraft in the vicinity of the village, there was limited UGC showing the aircraft dropping ordnance directly on the damaged buildings. Myanmar Witness cannot confirm whether an air attack caused a fire, leading to the fire damage to the buildings. However, the damage to the roof and structure of the buildings is consistent with UGC of other allegations of air attacks.

Identification of Aircraft

[Shwe Phee Myay News Agency](#), the group who posted the majority of the footage surrounding this incident, also posted images of aircraft flying in the sky, allegedly in relation to this event (Figure 47). These appear to be three different aircraft - including the Mi-35 - though there is no way to verify that these aircraft were used in the attack due to the lack of geolocatable features within the footage.



Figure 47: Aircraft alleged to have been involved in the Kone Thar attack. Top image is a Mi-17 and bottom image is a Mi-35 (Source: [Shwe Phee Myay News Agency](#)).

Verification Status

By cross-referencing the reports and UGC on social media with satellite imagery, Myanmar Witness concludes that an air attack is likely to have occurred. The geolocated damage seen to the monastery and homes appears consistent with an air attack. Fire damage is also visible.

This case can only be partially verified by Myanmar Witness as there is no evidence showing the aircraft dropping ordnance on the damaged structures. Despite being unable to fully verify this case, Myanmar Witness has geolocated footage that shows a disregard for structures of worship, likely caused by the Myanmar military forces.

This case study is emblematic of the situation in Myanmar concerning the use of military aircraft as it demonstrates that some air attacks appear to be carried out during direct conflict with local defence forces. It also represents a case where civilian structures, including places of worship and locations which house the vulnerable, including the young and elderly, are damaged through clashes and can become unsafe.

Conclusion

This report has revealed the drastic efforts taken by the Myanmar military as it struggles to maintain control and quell opposition across the country. Airstrikes have become a key part of their offensive - occurring almost daily between July and December 2022. The Myanmar military, which is heavily reliant upon aircraft manufactured in Russia and China, is putting the population of Myanmar in a precarious position, destroying homes, schools and places of worship - sites which should be safe for civilians.

Through a mixed methods approach, this research has helped to shine further light on the modus operandi of the Myanmar military. The case studies reveal both a preemptive (proactive) and a retaliatory (reactive) aspect to the Myanmar military's conduct. Proactive strikes, largely targeting hard to reach areas, continue to focus on areas with EAO control (such as Camp Victoria). On the other hand, reactive strikes, accompanied by ground troop offensives (often in parallel with the use of fire), appear to target areas of active conflict with PDF and EAOs.

Analysis of the 135 AWIs identified in the quantitative study reveals that the number of airwar incidents has been on the rise since September 2022. Should data collection have continued until the end of December, Myanmar Witness believes that this trend would have continued. For example, notable cases, including the [airstrike on Camp Victoria](#), alongside constant monitoring by Myanmar Witness, show continued escalation. Airstrikes are a mainstay of the Myanmar military's offensive.

As traditional air assets are not available to the PDF or EAOs, the conduct of airwar in Myanmar is inherently unequal, leading to the development of an asymmetric conflict. This report reveals that the Myanmar military has taken to the skies to exploit this asset inequality. The highest number of airstrikes were reported in areas of notable resistance to the Myanmar military, namely Sagaing region (စစ်ကိုင်းတိုင်းဒေသကြီး), followed by Kayin state (ကရင်ပြည်နယ်), Kachin state (ကချင်ပြည်နယ်) and Chin state (ချင်းပြည်နယ်).

The case studies reveal the human impact of airstrikes on communities in Myanmar. The strikes conducted by the Myanmar military as part of their airwar campaign have hit schools, medical facilities, sites of religious significance, and, in all of the case studies included here, civilian homes and infrastructure. Myanmar Witness will continue to monitor attacks which impact civilians. The Myanmar military's lack of distinction, whether in relation to civilian infrastructure or its neighbours' sovereign territory, is a worrying trend.

This report emphasises the prevalence of airstrikes in Myanmar and seeks to shed light on those who are responsible so that they can be held to account for all related atrocities. Myanmar Witness will continue to identify, verify, analyse and report on the occurrence of airstrikes across Myanmar, with particular focus on how they impact the daily lives and safety of civilians.

List of Abbreviations

• Airwar Incident	AWI
• Arakan Army	AA
• Chin National Front	CNF
• Civil Disobedience Movement	CDM
• Ethnic Armed Organisation	EAO
• Internally Displaced Persons	IDPs
• International Human Rights Law	IHRL
• Karenni Nationalities Defence Force	KNDF
• Karenni Army	KA
• Kachin Independence Army	KIA
• Mon Peace Defense Force	MPDF
• Mon State Interim Coordination Committee	MSICC
• Mon Unity Party	MUP
• Myanmar Air Force	MAF
• National League for Democracy	NLD
• National Unity Government	NUG
• Non-State Armed Group	NSAG
• People Defence Force	PDF
• Radio Free Asia	RFA
• State Administration Council	SAC
• Ta'ang National Liberation Army	TNLA
• The Karenni Information Center	KnIC
• User-generated content	UGC
• Union Solidarity and Development Party	USDP
• Union of Soviet Socialist Republics	USSR

Annexe 1: Myanmar Witness Standardised Methodology

Myanmar Witness follows a methodology of digital preservation and rigorous, replicable analysis. Digital evidence is collected and archived in a secure database and preserved with hashing to confirm authenticity and prevent tampering.



Myanmar Witness applies a four-tier classification system to describe the extent to which footage has been independently verified by Myanmar Witness. This is as follows:

- **Fully verified:** Footage independently geolocated and chronolocated by Myanmar Witness.
- **Verified:** Footage has been geolocated by Myanmar Witness. Other sources concur on the time and date of the footage, with no evidence following to suggest that the footage was taken earlier or later. However, it has not been possible for Myanmar Witness to independently chrono-locate the footage.
- **Unverified / Under investigation:** Myanmar Witness has not been able to geolocate or chronocate footage at the present time.
- **Inauthentic:** The geolocation and chronolocation process has shown the location or timing of the footage to be inaccurate.

For the avoidance of doubt, this verification system only refers to Myanmar Witness' ability to independently geolocate or chronocate footage. Incidents marked as unverified may still be substantiated by multiple eyewitness reports. Sources are cross-referenced in this report to indicate where this is the case.

This report contains images showing how footage has been geolocated. In these images, white lines are used to represent the left and right arcs of vision. Coloured boxes show how landmarks or distinguishing details in each piece of footage or data corresponds with each other. Geolocation is conducted using a varied array of open source online tools such as Google Earth to match satellite imagery with visual features identified in footage, images or other content - often referred to as user-generated content (UGC). Geolocations are cross-checked and peer-reviewed before they are credited as verified.

Chronolocation is typically conducted by analysing UGC timestamps to determine hard end limits for the possible time frame. This is followed with contextual and visual analysis, for example comparing visible aspects against known indicators such as weather events, shadows or other phenomena which may be indicative of the time in which a piece of UGC was captured. Shadow angle is determined after geolocation and its orientation is used to determine the position of the sun, and thus, time.

If dealing with unverified information, such as witness testimony or outside reporting, Myanmar Witness has made it known that these inclusions are claims and have not been independently verified by Myanmar Witness. Following stringent ethical standards, Myanmar Witness has obscured identifying information about individuals involved, censored private information and images where appropriate, removed links to private individual accounts and archived said information securely. Where appropriate, Myanmar Witness has also blurred or excluded graphic imagery.

Annexe 2: Airwar Thematic Review Specific Methodology

Data Collection and Database Management

For the data collection portion of this investigation, Myanmar Witness utilised whopostedwhat.com⁴ to conduct manual searches across Facebook for content, utilising relevant keywords in both English and Burmese, broken down by month (between July 2022 and December 2022). Keywords utilised for this investigation included:

- English: Airstrike Burmese: လေကြောင်းတိုက်ခိုက်မှု and လေကြောင်းပစ်
- English: Aircraft (fighter jet) Burmese: တိုက်လေယာဉ်
- English: Attack Helicopter Burmese: တိုက်ခိုက်ရေး ရဟတ်ယာဉ်

The data collection timeframe was limited to between 1 July 2022 and 15 December 2022.

Once collected, the data was then logged in a central database, along with key information, including:

- claimed date of the incident
- date of data collection
- keyword used to identify the content
- source of data
- graphic warning Alert (if the post is of a graphic nature)
- status of content reliability at the point of pre-analysis (claim, likely, highly likely)
- location of alleged airstrike (state, township, village). Village name was collected in both English and Burmese
- coordinates of the alleged location (if available)
- aircraft/air assets listed or mentioned in the claim. If specific assets were listed these were labelled (for example, K-8, Mi-35, MiG-29 or Yak-130). Less specific claims were labelled as “not specified - helicopters” or “Not specified - fighter jets”. “Not stated” was used for all claims that didn’t make mention of an aircraft/air asset type or general presence

⁴ whopostedwhat.com is a non-public Facebook keyword search for people who work in the public interest. It allows you to search keywords on specific dates and sift through publicly available Facebook posts matching those search terms..

- information on remnants of a possible air attack, for example, any object that was determined to come from the munitions of the attack or the aircraft itself

Defining and Understanding an Airwar Incident (AWI)

The quantitative analysis presented in this report refers to the concept of airwar incidents (AWI). An AWI is an identifier for claims of an airstrike(s) which occurred in a single township on a single day. AWI's combine multiple, disparate claims related to an airstrike event in order to provide a single source of information.⁵ By their nature, AWI's are conservative - reducing the risk of inflating the number of airstrikes which were alleged to have taken place based on the multitude of reports and allegations identified online.

An 'airwar incident' has been prefaced over terms such as 'airstrike incident', as the term 'strike' is singular, suggesting that for many of the events identified, only a single strike occurred. Airwar incident is plural, incorporating the possible presence of multiple strikes within a singular incident.

The construction of AWI's presented several challenges for both collection and analysis, including:

- the presence of multiple reports from multiple users regarding the same strike occurrence and/or event;
- the likelihood of multiple strikes being conducted in the course of an aircraft assault, with various reports claiming different strike numbers and impact locations; and
- ambiguity within the claims about what actually happened (a constant challenge in the realm of open source investigations).

Additional UGC was collected on specific incidents where it was required to justify their inclusion within an AWI. This was done by searching for the same keywords listed above across various Telegram channels and in the Myanmar Witness internal database.

Location

As many of the reports did not mention a village, or alternatively, mentioned multiple villages during the same airstrike, Myanmar Witness analysts determined that the incidents should be grouped geographically by township. This grouping, being smaller than the state level, yet larger than the village level, provided insight that was not overly conservative in its reference to impact location.

Myanmar Witness relied heavily upon Myanmar Information Management Unit (MIMU)⁶ information on villages to link some of these claims to villages and coordinates. Certain factors occasionally inhibited this process, including (but not limited to):

⁵ Upon collection, each identified report/claim/allegation was given a unique Airwar (AW) entry number in the database. Once reports had been grouped into incidents (as outlined in this methodology), each incident was assigned an airwar incident (AWI) number.

⁶ The Myanmar Information Management Unit, or MIMU, provides information management services to strengthen analysis and decision-making of the humanitarian and development community in Myanmar.

- incorrect translations of village or locality name;
- dialectical or colloquial differences when referring to a location; and
- locations not being listed in the claim.

When this occurred, other resources were relied upon to try and identify where the alleged air strike took place. This included: Wikimapia; general searching of location names in English and Burmese across search engines; and reviewing various alternate geospatial platforms to try and identify the correct location.

Time

If there was a variation in the reported time of an alleged airstrike between reports, or the reports didn't mention the time at all, this category was left blank within the database. Some of the reports mentioned the amount of air munitions used within the airstrike while others did not; for example, one report might state that a village was hit five times. If the report did not state the timing when each individual munition hit the location, Myanmar Witness grouped the claim as one incident.

Date

The date of the alleged airstrike was mentioned in most of the cases collected. Sometimes the claims included temporal terms such as 'yesterday' to indicate a particular date. If reports of airstrikes referred to the same day and the same village, Myanmar Witness classified it as the same AWI.

Analysis of data and verification

In order to verify claims in the database, Myanmar Witness carried out further research to find related UGC. Where additional information was found - for example, regarding the aircraft type, footage, or evidence of the remnants of an airstrike - it was added to the database. If Myanmar Witness was able to carry out geolocation work on the UGC, this too was labelled within the database.

The following section outlines how the labels were attributed within the database.

While verifying the incidents' coordinates, to ensure that the location of all claims were represented within the dataset and could be plotted in a map, Myanmar Witness applied the following process:

- If the village name did not appear in MIMU, or the location was not geolocatable by analysts, the township or state coordinates (obtained from wikipedia) were used instead.
- In the few cases where the township was also not identifiable, the coordinates for the state (obtained from wikipedia) were used instead.

During the data analysis phase, and in the conduct of further investigation, Myanmar Witness analysts found a number of discrepancies with the reported aircraft types. This was dealt with in the following way:

- If the post relating to a claim had both text and an image of an aircraft, and the text mentioned the aircraft type but the image was not the same aircraft type, both aircraft types were recorded
- If the post relating to a claim had both text and an image of an aircraft type, but the image looked to be from stock or was determined to be an unrelated image, only the text claim was recorded for aircraft type.
- If the post relating to a claim had only an image of an aircraft type and the text did not state the aircraft type, then the image claim was recorded for aircraft type (if it was believed to be related to the case and not 'old' imagery).
- If a claimed incident contained multiple posts of UGC with various claims of aircraft type, all types were recorded for aircraft type if not determined otherwise through verification.

For the purposes of the quantitative side of this study, Myanmar Witness redefined the standard terms of the applied methodology, instead using a different set of labels for each AWI to be analysed against:

- 'Claimed/alleged' - indicates a lack of imagery, with geolocation being nearly impossible. But, a location is given in the claim. These instances lack clear information and have vague reporting.
- 'Likely' - indicates an image is shown with casualties (if applicable), multiple sources report on the same incident of airstrike claim and there is an inclusion of a testimony or experience in the UGC.
- 'Highly likely' - indicates severe damage to property and casualties are shown or described within the UGC. Geolocation is possible. Potential remnants may be viewable. Aircraft are identified but not seen shooting/not able to be geolocated.
- 'Verified' - indicates that the previous factors have been met, and there is a geolocation of the airasset conducting an attack within the incident area. Chronolocation is completed if possible.

Myanmar Witness analysts used the following process to provide a level of verification for each aircraft type:

- If the aircraft was filmed or shown in imagery that was geolocated (and represented in the location coordinates), then the aircraft was labelled "geolocated" under verification.
- If an aircraft was showcased on video or imagery but this was not able to be geolocated, then the designation of "sighting" was used under verification.
- If no imagery or video was shared showing the aircraft type, then it was designated as "claimed" under verification.

All forms of UGC related to the remnants of a possible air attack were recorded under "footage". Each item was given a "Remnant Status" using the classification below:

- If the remnant was "verified" by Myanmar Witness, this was noted.
- If footage existed for a remnant type, but was not verified or reviewed, then a designation of "Identification needed" was used.
- All claims that did not report any remnants from the incident were left blank.

Under the "Overall Footage" classification, for each claimed incident, analysts recorded the footage type(s) that was (or were) available and labelled the type of incident visible within the footage as follows:

- The “Airstrike” designation was used for all claims that showed the aircraft using its arsenal in some capacity in the reported incident location.
- The “Sighting” designation was used for all claims that didn’t show an aircraft shooting/firing, but showed the presence of an aircraft.
- The “Damage” designation was used for all images and videos connected to the claims that showed various types of destruction from the alleged airwar incident.
- If a claim didn’t include a type of footage, then it was left blank.
- If the footage was geolocated, then that was labelled so under “verification”.
- If the footage was not geolocated, then the incident was labelled “claimed”.

During the analysis and verification process, the team also collected less structured information where deemed relevant to the overall incident. This information did not fit within the structure of the database and was recorded in a notes section. Towards the end of the analysis, this section was useful for determining when claims might be interrelated. For example, if a post claimed several villages had suffered from airstrikes in one day, then this was recorded within the ‘notes’ section as likely being tied to another claimed incident.

Annexe 3: Limitations

The outputs of the quantitative side of this study were drawn from an analysis of open source UGC, in the form of social media posts which alleged the occurrence of an airstrike event. This UGC emanates from an area of ongoing conflict, with multiple factors being taken into consideration when reporting on the findings of this report. Non-exhaustively, some of these factors included:

- understanding that there may be a potential fear of reprisal or repercussion held by the individual postings such events, meaning that some details, or allegations in general, may be missing;
- noting the lack of available, accessible and unbiased information from official sources
- acknowledging that availability, or lack thereof, the internet, severely impacts an individual's ability to utilise social media, and thus post the UGC this study relied upon
- recognising that identified UGC may not be original; and
- appreciating that the posting of identified UGC may be the result of a ‘common experience’ effect - where one individual posts the information as if they experienced or witnessed it first-hand, but were in fact not directly involved.

Both focused and broad search terms in multiple languages across open sources were utilised to cast a wide content-catching net. The identification of UGC from multiple sources, such as pro and anti-military news and social media, was also conducted.

The issue of underreporting is expected to permeate this study, meaning the AWI figures should be viewed as conservative. For example, there are differences in the amount of information available in Rakhine state (ရခိုင်ပြည်နယ်) compared to the Sagaing region (စစ်ကိုင်းတိုင်းဒေသကြီး). Furthermore, different languages are used in different regions—such as Chin

state (ချင်းပြည်နယ်) and Rakhine state (ရခိုင်ပြည်နယ်)—making data collection more difficult, as keyword searches may be less successful at finding location specific content. Due to the nature of keyword searches and multiple investigators working on data collection, there was sometimes duplication of claims recorded within the dataset. To alleviate this issue, Myanmar Witness devised a system to cross reference the information collected as defined within the methodology.

Due to the lack of key information in many of the identified claims, the data collection didn't focus on individual airstrikes but on 'incidents'. Myanmar Witness has defined an 'airwar incident' as: "report(s) of airstrike(s) in a township on one day". However, it must be noted that it is increasingly difficult to verify if airstrikes occurred within one day in the same area. Myanmar Witness found that some individual claims listed multiple airstrikes within one day or several days, making it difficult to determine the correct number of airwar incidents. To combat this Myanmar Witness carried out further research to determine if these were individual incidents in separate locations.

The active data collection began on 15 December 2022, meaning that older posts which had not previously been archived by Myanmar Witness may have been deleted or removed from social media. This could have skewed the dataset and resulted in a higher percentage of claims for November and December 2022. Retrospective documentation and analysis, as well as pattern detection over time, also have their challenges. To combat this, Myanmar Witness set the parameters of the research to a near six-month period from 1 July 2022 to 15 December 2022. The timeframe was long enough to analyse patterns in the data, while limiting the overall number of incident claims to a manageable number.