A night-time lighting analysis of Tibet’s prisons and detention centres
Summary

Authorities in Tibet are engaging in preventive repression towards their population. As part of their nationwide ‘stability maintenance’ strategy, they are detaining, persecuting, and convicting Tibetans for non-violent forms of protest and other expressions of dissent such as assisting or supporting self-immolations and carrying pictures of the Dalai Lama.

The precise workings, nature, and scale of the Chinese Communist Party’s efforts to imprison and detain Tibetans, however, remain poorly understood. In contrast with the body of knowledge on the detention and imprisonment of Uyghurs and other ethnic minorities in Xinjiang, the Tibetan detention system is still very much a black hole to the international community.

The lack of evidence on many issues, especially on the so-called ‘vocational training centres’ and detention through the criminal justice system, is not evidence of the absence of repression. Rather, it highlights a need for further research to address many of the research gaps and to better understand the situation.

This study therefore aimed to build on the scant available evidence and leveraged an innovative method – night-time lighting data – to shed light on the prisons and detention facilities in Tibet.

Measured on a daily basis using satellite-based sensors, night-time lighting data represent an equilibrium measure of electricity consumption at night at specific locations over time. Aggregated into monthly trends, these data can help illuminate potential changes in the construction, growth or decline in the use of specific detention facilities across Tibet that may not be visible using overhead satellite imagery alone.

We found that there are currently at least 79 prisons and detention centres throughout Tibet, with most towns and villages having a detention centre.

The majority of these are assessed to be small, low-security detention centres which most likely provide low-level detention and short-term jail functions.

Almost all of these facilities were built before 2011, when Tibet’s former Party Secretary Chen Quanguo (also known as the architect of repression in Tibet and Xinjiang) came to power in Tibet. Although we cannot rule out the possibility that Chen may have repurposed existing facilities for political purposes upon his arrival, we can hypothesise (but not conclude) that the construction of these facilities reflects policy and managerial objectives rather than one individual’s leadership style.

Since Chen’s tenure, the overall size and scale of the Tibetan detention system has been relatively stable. At the aggregate level, at no time do the night-time lighting data show a clear inflection point which would indicate a massive expansion or reduction in Tibet’s detention system beyond its existing footprint, which would normally reflect a major policy change.

However, this does not necessarily mean that the Chinese Communist Party’s approach towards imprisoning and detaining Tibetans has remained the same since 2014. Zooming in on individual facilities, we see for instance that recent patterns of growth in night-time lighting have been concentrated in higher-security facilities since 2019. This trend
suggests a possible shift towards longer-term imprisonment and detention of Tibetan dissidents as opposed to shorter-term detention.

While we conducted a preliminary and exploratory investigation in this study, this mode of research could be extended further and even approached from the opposite direction. Our analysis restricted itself to the study of facilities already identified by the Tibet Research Project (TRP) and subsequently worked to create means for classifying them and measuring their evolution. Approached from the opposite direction our classification schema could in principle form the basis for modelling efforts targeted at identifying additional facilities that share observable characteristics with those studied here. Any such effort would be a significant undertaking but may yield additional insights into the full extent of ‘stability maintenance’ activities in Tibet and beyond.

Satellite imagery and night-time lighting analysis, however, only addresses a subset of what is a complex and dynamic problem. Other areas, such as understanding the conditions inside facilities and imperceptible forms of control, deserve further attention.

Some of these topics may best be tackled by government agencies or other members of the research, policy, and advocacy communities, given changes in the information environment in China.

Irrespective of who might be best placed to further our understanding in each area, we urge practitioners to view this field of research as multidimensional, with distinct segments of research, analysis and information-gathering being treated as complements rather than substitutes.
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Introduction

1.1. The Chinese Communist Party’s efforts to imprison and detain Tibetans remains poorly understood

Since the 1989 Tiananmen Square protests, the Chinese Communist Party (CCP) has been preoccupied with maintaining public order and social stability at all costs in order to prevent the recurrence of turmoil and ensure the Party’s perennial survival. This preoccupation has resulted in the gradual development of a ‘stability maintenance’ system (维稳体制) comprising an array of muddled practices, policies and tools to prevent and counter dissent. Initially developed to react to specific events such as the Tiananmen Square protests and target selected groups like Falun Gong, the focus of this system has gradually shifted away from reaction towards prevention. Its scope was broadened to comprehensively control thoughts and behaviours from a young age, across the entire society, with the aim of ‘eliminating invisible threats’, preventing unrest and achieving stability.

One coercive – and in some cases forceful – method through which the Party has implemented preventive repression is via the expansion of so-called ‘vocational training centres’ and detention facilities. Present evidence suggests that it is in Xinjiang that the CCP has used these centres in the most coercive, extensive and systematic manner. A mounting body of all-source evidence points to the mass detainment of up to one million Uyghurs in re-education camps referred to by the Chinese government as ‘vocational education and training centres’. Chinese officials claimed in 2019 that detainees had ‘graduated’ from the camps and that the camps had closed. Though most low-security re-education facilities may have indeed closed down, evidence suggests that large numbers of Uyghurs continue to be imprisoned or detained. RAND analyses of the night-time lighting of detention facilities demonstrated that ‘the overwhelming majority of detention facilities in Xinjiang remain active, operational, and in many cases, still under construction.’

While the CCP’s efforts to imprison, detain and re-educate ethnic minorities in Xinjiang are now relatively well documented, the international community’s understanding of the implementation of similar practices in other parts of China, including Tibet, remains poor and evidence in English is limited. The lack of evidence readily available to foreign audiences does not, however, indicate an absence of repression, but rather highlights a need for further research into the CCP’s ongoing imprisonment and detention of ethnic minorities in Tibet, and across China more broadly. This comes as the implementation of a so-called ‘vocational training and labour-transfer’ scheme in Tibet has raised international alarm at the prospect of Tibetans becoming subject to mass securitisation and, especially, detention on a scale and intensity similar to that currently seen in Xinjiang, while other imperceptible forms of repression have also gradually been uncovered.
1.2. This study aims to improve knowledge on the prisons and detention facilities in Tibet today

In this context, the present study seeks to improve understanding of the situation in Tibet by asking:

- What can present evidence tell us about the implementation of stability maintenance in Tibet today?

Of particular interest are the questions relating to the imprisonment and detention of Tibetans:

- Is there evidence that re-education and detention facilities exist in Tibet today? And if so, what is the scale of these facilities? What types of facilities exist? When were these facilities built? Where are they located? How have they evolved over time?

- What can new evidence on the Tibetan detention system gathered through night-time lighting analysis tell us about stability maintenance in Tibet?

The aim of this study is therefore to take stock of current evidence concerning the Tibetan stability maintenance system and provide new evidence about one element of this system – detention facilities and prisons – through the use of night-time lighting analysis.

1.3. We built on the scant readily available evidence using the innovative method of night-time lighting data analysis

1.3.1. Research on Tibet is characterised by unique challenges and restrictions

While there is significant interest among the academic and advocacy community in the research questions above, several constraints limit the current knowledge base. The first structural impediment that most foreign researchers working on Tibet are confronted with is access to primary data. Tibet remains an information black hole. China as a whole is subject to some of the greatest restrictions on press freedom in the world, being ranked 175 out of 180 countries on the Press Freedom Index in 2022. Being a politically sensitive region, Tibet’s press freedom is even more circumscribed. To prevent information from leaving Tibet, foreign correspondents must apply for official permission to enter the region. These requests are almost always denied and, when press visits are allowed, they are subject to tight supervision and coordination with the Chinese authorities. Residents who provide support to foreign journalists and researchers can also be persecuted for their actions. Many foreign journalists and researchers therefore either use Chinese government and media sources, which may be skewed and hard to verify, and/or rely on embedded and trusted networks of sources in Tibet or Tibetans in exile.

However, since 2008 the number of Tibetans fleeing China has slowed to a trickle, while more recently COVID-19 and related travel restrictions have stopped the flow of refugees and the information that comes with them. Combined with sporadic internet shutdowns and digital surveillance, these trends create obvious constraints on the amount and the quality of information on Tibet. This can limit verification through a lack of multiple independent sources (i.e., triangulation), which has implications for the completeness, reliability, and validity of findings on Tibet.

The second major obstacle is that the evidence base on stability maintenance in Tibet is fraught with issues of partisanship and reliability. A significant number of the sources dealing with the research questions above have been produced by a very small number of authors, each of whom tend to have their own specific agendas on Tibet. As such,
the limited number of sources of information available need careful verification.\(^{19}\)

As Tibet becomes more closed and its information environment more challenging, publicly available data in the form of geospatial data and other open sources present a notable opportunity for researchers to address these challenges. Abundant examples of the use of open-source data in other areas of research on China can be found. Researchers have used satellite imagery to identify Chinese nuclear silos and point to the expansion of the country’s nuclear arsenal; bibliometrics to assess the strengths and weaknesses of China’s quantum industrial base; government tenders to identify the location and command structure of a People’s Liberation Army unit in charge of psychological warfare against Taiwan; and public job announcements to analyse the securitisation of Xinjiang.\(^{20}\)

1.3.2. This study therefore aims to seize the opportunities offered by geospatial data to investigate the black hole of the Tibetan detention system

We first took stock of available evidence on the Tibetan detention system through:

- A review of secondary English-language sources including academic articles and grey literature on the history and implementation of the Tibetan stability maintenance regime, especially efforts to imprison, detain and re-educate Tibetans. For time and budgetary reasons, the scope of our analysis and sources used was primarily restricted to English-language sources.\(^{21}\) The decision not to consult Chinese-language sources means more data may exist than those studied here, although such data may not be readily available to the international policy and public community.

- Nineteen semi-structured interviews with academics, non-governmental organisations (NGOs) and advocacy organisations operating in this space. For security and following ‘do no harm’ principles, this study did not involve the participation of any individual living inside Tibet or seek to gain information about the situation inside the facilities and prisons studied. In most cases, data collected through these interviews gleaned few new insights into the CCP’s efforts to imprison, detain and re-educate Tibetans, though they provided complementary data to triangulate evidence gathered through other secondary sources and served to identify emerging evidence gaps.

To build on the scant evidence readily available to the international community, we then leveraged night-time lighting data, an innovative method used to reveal information on the growth and decline of Tibet’s detention system over time. Night-time lighting data are increasingly used by researchers to measure changes in conditions on the ground in inaccessible or remote parts of the world. Measured on a daily basis using satellite-based sensors, night-time lighting data represent an equilibrium measure of electricity consumption at night at specific locations over time. Aggregated into monthly trends, night-time lighting can help illuminate potential changes in the construction, growth or decline in the use of specific detention facilities across Tibet that may not be visible using overhead satellite imagery alone. While only an indirect measure of these changes, this approach can help decision makers understand broader changes in aggregate conditions on the ground in an empirical and objective manner, particularly when coupled with interviews and other sources of secondary data. Our methodology follows the approach used in prior RAND
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research during similar analyses in Xinjiang, Iraq and Syria, and Bangladesh. In particular, we took the following steps:

- **Identify and categorise known detention facilities in Tibet.** We began with a publicly available dataset of 83 known detention facilities from the Tibet Research Project (TRP). Using historical satellite imagery of these locations, we developed a coding scheme to classify these facilities by level of securitisation and purpose. We also excluded facilities that did not fit neatly into the mould of a prison or detention centre, leaving 79 known prisons or detention centres for analysis.

- **Calculate monthly night-time lighting over known detention facilities.** Over these locations, we then calculated average monthly levels of night-time lighting using geospatial data from the U.S. National Oceanic and Atmospheric Administration’s (NOAA) Visible Infrared Imaging Radiometer Suite (VIIRs) Day/Night Band.

- **Isolate trends in night-time lighting for each facility.** To isolate trends in the growth or decline of night-time lighting over each facility, we first cleaned these data by imputing estimates for months in which night-time lighting measurements may have been obscured by cloud cover. We then smoothed these raw trends using moving averages in order to isolate uninterrupted periods of major growth or decline in night-time lighting over each detention facility.

- **Correlate night-time lighting with overhead satellite imagery.** We then correlated evidence of major growth or decline in night-time lighting with historical overhead satellite imagery. This approach enabled us to better understand how specific observable changes in the construction, expansion or even deconstruction of facilities on the ground inside Tibet were likely to drive major changes in night-time lighting.

- **Extrapolate broader trends in Tibetan detention practices from this analysis.** Finally, we explored how broader trends in night-time lighting growth or decline across different types of detention facilities or in different regions within Tibet correlated with known trends in detention practices in Tibet identified in secondary sources, and in comparison to our prior analysis in Xinjiang.

1.3.3. Geospatial data alone, however, may not provide the whole picture without complementary field work

Geospatial data are inherently limited in what they can reveal. Night-time lighting data are relatively low resolution and so are less precise when used to measure changes in smaller facilities, particularly in urban settings where other factors in the surrounding area might be driving changes in the data. While night-time lighting data are available for the entirety of the study area on a monthly basis, the availability of overhead satellite imagery varies greatly by year and location, with no imagery available at all for a few areas. Data quality also varies, with lower quality data associated with periods of increased cloudiness, such as during the summer months in our study area. We have adjusted our methods to minimise these limitations where possible, such as by excluding data from months with frequent cloud cover, and relying on moving averages to reduce the effect of outliers on our analysis. Even with these efforts, the geospatial data we analyse are best understood when interpreted in conjunction with other information sources.

Other open sources also face technical and political limitations of their own. For example, geo-blocking can limit foreign researchers’ access to some Chinese platforms such as
Douyin (the Chinese version of TikTok) and the China National Knowledge Infrastructure (China’s largest academic database). The architecture of Chinese websites can also make it difficult for foreign researchers to easily use bots to extract content and data from websites (i.e., web scraping). Additionally, as Chinese authorities purge some data platforms in order to hinder foreign researchers’ efforts, there is a risk that the crumbs of information left to analyse could have been left deliberately or may be compromised in some way. Where possible, more fieldwork into these issues could strengthen the evidence base presented.

1.4. This study is structured as follows

The rest of this report is structured as follows:

• Chapter 2 takes stock of current knowledge about the Tibetan stability maintenance regime and the CCP’s current efforts to imprison, detain and re-educate Tibetans.

• Chapter 3 seeks through the application of night-time lighting analysis to advance the knowledge base on the scale and purpose of detention facilities and prisons across Tibet.

• Chapter 4 summarises the main takeaways from this study and offers suggestions for future research.

This study focuses solely on the Tibetan Autonomous Region (TAR), although it recognises that some of the points and conclusions made may extend to Tibetan areas in Qinghai, Sichuan, Gansu, and Yunnan provinces. Unless stated otherwise, all mentions of the word ‘Tibet’ refer to the TAR. The rationale is a technical one given that the data used for the night-time lighting and satellite imagery analysis are taken from the TRP’s public dataset, which only includes facilities in the TAR.
This chapter takes stock of current knowledge readily available to the international community on the Tibetan stability maintenance regime, especially the CCP’s efforts to imprison, detain and re-educate Tibetans through the so-called ‘vocational training centres’ and detention facilities through the criminal justice system. Information in this chapter was gathered through a review of secondary data and supplemented with expert knowledge through 19 interviews with academics, NGOs and advocacy organisations operating in this space. The latter particularly helped to draw out the current state of knowledge among academics and practitioners and to identify the main evidence gaps in the field for future research.

Box 1. Summary of Chapter 2

Authorities in Tibet are currently engaging in preventive repression towards ethnic minorities as part of a nationwide ‘stability maintenance’ strategy. Methods used to enforce preventive control encompass all individuals within Tibet and cover all aspects of life.

An important but still poorly understood mechanism of stability maintenance is the use of so-called ‘vocational training centres’, detention facilities and prisons. Data available on the purpose, scale and conditions inside these settings remain limited in both quality and quantity (i.e., volume, type and origin of data sources). This is in stark contrast with the level of information now available on the detention system in Xinjiang, which has been well documented using all-source information.

The lack of evidence on the situation in Tibet should not be considered evidence of an absence of repression, but rather highlights the need for greater research, given the reports of human-rights abuses including torture, rape, sexual abuse and forced political ‘re-education’ which have emerged from some of these facilities.
2.1. The Chinese government’s stability maintenance regime in Tibet raises concerns for human rights

Chinese authorities traditionally regarded unrest in Tibet as a problem stemming from a ‘handful of splittists’. However, this has now changed. Following the 2008 Tibet protests, inspection teams sent by Beijing to assess the roots of the events judged that their appraisal needed to be updated. Barnett describes the new theoretical position that emerged in Beijing, where the country’s rulers highlighted a fundamental contradiction in Tibetan mentality which predisposes it to long-term receptiveness to the Dalai Lama. As a result, and in line with a nationwide strategy of stability maintenance, regional authorities shifted their approach from taking a reactive approach to countering unrest from individuals towards a collective and preventive repression. Since then, the primary aim of this strategy has been ‘to pre-emptively catch any signs of potential and perceived opposition’ and change the way Tibetans think and act to ensure compliance with CCP policy and remove any thought of dissent. This means that ordinary activities, such as signing petitions, sharing or possessing photos of the Dalai Lama, or communicating with the outside world, have been subject to further scrutiny and punishment.

The establishment of this regime of stability maintenance has been gradual and follows at least three phases of implementation. The first phase, which dates back to the 2008 protests across Tibet, involved paramilitary operations and growing domestic security spending to catch-up with CCP standards in other provinces and to build up a greater police presence. The second phase, which began in late 2011, entailed the reinforcement of grassroots governance mechanisms to pick up weak signals of dissent as they emerged. This included the stationing of Han Chinese officials in local towns and the development of so-called ‘convenience police stations’, ‘street-corner bulwarks for community-based policing’. The third phase, which started in early 2013, involved the expansion of the surveillance-intensive network beyond towns to villages, the lowest level of administrative division in China. Whether Tibet is still in this third phase of stability maintenance remains unclear. While many of the practices of stability maintenance continue in Tibet today, one report suggests that one type of measure – namely ‘full employment commitment’ – has been abandoned since the transfer to Xinjiang of Chen Quanguo, who was Party Secretary of the TAR from 2011 to 2016. The termination of this policy for budgetary reasons raises questions over the sustainability of the increasingly expensive security regime.

What has set this regime apart from previous historical efforts to counter dissent in the region is its level of pervasiveness. Stability maintenance mechanisms permeate all aspects of life from households to schools, workplaces, monasteries, public spaces, and the digital sphere. As Chen Quanguo indicated, the intention of the regional authorities in 2013 was to ‘actively promote socialist core values in government institutions, enterprises, villages, local communities, schools, military camps, and monasteries so that the core values will deeply take root in the minds of people of different ethnic groups in the entire Autonomous Region’. These efforts similarly encompass the whole of Tibetan society. While in the 1980s Buddhist monks and nuns made up 90 per cent of political detainees, between 2013 and 2015 they represented less than 40 per cent of Tibetans detained or tried for political offenses. Changes in the profile of detainees suggest that ordinary citizens, including students, writers, traders, herders and
villagers, have come on to the radar and control of authorities.\textsuperscript{39}

In line with the preventive focus of this strategy, children have been particularly targeted by the stability maintenance campaign as part of an effort to ‘break lineage, break roots, break connections, and break origins’.\textsuperscript{40} While Mandarin ‘has been the language of instruction in nearly all middle and high schools’ in Tibet for 60 years, Chinese authorities recently ordered the closure of rural schools, replacing them with government-run residential schools that provide education in Mandarin and are centred around Han culture.\textsuperscript{41} An estimated 425,000 local children in the TAR (81 per cent) have now been separated from their families and forced to attend these boarding schools.\textsuperscript{42} Reports suggest that this rate is higher than in other parts of China.\textsuperscript{43} Increasing urbanisation has also forced parents to send their children to state-run kindergartens, thus extending the state’s influence to children as young as three.\textsuperscript{44} Three independent UN human-rights experts have expressed concerns over these practices that intend ‘to assimilate Tibetans into majority Han culture, contrary to international human rights standards’.\textsuperscript{45}

Despite a declining share in the total of political detainees in Tibet, monks and nuns also continue to be the focus of stability maintenance efforts, as these groups are typically the guardians of cultural heritage in Tibet. In keeping with ‘thought reform’ practices rooted in the origin of the People’s Republic of China, Chinese authorities continue to force monks and nuns to attend political education sessions, where they are forced to pledge their loyalty to the Party and denounce the Dalai Lama.\textsuperscript{46} Beyond the classroom, authorities have forced monks, nuns and villagers to undergo re-education through the destruction of religious heritage sites, causing distress to these populations.\textsuperscript{47} In some cases, monks and nuns have been detained for further re-education at facilities in which accounts of rape and torture have been reported.\textsuperscript{48} These practices raise concerns over the severe restrictions of religious freedom in Tibet, with UN human-rights experts and the European Parliament condemning some of these acts.\textsuperscript{49}

2.2. Re-education and detention facilities are an important but poorly understood element of the Tibetan stability maintenance regime

The implementation of this system of stability maintenance in Tibet is multifaceted. Authorities have for instance encouraged inter-ethnic marriages to create unity between ethnic groups; forced women from ethnic minority backgrounds to be sterilised or have abortions; implemented intrusive surveillance systems including village-based work teams and convenient police stations; banned certain foreign communication base applications to redirect conversations onto government-monitored WeChat; disproportionally censored online content; carried out mass DNA collection programmes; expanded their influence over children’s education; and drastically increased security spending and police recruitment.\textsuperscript{50}

One particularly important yet poorly understood element of preventive control in Tibet is the use of labour transfer and vocational training programmes. In 2020, over 500,000 ‘rural surplus labourers’ in Tibet underwent ‘military-style’ vocational training in ‘work discipline, Chinese language, and work ethics’, aiming to reform ‘backward thinking’ and ‘dilute the negative influence of religion’.\textsuperscript{51} These methods and language are akin to practices and terminologies also observed in Xinjiang. As Zenz noted, ’both schemes have the same target group (”rural surplus laborers” — 农牧区富余劳动力), a high-powered focus on mobilising a “reticent” minority group
to change their traditional livelihood mode; [and] employ military drill and military-style training management to produce discipline and obedience."52

Though vocational training and labour-transfer programmes exist in Tibet, as far as present information shows they do not exist to the same degree or extent as in Xinjiang. Re-education camps in Xinjiang are often linked to factories and forced labour. As far as is known, this does not appear to be the case with the so-called ‘vocational training centres’ in Tibet, ruling out the labour-camp tag. From what we can tell, these centres are not Xinjiang-style internment camps. While elements of coercion have been reported across a number of these training centres, raising questions over the consensual nature of these establishments, the use of force has not been reported and many Tibetans may voluntarily subscribe to these programmes.53 As one report says, ‘There is currently no evidence of TAR labour training and transfer schemes being linked to extrajudicial internment.’54 There is also no evidence at present that these centres have systematically and on a mass scale been the place of severe human-rights abuses including torture, illegal organ harvesting and death.

Another lesser understood element of stability maintenance in Tibet is the use of prisons and detention centres to detain individuals with dispositions deemed negative towards the party. Tibetans have been detained in prisons and detention facilities without trial and arrested for arbitrary reasons, including participating in unauthorised religious activities such as wearing headscarves or possessing photos of the Dalai Lama.55 In 2012, for example, authorities systematically detained hundreds of Tibetans returning from teachings of the Dalai Lama in India for ‘legal education’.56 Then Tibet party-secretary Chen Quanguo reportedly viewed this programme as successful, since by 2015 no one reportedly left the TAR to attend teachings by the Dalai Lama.57 As with ‘vocational training centres’, however, there is also a lack of evidence to firmly establish the scale and severity of the situation inside Tibetan detention facilities and prisons.58 Though nothing on the scale of the methods applied to the Uyghurs has so far been reported in Tibet, accounts of torture, rape and sexual abuse during imprisonment in specific detention facilities and prisons have been reported.59 Some detainees also report being subject to forced political education while in custody, being made to renounce ethnic and religious identities, and being forced to learn Mandarin and memorise patriotic songs.60

2.3. The knowledge base available to the international community on the imprisonment and detention of Tibetans remains insufficient, highlighting a need for further research

The level of information readily available to international audiences on Tibetan prisons, detention facilities and vocational training programmes stands in stark contrast with that from Xinjiang. While the CCP’s efforts to imprison, detain and re-educate ethnic minorities in Xinjiang are now relatively well documented, the restricted information flowing from Tibet, Chinese attempts to control the narrative and international attentions focused elsewhere mean that many important questions remain about the situation in the Tibetan detention system. The lack of evidence should not be seen as evidence of an absence of repression. As many in the field have come to recognise ‘further details of [human-rights abuses] cases have not yet emerged, and others may well come to light’.61 This highlights a need for further independent and empirical
research to fill in some of evidence gaps including:

- **The full scale of the Tibetan judicial detention system.** English-language literature provides little information on the scale of the Tibetan judicial detention system. The TRP identifies 83 facilities in their public dataset and has identified more possible facilities in non-public updates.\(^6\) This dataset is the most up-to-date repository available so far as we can tell. Our literature review identified 14 unique facilities in the TAR by name or location across 15 sources, all of which were listed in the TRP dataset.\(^6\) However, despite being the best resource currently available, it is unclear whether this dataset reflects the full scale of detention facilities and prisons in the TAR today. The TRP acknowledges the likelihood of false positives, false negatives, misidentified locations, imagery limitations, missed locations and selection bias in favour of urban centres. Minimal information exists on whether any facilities have been decommissioned. These gaps highlight a critical need for further research.

- **The purpose of Tibetan detention facilities.** There is presently no available information on who is responsible for operating the facilities. Minimal information exists on policies guiding the use of the facilities, the distribution of the facilities across rural and urban areas, and whether facilities were created from new or repurposed buildings. Limited evidence, for instance, suggests facilities may be more prevalent in areas of strategic importance such as Chamdo and Nyingtri, areas prone to resistance such as Drago, and in border areas.\(^6\) But data remain inconclusive. Reports also highlight the use of military bases, hotels and schools as temporary detention centres, but these so-called ‘black jails’ are hard to verify using satellite imagery.\(^6\) More information is needed to answer these fundamental questions as well as many others informing the purpose of these buildings. When were these facilities built and have they experienced prior periods of growth? Why? How has the use of the facilities changed over time? How are these facilities distributed across the TAR and Tibetan regions outside the TAR in China? Are some areas subject to a higher concentration of facilities than others?

- **The conditions inside the facilities.** English-language literature provides little information on changes to the conditions inside the facilities over time or how the situation inside different types of facilities may vary. The literature review found detailed accounts from former detainees reported by Tibetan advocacy groups, but these are not necessarily representative of all experiences within detention facilities. Reports of torture and sexual abuse during imprisonment in extrajudicial facilities and prisons have been reported but it is not clear how widespread they are and to what extent they are government sanctioned.\(^6\) These considerations are important in terms of being able to raise concerns over mass abuses and human-rights violations. As stability maintenance not only occurs through the detention system, it is also imperative to shed light on other operating mechanisms and their supporting structures. Further information is especially needed on:

- **The degree of securitisation in Tibet today.** Regional domestic security spending, police recruitment advertisements and the number of convenient police stations adjusted per capita are often used as proxies of the level of securitisation. Based on available data, Tibet’s level of securitisation
surpasses Xinjiang on two out of three of these proxies. However, most recent information dates back to 2017, a time when Chen Quanguo had just left Tibet for Xinjiang and the expansion of stability maintenance in Xinjiang skyrocketed. Current understanding of comparative and absolute securitisation in Tibet is therefore most likely out of date.

• **The systematic nature of these practices.** How widely across Tibet are the mechanisms of stability maintenance reported? Do regional policies mandate the adoption of these mechanisms throughout the region? Some accounts, such as the mandated instalment of surveillance apps, are presently reported in some counties but not all. But there is currently insufficient information to state that some of these practices are representative of all cases across Tibet or to systematically link these mechanisms to a wider regional policy. The implementation of stability maintenance is not uniform. For all that is known, these practices may be trialled by individual county leaders who feel the need to tighten their grasp on the local population to meet performance objectives, report quotas and obtain promotions. They may also depend on the personal trajectory of these cadres or changes in the external environment.

• **The continuation of all known practices of stability maintenance in Tibet today.** Available data suggest that one type of measure – namely ‘full employment commitment’ – has been abandoned since the transfer to Xinjiang of Chen Quanguo, who was Party Secretary of the TAR between 2011 and 2016. Other policies may have been terminated for budgetary or other reasons, but it is hard to determine. For instance, the most recent records available in English of the ‘Solidify the Foundations, Benefit the Masses’ campaign date back to 2013. This highlights a crucial need for up-to-date evidence on the continuation of these practices to grasp the breadth of the Tibetan stability maintenance regime and determine the phase of development it is currently in.

• **Imperceptible elements of repression.** The CCP has shifted its approach away from mass securitisation using highly visible elements of repression such as detention facilities towards imperceptible practices. Understanding how these mechanisms operate and the intent behind their implementation is critical in attempting to ‘de-invisibilise’ the CCP’s repressive efforts. In this regard, information coming out of other provinces across China could provide weak signals of where to look for in a limited information environment in Tibet.

• **The architecture of repression.** Many of the stability maintenance policies are attributed to the CCP or regional authorities. Recently, former Party Secretary Chen Quanguo has been increasingly linked to the implementation of several of the repressive mechanisms reported. Other names sometimes mentioned include Wu Yingjie (Party Secretary of the TAR between 2016 and 2021), Zhang Hongbo (Tibetan Public Security Bureau between 2018 and 2022) and Ding Yexian (Executive Deputy Party Secretary of the TAR since 2017). However, information on the locus of decision-making and the region’s bureaucratic inner workings remains sparse. Obtaining this type of information is crucial in establishing a chain of accountability in Tibet and understanding whether certain practices should be attributed to individual cadres or whether they were guided by national and regional leadership.
This chapter aims to fill some of the evidence gaps highlighted in the previous chapter and extend our understanding of detention through the criminal justice system in Tibet using night-time lighting analysis. Throughout this chapter we replicate a methodological approach employed by RAND in previous research analysing detention facilities in Xinjiang in order to assess how Tibetan detention facilities and prisons have developed over time.73

Box 2. Summary of Chapter 3

Our overhead satellite imagery and night-time lighting analyses of prisons and detention centres in Tibet found that:

- Available data so far record at least 79 prisons and detention centres throughout the TAR. Detention facilities occur frequently throughout Tibet, with most towns and villages having a detention centre.

- The majority of Tibetan detention facilities are small, low-security facilities. These facilities likely provide low-level detention and short-term jail-like functions across the TAR.

- Almost all detention facilities in Tibet were built before 2011. The long existence of many of these facilities suggests that detention has been used to punish dissidents in Tibet and limit Tibetan activism over a lengthy period. The construction timelines align with changes in national policy and managerial processes, suggesting that the CCP was geared to suppress dissent in Tibet well before Chen's tenure and the 2012 Lhasa Uprisings, although we cannot rule out the possibility that Chen may have repurposed existing facilities for political purposes upon his arrival.

- At the aggregate level, the data show that growth and decline in night-time lighting has been relatively consistent since 2014. There is little evidence of major inflection points in the growth or decline of facilities that would signify major changes in policies.

- However, a breakdown of night-time lighting by facility type also shows that growth in night-time lighting has been concentrated in higher-security facilities since 2019. As with similar findings observed in Xinjiang, this trend suggests a possible shift towards longer-term imprisonment and detention of Tibetan dissidents as opposed to shorter-term detention.
3.1. The majority of Tibetan detention facilities consists of small, low-security detention centres

In 2021, researchers from the TRP released a report identifying a comprehensive list of known prisons and detention centres in the TAR, drawing on a combination of publicly available sources on Tibetan detention facilities and the systematic use of satellite imagery analysis across the region. Out of this list the researchers provided a publicly available geospatial dataset containing the precise GIS coordinates for 83 specific facilities to enable further research. This dataset remains the most authoritative source of geolocated Tibetan detention facilities in the public domain, although the TRP research team was transparent in the limitations of its approach, and we cannot be certain that these facilities represent the full scale of the Tibetan judicial detention system.

For our purposes, we used the TRP dataset but excluded those facilities which did not neatly fit the mould of a prison or detention centre, including three facilities identified as ‘re-education through labour’ camps and one duplicate. This left 79 facilities for analysis, spread across the TAR as shown in Figure 3.1 below.

Figure 3.1. Map of Tibetan detention facilities and prisons

Source: TRP, RAND analysis.
Image shows the TAR shaded in dark grey. Prefectures within the TAR are labelled in white. Provinces external to the TAR within China are shaded and labelled in light grey. Neighbouring countries are shaded in white and labelled in black. The majority of detention facilities are concentrated in Tibet’s southern regions including the capital Lhasa (16) and the prefectures of Shigatse (17), Lhoka (15) and Nyingtri (8). An additional 6 detention facilities are located in western Ngari prefecture, with a further 7 detention facilities in the eastern Chamdo prefecture and 11 in the northern Nagchu prefecture (although most are located in the southern portion of this prefecture).
Using publicly available satellite imagery from Google Earth, we developed a coding scheme to differentiate these 79 facilities by level of securitisation and purpose, informed by RAND’s prior research in Xinjiang and TRP’s underlying facility classification. As a result, we identify four overall types of facilities across the TAR:

1. High-security prisons (10),
2. High-security detention centres (4),
3. Large, low-security detention centres (24) and
4. Small, low-security detention centres (41).

Figure 3.2 below shows one example of a high-security prison in Lhasa, the regional capital of the TAR. Similar prison facilities across the TAR are characterised by their larger footprint compared to other facilities, significant support infrastructure beyond detainee housing, and high levels of securitisation. Specifically, overhead satellite imagery of the ten prisons identified in our analysis of the facilities identified by the TRP showed at least three watchtowers surrounding the main detention area of each complex. This contrasts with the vast majority of lower-security facilities in the TAR which typically have just two watchtowers in opposite corners of the complex.

Figure 3.2. Example of a Tibetan high-security prison

Source: TRP, Google Earth, RAND analysis.
Facility is located at (29.552, 90.968) in Lhasa Prefecture. Image shown is from 9 December 2022.
By contrast, Figure 3.3 below shows an example of one of the four high-security detention centres identified in our analysis of overhead satellite imagery of facilities identified by the TRP. Despite similar levels of securitisation (with four watchtowers in this instance), these detention centres are differentiated from longer-term prisons in two primary ways. The first is the lack of recreation facilities and larger support infrastructure for the facility, suggesting the presence of short-term detainees rather than long-term prisoners. The second is the centre’s distinctive cell-block architectural style – comprising parallel wings housing detainees joined by a central corridor – which is more commonly seen in high-security detention centres in Xinjiang. These facilities, at least in Xinjiang, often serve as pre-trial administrative detention centres for high-security inmates.

The remainder of detention centres in Tibet are assessed to be low-security detention centres. This is primarily due to the presence of only two watchtowers surrounding the main detention area. However, we divide this category in two based on the overall size of these facilities and the presence of adjacent administrative or support buildings.

Figure 3.3. Example of a Tibetan high-security detention centre

Source: TRP, Google Earth, RAND analysis.
Facility is located at (31.538, 92.029) in Nagchu Prefecture. Image shown is from 28 April 2022.
Figure 3.4. Example of a large Tibetan low-security detention centre

Source: TRP, Google Earth, RAND analysis. Facility is located at (29.252, 88.879) in Shigatse prefecture. Image shown is from 9 June 2021.

Figure 3.4 above shows one example of a large, low-security detention centre. A walled compound in the bottom left corner of the image has two watchtowers in opposite corners of the compound. The main detention area is surrounded by an array of adjacent infrastructure. While it is difficult to determine precisely how these adjacent buildings are associated with the detention centre in question, it is clear from imagery analysis of the access points to this facility that they are all part of one larger compound.

We currently identify 24 such large, low-security detention centres across the TAR from the TRP dataset. It is possible that these low-security compounds simply happen to be located at the same place as other government security infrastructure, such as police or judicial facilities. It is also possible that the infrastructure that adjoins these facilities plays some supporting role in enabling ongoing detention, such as housing for guards, other support functions, or administrative buildings. This could indicate that these facilities are actually more akin to low-security prisons rather than shorter-term detention centres. We therefore separate these larger facilities from their smaller counterparts to enable comparisons via night-time lighting.
Figure 3.5. Example of a small Tibetan low-security detention centre

Source: TRP, Google Earth, RAND analysis.
Facility is located at (28.972, 90.399) in Lhoka prefecture. Image shown is from 29 November 2020.

Ultimately, we assess that the majority of facilities (41 out of 79) identified by TRP are small, low-security detention centres. These facilities exhibit a similar imagery signature to the example shown above in Figure 3.5, with two watchtowers in opposite corners of the compound and minimal support infrastructure surrounding the secured portion of the compound. Given the small size of these facilities, their limited security (only two watchtowers), the lack of supporting infrastructure and their often urban location, these facilities likely provide low-level detention and short-term jail-like functions across the TAR.

3.2. Most Tibetan detention facilities were built by 2011, predating Chen’s tenure

Our analysis of overhead satellite imagery suggests that 86 per cent of all detention facilities in the TAR were built by 2011 at the latest (as summarised in Figure 3.6), although this is an imperfect measure owing to gaps in the availability of archival imagery before this date. This figure is based on the first year in which specific detention facilities are visible in available commercial satellite imagery – an imperfect measure of the date of construction, but still instructive in assessing when widespread Tibetan detention was first conceived and implemented.
A night-time lighting analysis of Tibet’s prisons and detention centres

Figure 3.6. Most Tibetan detention facilities are already visible in imagery by 2011, well before night-time lighting data are available

Source: TRP, Google Earth, RAND analysis.

Figure shows the first year in which each facility is visible in overhead satellite imagery using Google Earth’s publicly available archival imagery. Alternative sources of commercial imagery which provide greater historical coverage could produce more precise estimates. This figure excludes three small, low-security detention centres that are not visible in Google Earth archival imagery due to a lack of imagery collection or cloud coverage.

Figure 3.6 improves our understanding of the purpose of detention facilities in Tibet. Current understanding suggests that the development of many mechanisms of stability maintenance in Tibet stems from the personal influence and governance style of key political personalities, especially former TAR Party Secretary Chen Quanguo. However, Chen was Party Secretary of the TAR between 2011 and 2016 and the construction of the majority of the currently known facilities, as shown in Figure 3.6, predates his tenure.

New evidence therefore suggests that Chen did not pioneer detention facilities in Tibet and that their initial rollout lies beyond Chen’s personal preferences or style. From this analysis alone, however, we cannot rule out the possibility that Chen may have repurposed newly constructed detention facilities for political purposes upon his arrival to the region.

Instead, overhead satellite imagery points towards a new hypothesis suggesting that national policy and managerial processes could be the true motivating force behind the construction of Tibetan detention facilities rather than personal leadership style. Construction peaks coincide with the enforcement of new policies of stability maintenance:

1. The first observed peak in detention facilities was in 2005. A year before, the central government placed greater pressure on local authorities to deal with ‘non-normal’ petitioning. Since the summer of 2003, an increasing number of petitioners had flooded the capital seeking redress of grievances following their dealings with local authorities. As the disruptiveness of their activities in Beijing grew, so did pressure on local cadres. Most notably, central government

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Number of facilities: 0, 2, 4, 6, 8, 10, 12, 14
established a ‘petition ranking system’ (信访排名制度) which ranked all provinces based on the number of ‘non-normal’ petitions received by higher levels. This system effectively served as a measure of local leaders’ performance. Failure to curb ‘mass incidents’ or ‘petitioning to higher levels’ under that system could shatter positive performance on other targets and result in loss of promotion. In many provinces, the establishment of this system led to many abuses under the name of ‘preserving stability’ including detaining petitioners for lengthy periods of time. The peak observed in 2005 in Tibet could be the result of these policies.

2. Overhead satellite imagery shows a second peak, and an apparent increase in the presence of new facilities, between 2008 and 2011. Interestingly, this is the same period during which regional authorities in Tibet began implementing a preventive regime of stability maintenance. In 2008, inspection teams sent by Beijing to assess the roots of protests in the region concluded that the situation called for a change from reactive to preventive repression. This kicked off the first phase of stability maintenance in Tibet, which began in 2008 and continued through 2011, involving paramilitary operations and growing domestic security spending to catch up with CCP standards in other provinces and to build up a greater police presence.

3. The third noticeable change in the overhead satellite imagery is the decline and relatively low number of new visible detention facilities from 2012 onwards. This new phase coincides with a change in central leadership in Beijing. In 2012, Xi Jinping arrived in power and Zhou Yongkang, the Public Security Minister, also known as the domestic security czar, was purged, partly owing to the abuses of his system of social management. This leadership change trickled down through the policy agenda. The ‘petition ranking system’ was terminated and emphasis placed instead on new innovative and comprehensive methods for ‘preserving stability’, including dynamic and digitalised means. As a result, regional authorities in Tibet entered a second phase of stability maintenance that leveraged grassroots governance mechanisms to subtly prevent dissent.

Our overhead satellite imagery can, however, only suggest this hypothesis, not validate it, and it does not allow us to definitively ascertain the CCP’s true intentions with regards to detention facilities in Tibet today. In particular, ‘we do not have the information necessary to pinpoint the locus of decision making, the set of policy options considered, the process by which the decision was made, or the underlying motivations of the actors whose preferences were decisive.’ More authoritative sources are therefore needed to make definitive conclusions in relation to our current hypothesis and other hypotheses. There is also a possibility that detention facilities were constructed in response to protests in particular areas, although this cannot be confirmed with presently available satellite imagery and evidence of protest clusters.

3.3. The lack of evidence indicating either an increase or decline in the scale of Tibetan detention centres since 2011 suggests ongoing continuity in government policy

Besides overhead satellite imagery, we also used night-time lighting data to better understand the development of Tibet’s detention system over time. Night-time lighting provides an equilibrium measure of electricity consumption at night at specific grid
coordinates and serves as a useful proxy for levels of activity at specific facilities over time. For this research, as in prior work, we calculate night-time lighting estimates for each of the 79 prisons and detention centres identified by TRP using monthly cloud-free composite raster images from the U.S. NOAA VIIRS Day/Night Band. These images were made available via the Earth Observation Group at the Colorado School of Mines for each month from January 2014 through July 2022.84

Our analysis found no evidence of clear inflection points in the night-time lighting data of Tibetan detention centres, suggesting a degree of policy continuity in relation to detention in Tibet since the early 2010s.85 Figure 3.7 plots the number of facilities in each month since January 2014 experiencing a major period of uninterrupted growth in night-time lighting (in red) and decline in night-time lighting (in blue) for all 79 facilities in Tibet.86 While aggregate night-time lighting growth across the Tibetan detention system appears to peak in mid-2017, this analysis reveals little to suggest a clear policy-driven inflection point marking the start of widespread political imprisonment of Tibetan dissidents or a significant change in the policies of Tibetan detention. This is almost certainly due to the fact that the majority of Tibet’s detention facilities were already built prior to the start of our night-time lighting data (see Figure 3.6 below).

Figure 3.7. Night-time lighting data across Tibetan detention facilities reveal no clear inflection points in growth or decline

Source: TRP, Google Earth, NOAA VIIRS, RAND analysis.
Each bar represents the number of facilities in a given month experiencing an uninterrupted period of growth (red) or decline (blue) in night-time lighting for at least six months. For presentation purposes only, negative values represent the number of facilities with declining night-time lighting. Estimates are made using imputed smoothed monthly night-time lighting data from January 2014 through July 2022.
At least in the aggregate, we also see little evidence of a widespread decline in night-time lighting over Tibetan detention centres. Satellite imagery also supports the idea that most detention centres are still operational: only one facility had been visibly demolished (though imagery could not verify the presence of detainees in other facilities in a systematic fashion). The limited evidence of widespread decline may be due to the lack of international pressure regarding detention in Tibet, or perhaps just a limitation of night-time lighting as a tool for measuring such changes in conditions on the ground in Tibet.

3.4. Recent growth in Tibetan detention facilities is concentrated in high-security facilities, suggesting (but not concluding) an increased emphasis on long-term imprisonment and detention

Beyond these aggregate trends, we also explored whether there are significant differences in night-time lighting across different types of facilities. Figure 3.8 below explores night-time lighting growth and decline across each of the four types of facilities we

Figure 3.8. Recent growth in Tibetan detention facilities is concentrated in high-security facilities

Source: TRP, Google Earth, NOAA VIIRS, RAND analysis.
Each bar represents the percentage of facilities of a specific type per month experiencing an uninterrupted period of growth (red) or decline (blue) in night-time lighting for at least six months. For presentation purposes only, negative values represent the number of facilities with declining night-time lighting. Estimates are made using imputed smoothed monthly night-time lighting data from January 2014 through July 2022.
identified in the TRP dataset. While sample sizes are small within the most high-security facilities, growth in recent years appears to be concentrated in these higher-security facilities. Night-time lighting growth in lower-security detention centres – particularly the smallest ones lacking major administrative or support infrastructure (the bottom right panel of this figure) – appears to have peaked in 2017 and fallen towards a reduced but constant level of growth in more recent years. By comparison, we see that night-time lighting growth across Tibet’s long-term high-security prisons experienced a major period of growth in 2019 and 2020, while similar growth was seen across the four high-security detention centres in the TRP dataset in 2020 and 2021. And although smaller low-security detention centres experienced little growth and periods of greater decline in night-time lighting in recent years, their larger counterparts (with greater support infrastructure consistent with potential longer-term detention) showed more sustained night-time lighting growth on average in recent years, and less sustained decline by comparison. Taken together, these trends are suggestive but not conclusive of a trend towards increased long-term imprisonment and detention of Tibetan dissidents as opposed to shorter-term detention. Further evidence on the frequency and length of detention sentences is needed to corroborate these suggestions.

3.5. Night-time lighting over Tibetan detention facilities grew sequentially

In addition to analysing growth and decline by facility type, we also explored the potential for regional variation in the growth and expansion of detention facilities within the TAR, as shown in Figure 3.9. This analysis reveals a sequencing of growth in night-time lighting over detention facilities across prefectures within the TAR. Specifically, we find that early growth and expansion in night-time lighting was concentrated in Ngari prefecture from 2015 to 2016, followed by clear peaks in growth across facilities in Lhoka and Nagchu prefectures between 2017 and 2018. Night-time lighting growth then peaked in Tibet’s capital of Lhasa in 2019 and 2020, along with a corresponding peak once again in Ngari prefecture soon afterwards.
Figure 3.9. Night-time lighting over Tibetan detention facilities grew sequentially by prefecture

Source: TRP, Google Earth, NOAA VIIRS, RAND analysis. Each bar represents the percentage of facilities in a given prefecture per month experiencing an uninterrupted period of growth (red) or decline (blue) in night-time lighting for at least six months. For presentation purposes only, negative values represent the number of facilities with declining night-time lighting. Estimates are made using imputed smoothed monthly night-time lighting data from January 2014 through July 2022.
While small sample sizes are a clear confounding factor, night-time lighting across facilities in these prefectures appears to suggest a sequential pattern in how the Tibetan detention system has developed over time since at least 2014. This is a reminder that the stability maintenance regime is not uniform throughout the region. There is inherent flexibility in how officials meet targets for preserving social order, especially in smaller localities. Among others, performance ranking and promotion incentives, rotation and turnover of local elites, the political orientations of leaders, changes in the external environment, and the availability of human and financial resources influence the choice of technocratic solutions for preventing dissent. Greater research and correlation of prefecture-level policies within the TAR could provide greater explanations for these trends.

One prefecture-level trend worth highlighting from this analysis is the steady decline in night-time lighting since 2021 across facilities in Chamdo prefecture, in the eastern-most portion of the TAR along its borders with Sichuan and Qinghai. Several re-education and vocational training facilities elsewhere in Chamdo prefecture (not included in our night-time lighting analysis) are among the few to draw international attention in Tibet. One such facility is the Chandu Reform through Labour facility, which was dismantled in 2019. The TRP suggests that this facility may have been decommissioned as part of redevelopment in the wider area hoping to attract tourists. Another facility that has gained international attention is the Chamdo Golden Sunshine Vocational Training School, publicised in Zenz’s pioneering work on vocational training in Tibet. Few facilities elsewhere across the TAR have received similar attention.

Although neither the literature review nor satellite imagery (partly due to poor coverage in this prefecture) can provide a definitive explanation behind the aggregate declines seen in our night-time lighting analysis, it is possible that international focus on Chamdo may have played a role in driving the closure or reduced operating capacity of detention facilities in this prefecture. This is an important finding worth greater investigation in future research. These declines in Chamdo present, on a comparatively small scale, similarities to Beijing’s muted response to international pressure in relation to its larger detention apparatus in Xinjiang as highlighted in prior research.

3.6. Night-time lighting analysis shows both similarities and differences between detention facilities in Tibet and Xinjiang

How do these findings compare with Xinjiang? The methodological approach used in this report was initially developed to assess the growth and decline of detention facilities in Xinjiang. Its application in improving understanding of Tibet’s detention system offers a comparative lens into both detention systems.

3.6.1. Night-time lighting analysis helped to measure construction of detention facilities in Xinjiang, but may be more nuanced in Tibet

In prior research we used night-time lighting data to investigate the growth or decline of detention facilities in Xinjiang. We found that growth in night-time lighting across facilities was heavily correlated with the initial construction and expansion over time of specific facilities in Xinjiang. To that extent, night-time lighting growth serves as a useful proxy for understanding when detention facilities were built, occupied and expanded.

For the purpose of this study, we employed the same methodological approach to explore changes in the Tibetan detention system. Our application of this method to
Tibet teaches us that care in drawing a Tibet–Xinjiang equivalence should also extend to methodological tools. Although night-time lighting analysis helped measure construction of detention facilities in Xinjiang, its use in the Tibetan context is more complicated, though still useful.

At first sight, as in Xinjiang, we find a similar relationship between night-time lighting and construction in many facilities across Tibet. Figure 3.10 below shows one clear example of where night-time lighting growth over a Tibetan detention centre (in Lhoka prefecture) is closely tied to its initial construction. Imagery from February 2016 shows an empty field, followed by evidence of a newly constructed low-security detention centre in November 2017. Night-time lighting estimates (shown in the bottom panel) show comparable evidence of major growth around this same time period. Applied across all 79 facilities in our dataset, this suggests that night-time lighting could serve as a useful proxy for understanding the development of Tibet’s detention system over time.

**Figure 3.10. As in Xinjiang, night-time lighting growth over Tibetan detention facilities is sometimes correlated with construction activity**

Source: TRP, Google Earth, NOAA VIIRS, RAND analysis.
Facility is located at (29.292, 91.005) in Lhoka prefecture. Before imagery was captured on 14 February 2016. After imagery was captured on 1 November 2017. Night-time lighting estimates are shown for each month from January 2014 through July 2022, plotting both normalised and imputed (in blue) and ten-month double moving average (in red) night-time lighting estimates. Major growth periods are shaded in grey.
The facility shown in Figure 3.10 is, however, somewhat unusual across the TAR in that it appears only to have been constructed during 2016–2017. As discussed previously, the vast majority of other detention facilities across Tibet are clearly visible in overhead satellite imagery dating back to at least 2011. It may therefore create some doubt as to the utility of night-time lighting as a data source for understanding the evolution of Tibetan detention over time in that monthly aggregate data are only available from NOAA VIIRS since January 2014.

However, our analysis suggests that night-time lighting data may still serve as a useful tool in understanding how Tibet’s detention system has grown and adapted over time, even in cases where detention centres were built prior to 2014. Figure 3.11 below offers an example of one such facility in Chamdo prefecture.

Figure 3.11. Night-time lighting growth over Tibetan detention facilities may also capture other forms of expansion beyond construction

Source: TRP, Google Earth, NOAA VIIRS, RAND analysis.
Facility is located at (30.743, 95.824) in Chamdo prefecture. Before imagery was captured on 19 December 2015. After was captured on 25 July 2019. Night-time lighting estimates are shown for each month from January 2014 through July 2022, plotting both normalised and imputed (in blue) and ten months double moving average (in red) night-time lighting estimates. Major growth periods are shaded in grey.
Night-time lighting data over this facility suggest a period of major growth beginning in 2017 through to late 2020. In Xinjiang, such night-time lighting growth would likely provide evidence of the initial construction of this facility. But in Tibet, we find that this facility (and many others like it) was visible in imagery dating back to at least 2009, if not earlier. Moreover, we find that the core securitised portion of this facility (consisting of two main buildings inside a wall with two watchtowers, with a gatehouse providing access to the compound) appears roughly the same in imagery from before the period of night-time lighting growth compared to after. However, we also see some evidence that the larger compound surrounding this facility has actually expanded over time (with new buildings seen to the west and east of the main securitised portion of the compound) – perhaps driving a corresponding increase in night-time lighting.

More broadly, we see evidence across similar facilities elsewhere in Tibet that night-time lighting growth over existing facilities (since 2014) may indicate the construction of new buildings within the securitised perimeter of existing detention facilities built prior to 2014. This suggests perhaps the need for a nuanced interpretation of the utility of night-time lighting for analysing Tibetan detention as compared to Xinjiang. Given that Tibet’s stability maintenance programme appears to rely heavily upon facilities that have been in use, in some form, since at least the early 2000s, night-time lighting growth is not likely to capture aggregate trends in the construction of new facilities. It is possible that residual night-time lighting growth seen over pre-existing facilities will simply capture the effects of adjacent growth in the cities surrounding Tibetan detention centres, despite our best methodological attempts to reduce such effects. Alternatively, as seen in Figure 3.11, it is possible that night-time lighting growth helps to capture the expansion of these pre-existing facilities on the margins, or even changes in their electricity consumption at night that could signal increased occupancy or usage over time.

In short, night-time lighting probably remains a useful proxy for levels of activity across Tibetan detention facilities, albeit inviting additional scrutiny of any trends emerging from this analysis.

3.6.2. Compared with Xinjiang, Tibetan detention programs are skewed towards lower-security facilities

The Australian Strategic Policy Institute (ASPI) dataset on detention and re-education centres in Xinjiang includes 380 suspected prison, detention or re-education centres. Of these, 47 per cent (199 out of 380) are low-security re-education centres as opposed to high-security administrative detention centres or long-term prisons. By comparison, 82 per cent (65 out of 79) of the detention facilities in Tibet were classified as low-security re-education centres.

While instructive, such comparisons are complicated by the fact that the TRP dataset does not include comparable re-education centres – whether by deliberate choice or based on differences in how such programs were carried out in Tibet compared to Xinjiang.

3.6.3. Tibetan detention centres are smaller compared to those in Xinjiang, most likely due to contextual differences

Compared to publicly available data from ASPI on detention and re-education centres in Xinjiang, our analysis suggested that Tibetan detention centres are relatively smaller. The difference in size of the facilities was made all the more apparent in our approach to night-time lighting analysis over these facilities. In Xinjiang, we employed a flexible approach to capturing night-time lighting that accounted
for larger facilities occupying more physical space. Specifically, we used 200m, 500m and 1km buffers based on the size of each facility to capture the night-time lighting signatures of facilities based on their respective size (measured from the central point of each facility). When analysing night-time lighting over Tibetan detention facilities, our satellite imagery analysis suggested that even the smallest 200m buffer used in Xinjiang was too large to isolate the specific growth or decline in a given detention facility as distinct from its surrounding environs. As such, we used a 100m buffer for all facilities in Tibet.

The observed data are in no way intended to diminish the importance of the repression and human rights abuses taking place in Tibet, but rather seek to qualify current knowledge on the comparative situation in Tibet and Xinjiang. Academics and advocacy groups consulted for this study, as well as the wider literature, consider at least four factors to explain this possible discrepancy in the scale and intensity in detention between Tibet and Xinjiang: geography, population density, economic structures, and the nature and perception of contestation.95

The first common explanation for presumed differences in scale between Tibet and Xinjiang is geography.96 While Tibet is the second largest Chinese province after Xinjiang in geographical size, its population by comparison is only 3.5 million, compared to nearly 26 million in Xinjiang.97 One may therefore expect to find differences in the size and scale of the detention systems when using the number of facilities as a proxy for scale.98 The detention rate could provide a more accurate comparative measure of scale in this instance but is not presently available. Thus, as far as is known, geographical differences may explain a presumed difference in scale and intensity.

The second common explanation is population density. Tibet is more sparsely populated than Xinjiang, with less than three people per square kilometre in Tibet versus 15.6 in Xinjiang.99 Tibet’s sparse population distribution and the uneven distribution of Tibetans in areas at higher altitude could mean that more resources are required to monitor and control individuals and may limit the reach of some practices, especially without local human resources, supporting services and infrastructure in remote areas.100 For some, this may be why regional authorities have encouraged the resettlement, under the guise of poverty-alleviation programmes, of rural workers, nomads and their families to urban areas in order to concentrate the population for monitoring and control. While this number is likely to be inflated to meet official quotas, figures from official Chinese statistics estimate that between 2015 and 2020, 2.8 million Tibetans were transferred from rural to urban areas.101 This rationale, however, is not widely accepted. Others suggest that training and labour-transfer programmes are not a pretext for concentrating and achieving population control but are a justified mean to rectify socio-economic and political disadvantages Tibetans face in the labour market compared to the region’s Han residents. Evidence shows that Tibetans had been urbanising before the implementation of these programmes, suggesting that personal and voluntary logic are also at play.102

The third factor that may explain discrepancy in scale is economic structures. Xinjiang is a core gateway of China’s Belt and Road Initiative (BRI), as it connects China with Central Asia and the Middle East.103 It has a concentrated workforce and a much more industrialised economy. As a result of this, and other factors mentioned above, the mass labour-transfer campaigns in Xinjiang have seen hundreds of thousands of Uyghurs coerced into labour in re-education centres.104 There is presently no evidence of vocational
training and labour-transfer programmes in Tibet being linked to forced labour. One possible explanation advanced by some is that Tibet is characterised by a primarily agrarian economy which largely falls outside the global marketplace and supply chains. This is a strong indicator that Tibet is being targeted for forced labour.

Differences in how national and regional leaders view and assess both territories historically has been proposed as a fourth possible explanation. Both Tibet and Xinjiang witnessed increased domestic unrest in 2008 and entered a period of increased securitisation, with the introduction of new security measures under the stability maintenance campaign. However, the CCP has fundamentally different views of the security threat arising from political Islam compared to Tibetan Buddhism. While both Tibetans and the Uyghurs are ethnically separate from Han Chinese, the degree to which their religion is seen as compatible with societal unity differs significantly, with Islam being considered wholly irreconcilable with Chinese identity and loyalty to the CCP. China has attempted to justify its campaign of mass detention and re-education in Xinjiang by evoking a counterterrorist necessity. The counterterrorist rationale which underpinned the mass detention campaigns in Xinjiang is not applicable to the Tibetan context, and thus could not be used to justify a dramatic expansion of vocational training and detention in Tibet similar to that experienced in Xinjiang around 2017.

3.6.4. Detention facilities in Tibet are generally older than those in Xinjiang

While RAND’s prior analysis of Xinjiang suggested that most facilities were newly constructed during 2016–2017, this study found that the majority of facilities in the TAR were built before 2011. This evidence confirms that Tibet served as a laboratory for stability maintenance. Many practices of stability maintenance, including detention centres, were tested in Tibet prior to their establishment in Xinjiang.

3.6.5. Tibetan detention facilities have also not expanded on the scale of those in Xinjiang

Our analysis also found that while night-time lighting analysis in Xinjiang showed clear inflection points in the growth and decline of detention facilities, similar inflection points were not found in Tibet. In Xinjiang, night-time lighting revealed a clear inflection point in the growth of detention facilities beginning in 2016, after which the construction of such facilities ballooned at a rapid pace. No similar trend was observed in Tibet.

As discussed above, this difference almost certainly results from the fact that the majority of Tibet’s detention facilities were already built prior to the start of our night-time lighting data. There was also a greater level of decline in Xinjiang than was found in Tibet, possibly a product of the greater international pressure placed on China over its detention practices in Xinjiang as compared to Tibet, or perhaps just a limitation of night-time lighting as a tool for measuring such changes in conditions on the ground in Tibet.
3.6.6. However, both regions follow similar patterns of growth towards long-term imprisonment and detention

Despite these differences, we also find many similarities in recent patterns of growth between the two regions. For instance, in both Tibet and Xinjiang, growth in night-time lighting has been concentrated in higher-security facilities, suggesting that in both regions there may be an increased emphasis on long-term imprisonment and detention of dissidents rather than shorter-term detention. Similarly, the growth in facilities in both regions has followed a sequential pattern. In Xinjiang, night-time lighting data revealed an earlier emphasis on constructing new facilities in the Uyghur heartlands of southern Xinjiang, as opposed to the more ethnically diverse portions of northern Xinjiang closer to the Kyrgyz, Kazakh and Mongolian borders. In Tibet, by comparison, our findings showed that growth in night-time lighting was concentrated in different prefectures in different periods.
Conclusion

4.1. This study sought to uncover Chinese authorities’ efforts to imprison and detain Tibetans

Over the past 20 years, Chinese authorities have implemented a policy of ‘stability maintenance’ aimed at quelling dissent and maintaining power by preventively changing the way Tibetans think and act. Under this policy, Chinese authorities have detained, persecuted and convicted Tibetans for non-violent forms of protests and other expressions of dissent such as assisting or supporting self-immolations and carrying pictures of the Dalai Lama.

However, unlike in Xinjiang, the precise workings, nature and scale of the CCP’s efforts to imprison and detain Tibetans currently remain poorly understood. The limited amount of information available to the international community – and in some cases the lack of evidence – is not, however, evidence of an absence of repression but rather highlights a need for further research into the CCP’s practices in relation to the imprisonment and detention of ethnic minorities in Tibet, and across China more broadly. This comes as the implementation of a so-called ‘vocational training and labour-transfer’ scheme in Tibet has raised international alarm at the prospect of Tibetans becoming subject to mass securitisation and, especially, detention on a scale and intensity similar to that currently seen in Xinjiang, while other imperceptible forms of repression have also gradually been uncovered.

Using overhead satellite imagery analysis and night-time lighting data, this study sought to add another piece to the puzzle in the hope of helping and encouraging other workers to

Box 3. Summary of study findings

There are at least 79 prisons and detention centres across Tibet.

Over half of the facilities found were small, low-security detention centres.

The majority of facilities were built before 2011.

Chen Quanguo may not have pioneered all stability maintenance mechanisms in Tibet, as most facilities were built before his tenure. Though there is a possibility that he repurposed existing detention centres for political purposes.

At the aggregate level, the overall size and scale of the Tibetan detention system has been relatively consistent over the past decade.

Zooming in on individual facilities, however, we uncovered recent patterns of growth in night-time lighting concentrated in higher-security facilities since 2019.

This trend may suggest a shift towards longer detentions and imprisonments and is similar to recent observations in Xinjiang too, where a high percentage of these facilities showed active growth in night-time lighting in 2019 and 2020.
complete the picture. The piece we add is a small but important one: new evidence on the scale and purpose of prisons and detention facilities in Tibet. Our study found:

- There are currently at least 79 prisons and detention centres throughout Tibet, with most towns and villages having a detention centre. This number may be greater, but the present methodology does not enable us to estimate the true scale of the Tibetan detention system.
- The overwhelming majority of these facilities (41 out of 79) are assessed to be small, low-security detention centres, with larger low-security facilities accounting for most of the remainder (24 of 79). We found only four high-security detention centres and ten prisons.
- Most facilities were visible in the first available images in archival imagery dating back to the mid-2000s, with the majority of facilities built before 2011 and many facilities first visible in 2005 or between 2008 and 2011.
- While the timing of these peaks may be due to satellite imagery availability, they are still clearly distinct relative to the surrounding years and correspond with the timing of Chinese policies and practices in Tibet. These findings could challenge the assertion that Chen Quanguo pioneered many mechanisms of stability maintenance in Tibet, as many detention facilities were evidently present before his tenure began in 2011, though there is a possibility that he repurposed existing detention centres for political purposes.
- Our analysis of night-time lighting data also allows us to draw tentative conclusions about changes across facility types. Large increases in night-time lighting across prisons in 2019 and 2020 and across high-security detention centres in 2021 and 2022 indicate growth in these types of facilities, though conclusions are limited by small sample sizes. Growth appears more stable across low-security detention centres, though growth peaks for small low-security detention centres in 2017. These changes across types of facilities may be indicative of a shift towards longer detention and imprisonments (as in Xinjiang), but further research would be needed to triangulate this finding with other relevant literature and information.
- Finally, changes in night-time lighting across Tibetan prefectures indicate sequential growth: growth first peaks in Ngari from to 2015 to 2016, then in Lhoka and Nagchu from 2017 to 2018, then Lhasa in 2019 and 2020, with a second peak in Ngari in late 2020. Comparatively, growth in Shigatse and Nyintri remained relatively stable, while Chamdo saw growth from 2016 to 2019 and then a significant period of decline in 2021 and 2022, perhaps, though not conclusively, due to rising international focus on several facilities in this prefecture. Although limited by small sample sizes, these findings highlight regional variations in the implementation of stability maintenance. The difference in periods of growth across prefectures may also correlate with hotspots of protest, but further evidence would be needed to confirm this.

4.2. Our approach could be extended further to assess the degree of securitisation in Tibet and the true scale of its detention system

The satellite imagery and night-time lighting analysis presented in this report represents an important step towards building an understanding of stability maintenance
systems in Tibet and, more broadly, China. While this report comprises a preliminary investigation, this mode of research could be extended further and even approached from the opposite direction. Our analysis restricted itself to the study of facilities already identified by the TRP and subsequently worked to create means for classifying them and measuring their evolution. In principle, our classification schema could form the basis for modelling efforts targeted at identifying additional facilities that share observable characteristics with those studied here. Any such effort would be a significant undertaking but may yield additional insights into the full extent of stability maintenance activities in Tibet and beyond.

Satellite imagery and night-time lighting analysis, however, only addresses a subset of a complex and dynamic problem. In Chapter 2, we identified seven areas where collective understanding of stability maintenance programmes in Tibet is limited by either incomplete or outdated information. This approach can inform some – but not all – of those topic areas and is arguably the best way of adding to knowledge concerning the scale of the Tibetan detention system and the degree of securitisation in Tibet.

4.3. Developing a holistic understanding of stability maintenance systems in Tibet will require time, resources and continued collaboration within and across communities

Other areas, such as understanding the conditions inside facilities and imperceptible forms of oppression, deserve further attention. However, the information environment is fraught with new obstacles which add to the existing ones described in the introduction:

- **The normalising of the stability maintenance campaign.** In the first years of the ‘strike hard’ campaign, the Chinese government prolifically communicated objectives to cadres in order to translate these into implementation plans and operationalise the campaign. These communications offered researchers materials to work on and understand the Party’s objectives and practices. Today, however, the focus of stability maintenance has changed. The CCP is now focused on normalising and institutionalising the stability maintenance campaign. This change in policy direction is resulting in a falloff in online information and digital traces.

- **The invisibilisation of the stability maintenance campaign.** The Party increasingly seeks to move away from visible elements of repression, such as re-education centres, towards imperceptible ones, such as digital surveillance. The ‘invisibilisation’ of the campaign is also a semantic one, with benign terms like ‘boarding’ schools (rather than ‘residential’ schools) being used to obfuscate the real purpose of the mechanisms. To the non-trained reader, these cues could become harder to pick up.

- **A shrinking research space.** China is gradually cutting off all publicly available information deemed ‘politically sensitive’ or that could aid foreign researchers. The latest blow has been the suspension to foreign research organisations of China National Knowledge Infrastructure (CNKI), China’s largest academic database.

- **Risks to foreign researchers and their sources in China.** Conducting research in this space presents mental and physical challenges to researchers and their sources, as the CCP uses all means to dissuade research endeavours.
As such, some of these topics may be best tackled by government agencies or other members of the research, policy and advocacy communities.

Irrespective of who might be best placed to further our understanding in each area, we urge practitioners to view this field of research as multidimensional, with distinct segments of research, analysis and information-gathering being treated as complements rather than substitutes. This process will undoubtedly require time and resources, particularly given the human security risks and diminished information environment involved. It will also require continued dialogue within and across communities to ensure a holistic understanding of how each aspect of stability maintenance analysis fits within the broader whole, and where resources would be best allocated, especially to enable accountability.
End notes


RAND Europe interview 02.


RAND Europe interview 05.


4 Other mechanisms of preventive control include building up a surveillance-intensive policing network and the improvement of social welfare to disadvantaged communities. These services can address important local needs and include poverty-relief programmes, preferential employment policies, and skills-based training.
5. Beyond those visible forms of repression, ethnic minorities in Xinjiang also face many imperceptible forms of control that place great restrictions on cultural, linguistic and religious expression, deprive them of their freedom of expression and movement, violate reproductive rights and forcibly separate them from loved ones.


9. Authorities in both regions have, for instance, encouraged inter-ethnic marriages to create unity between ethnic groups; forced the sterilisation and abortion of women from ethnic-minority backgrounds; implemented intrusive surveillance systems including village-based work teams and convenient police stations; carried out mass DNA collection programmes; and forced family separations through the creation of state residential schools (also known as ‘boarding’ schools, a term that normalises their practices).

10. RAND Europe interview 04.


14. RAND Europe interview 11.


16. RAND Europe interview 04.

RAND Europe interview 09.

RAND Europe interview 11.


RAND Europe interview 04.

RAND Europe interview 08.

RAND Europe interview 11.
Purohit, Kunal. 2019. ‘After 60 years in India, why are Tibetans leaving?’ Al Jazeera. As of 24 March 2023: https://www.aljazeera.com/features/2019/3/21/after-60-years-in-india-why-are-tibetans-leaving

17 RAND Europe interview 06.
RAND Europe interview 09.
RAND Europe interview 10.

18 Of the 51 sources initially identified for the literature review, 15 (29 per cent) were published by Tibetan advocacy groups, 19 (37 per cent) were news articles and 8 (16 per cent) were news articles published in Bitter Winter. These articles were supplemented by further searches.

19 RAND Europe interview 14.


21 This presents several limitations to our findings. Mostly, we were unable to confirm using Chinese sources that the buildings identified in the dataset were definitely being used for detention. Nevertheless, the presence of a number of security features such as guard towers and walls higher than those surrounding most Tibetan buildings/city blocks reinforce our belief that these facilities are being used for detention. Future research efforts may seek to add to the evidence base by analysing Chinese sources used in similar studies in other parts of China, including procurement documents, media reports and social-media content.


RAND Europe interview 04.


International Campaign for Tibet. 2019. ‘New phase of expulsions at important Buddhist institute leads to rounding up of monks and nuns for “re-education”.’ As of 10 February 2023: https://savetibet.org/new-phase-of-expulsions-at-important-buddhist-institute-leads-to-rounding-up-of-monks-and-nuns-for-re-education/


Wired UK Magazine. 2022. 'The Strange Death of the Uyghur Internet.' As of 27 March 2023: https://www.wired.co.uk/article/uyghur-internet-erased-china

Lam, Oiwan. 2013. 'In Tibet and Uyghur Regions, Internet Blackouts Are the Norm.' Global Voices Advox. As of 27 March 2023: https://advocacy.globalvoices.org/2013/12/17/in-chinas-ethnic-minority-regions-internet-blackouts-are-the-norm/


RAND Europe interview 17.


The Tibet Research Project. As of 23 March 2023: https://tibetresearchproject.org/

Of the 14 facilities identified inside the TAR, six were confidently identified as a facility in the TRP dataset and eight were identified as possible matches for a facility in the TRP dataset.


RAND Europe interview 04.
RAND Europe interview 13.


In some counties in Tibet, authorities forced the families of exiled Tibetans to install a monitoring app on their phone that gives authorities unprecedented access to phone data, leading to the detention of those holding materials deemed 'politically sensitive'. Similarly, some former prisoners have been given state-issued cell phones on their release which have tracking devices installed. It remains uncertain though whether these two apps are the same and how they interact with iFlyTek's voice-to-text transcription software, which also shares information with the Chinese government, receiving government subsidies in return. For more information, see for instance: Free Tibet. 2022. ‘Families of Exiled Tibetans Ordered to Install Cell Phone Spyware.’ As of 28 March 2023: https://freetibet.org/latest/phone-spyware/


75 Specifically, TRP’s initial report identifying these facilities makes clear that ‘one key aspect not addressed in most locations was the facilities’ purposes – whether used for political or criminal detention (or both)’. Similarly, they highlight that ‘it is believed that several locations remain undiscovered or unlocated’. See: Jarvis, Tom, Robin Taylor, Jenna Dolecek & Chong XC. 2021. ‘Open-Source Investigation of Detention in Tibet.’ Tibet Research Project, 6 March. As of 24 January 2023: https://tibetresearchproject.org/wp-content/uploads/2021/03/Open-Source-Investigation-of-Detention-in-Tibet-Version-1.0-beta1.pdf (p.4).

These limitations similarly apply to this portion of our research.


For a more detailed discussion of our nighttime lighting methodology, see:


In this research, the only difference is that we employ a slightly smaller buffer size for capturing nighttime lighting estimates over specific facilities (100m) given the comparably smaller size of facilities in the TAR compared to Xinjiang, as well as the increased prevalence of adjacent urban infrastructure which could confound our estimates. For underlying nighttime lighting data, see:

We also examined changes in night-time lighting observed across the TAR. While night-time lighting there has risen overall during our study period, it has never changed consistently enough to qualify as undergoing a period of growth or decline according to our methodology except for a single month in 2017 (out of 103 months total). Our methodology required uninterrupted growth or decline of the three-month moving average for a period of six months before we classified a facility as undergoing a period of growth or decline. As a result, we are confident that our analysis of changes to individual facilities is based on night-time lighting changes specific to those facility locations, and not to ongoing changes in the region as a whole.

Of note, we define uninterrupted periods of growth or decline as any six-month period where imputed and smoothed night-time lighting (using a ten-month double moving average) consistently rises or falls, consistent with our prior research in Xinjiang. In practice, this approach flags the start of growth periods in night-time lighting using moving averages several months before the corresponding increase in raw night-time lighting. As such, we focus on general trends in our analysis rather than specific dates in flagging key inflection points.


We exclude this facility from our night-time lighting analysis given its role as a ‘re-education through labour’ facility, as distinct from the other prisons and detention centres identified in the TRP dataset. For discussion of this facility by the TRP see: Jarvis, Tom, Robin Taylor, Jenna Dolecek & Chong XC. 2021. ‘Open-Source Investigation of Detention in Tibet.’ Tibet Research Project, 6 March. As of 24 January 2023: https://tibetresearchproject.org/wp-content/uploads/2021/03/Open-Source-Investigation-of-Detention-in-Tibet-Version-1.0-beta1.pdf


Specifically (as done in prior research using this methodology), we reproject each composite night-time lighting image from its original resolution (15 arc-seconds, or approximately 350m at 40° latitude) to a finer-scale 30m resolution using simple linear interpolation. We then calculate average night-time lighting using a 100m buffer over each facility’s central point to limit adjacency effects. This approach should help to minimize bias from adjacent infrastructure, although not eliminate it entirely.

For ASPI's underlying data, see: Ruser, Nathan. 2020. ‘Exploring Xinjiang’s detention system.’ Australian Strategic Policy Institute (ASPI). As of 27 March 2023: 

Of note, we reproject underlying NOAA VIIRS night-time lighting data from their original resolution to a finer-scale 30m resolution using simple linear interpolation to enable this analysis, following the methodology used in prior RAND research for Xinjiang.

RAND Europe interview 03.
RAND Europe interview 08.
RAND Europe interview 09.
RAND Europe interview 10.
RAND Europe interview 12.

Encyclopedia Britannica. 2023. ‘Tibet.’ As of 27 March 2023: 
https://www.britannica.com/place/Tibet/People

Encyclopedia Britannica. 2023. ‘Xinjiang.’ As of 27 March 2023: 
https://www.britannica.com/place/Xinjiang

100 RAND Europe interview 02.


102 Fischer, Andrew M. 2021. ‘How Much Does Beijing Control the Ethnic Makeup of Tibet?’ ChinaFile. As of 24 March 2023: 

103 Cho, Sungmin, & Joshua Taylor. 2020. ‘The Economics of Repression: The Belt and Road Initiative, Covid-19, and the Repression of the Uyghurs in Xinjiang.’ Air University. As of 29 March 2023: 

104 Tibet Advocacy Coalition. 2021. ‘Assaulting Identity: China’s new coercive strategies in Tibet.’ As of 16 January 2023: 

105 RAND Europe interview 01.
RAND Europe interview 02.


Authorities in both regions have, for instance, encouraged inter-ethnic marriages to create unity between ethnic groups; forced the sterilisation and abortion of women from ethnic minority backgrounds; implemented intrusive surveillance systems including village-based work teams and convenient police stations; carried out mass DNA collection programs; and forced family separations through the creation of state residential schools (also known as ‘boarding’ schools, a term that normalises their practices).