

Building University Research Capacity in Uzbekistan

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1. Introduction

This chapter studies Uzbekistan's attempts to build university research capacity since the country's independence in 1991. Uzbekistan constitutes a particularly interesting case study for two reasons. On the one hand, although Uzbekistan was one of the most economically underdeveloped countries in the former Soviet Union (FSU) in 1991 (Ruziev et al., 2007), it managed to achieve one of the highest sustainable economic growth rates in the FSU after the early 2000s. The annual growth rate for 2004-2016 was above 8%. On the other hand, Uzbekistan achieved such growth despite reducing investments in higher education (HE): the proportion of the education budget spent on HE declined from 10% in 1990 to around 5% in 2013 (World Bank, 2014, p. 72). In fact, Uzbekistan is the only FSU country in which the share of school leavers studying at universities fell after independence: the gross enrolment ratio decreased from 15% in 1991 to 9% in 2017 (Ruziev & Burkhanov, 2018).

At the same time, Uzbekistan has set the goal of becoming an upper middle-income country by 2030 (International Monetary Fund [IMF], 2013, p.4). To attain this target and sustain growth, the country is trying to transform its commodity-based economy into a high-value-added economy. The current government, which came to power after the sudden death of President Karimov in September 2016, sees the years of HE neglect and underinvestment as a major hindrance to its ambitious plans for economic growth. Recognising the key role played by universities in spurring innovation and creating a more diversified economy, the government has launched fundamental reforms in this sector.

This chapter aims to assess nearly three decades of change in the country by considering policy documents, official statistics when available, and primary data generated through interviews. There were 43 HE institutions (HEIs) in Uzbekistan in 1988-99, including 40 specialised institutes and three comprehensive universities (Ruziev & Burkhanov, 2018). The number and diversity of HEIs have gradually increased since independence. In April 2021, there were 28 universities and 37 institutes in Uzbekistan (Ministry of Higher and Secondary Specialised Education [MHSSE], 2021). While institutes specialise *a priori* in a narrow field (e.g., Tashkent Institute of Finance), universities can be either comprehensive (11 in all, e.g., Samarkand State University) or specialise in a narrow field (17 in all, e.g., Tashkent State University of Jurisprudence).¹ There are also academies, which focus on postgraduate training, and branches of domestic and international HEIs in the country. The new private HEIs are relatively small in size, enrolling a few hundred students each, so their role in the HE sector remains very limited.

2. Methodology

We use a mixed-methods approach in our data analysis. In particular, we combine secondary quantitative data and document analysis with evidence from primary interviews. The secondary data comes from official sources. Unfortunately, official data is not always readily available and remains patchy. For document analysis, we rely on government decrees and resolutions pertaining to reforms in the HE sector. We gathered primary qualitative data on stakeholders' experiences and perceptions through in-depth, semi-structured interviews.

To select interview participants, we used the "networking" method (Bewley, 2002), which enabled us to work with a small number of interviewees chosen through a network of professional connections. We interviewed ten stakeholders, including five university vice rectors for research (interviewees 1–5), two policy makers (interviewees 6 and 7) and three academics (interviewees 8, 9 and 10). The

¹ After independence, some institutes that played prominent roles in their areas of specialisation were given university status. In terms of the student body, specialised universities are usually smaller than comprehensive universities but larger than institutes (Ruziev & Burkhanov, 2018).

interviews were conducted in Uzbek in autumn 2019; they were audio-recorded and subsequently carefully transcribed.

3. Higher Education after Independence: The Tumultuous 1990s and 2000s

From the very beginning, the architects of the Soviet HE model tended to separate research from teaching at HEIs (Smolentseva, 2015). As a result, HEIs largely focused on occupational training, i.e., they were responsible for preparing the professional workforce for different branches of the economy. At the same time, conducting research and expanding scholarly knowledge was the main mandate of the Academy of Sciences and a network of research institutes that formed in the 1960s (Kuraev, 2016, p. 189; Graham, 1994). Only a few leading HEIs (the three comprehensive universities and some institutes) that were considered core institutions in their areas of specialisation conducted advanced research.

Some of our interviewees who had worked in the HE sector before independence cited the absence of financial mechanisms for rewarding research as one of the reasons why research intensity was so weak at HEIs during the Soviet period. For example, interviewee 2 (a vice rector) put it as follows:

A person who, after defending a kandidat nauk or doktor nauk degree, decided to continue his or her career at an HEI received no financial incentives to carry on with research. Had there been a clear mechanism to reward research, more people would have conducted research in tandem with teaching.

In 1991, Uzbekistan inherited a similar HE system and an analogous research framework as other countries of the FSU. Advanced research was conducted mainly by the Uzbek Academy of Sciences that had been set up in November 1943 and the research institutes affiliated with it. Although the three comprehensive universities and a few institutes that were considered to be core institutions in their fields of specialisation conducted some research, teaching remained the main mission of HEIs. After independence, Uzbekistan decided to keep the main functions of the Academy of Sciences and its affiliated institutions largely unchanged (Government of Uzbekistan [GU], 1995). As for HEIs, they were not formally divided into research and teaching institutions. All academic staff members at HEIs were therefore expected to conduct some research.

The economic shock as well as the abrupt cessation of financial support from the centre after the sudden disintegration of the Soviet Union in August 1991 were expected to affect Uzbekistan particularly severely as a significant proportion of its large population was poor. Ruziev (*in press*) divides Uzbekistan's development path into two distinct phases: the *survival phase* (from the 1990s to the early 2000s) and the *growth phase* (from the early 2000s to the present). Survival-phase policies focused mainly on assuring food security, reviving the reputation and prestige of state institutions, creating a robust social safety net to prevent potential civil strife and discontent, and achieving macroeconomic stability.

Notable education reforms introduced in the 1990s include the adoption of the Law on Education in 1992, which laid down the legal foundations and reform principles in this sector; the introduction of a centralised system of university admissions in 1994; and the adoption of the National Programme for Personnel Training (NPPT) in 1994. One of the NPPT's fundamental innovations in the sphere of general education was to replace the two-level system of postgraduate degrees inherited from the USSR with a single Doctor of Science (DSc) degree.

Just as other FSU countries, Uzbek HEIs suffered from severe funding cuts after independence, as the government was unable or unwilling to maintain HE budgets at their previous levels (Silova et al., 2007; Jonbekova, 2019). As a result, the share of HE expenditures in the country's total education budget declined from 10% in 1990 to around 5% in 2013, compared to a level of over 20% in most FSU countries (World Bank, 2014, p. 72). While gradually reducing HE funding from the state budget, the government decided in 1994 to allow HEIs to raise additional resources by charging tuition fees (Ruziev & Burkhanov, 2018, p. 446). According to the European Commission (EC, 2017,

pp. 4-5), around 60% of Uzbekistan's total HEI expenditures and around 90% of its expenditures on infrastructural development are funded today by tuition fees paid by students.

As a result of the economic hardships of the survival phase and the country's generally cautious and gradualist approach to reforms, improving research capacity at HEIs was simply not on the government's agenda in the 1990s and much of the 2000s. The reduction in public HE funding made retaining academic staff the single most important priority for HEIs.

This led to the loss of research personnel in Uzbek HEIs, with scholars leaving for the Global North in search of better salaries or postponing academic careers to seek opportunities in the private sector (Oleksiyenko, 2014; Graham, 1994). Low salaries, combined with the erosion of savings by hyperinflation in the early years of the transition, had a significant impact on staff retention. Some academics left HEIs to pursue new careers: "*There was a time when salaries were so low that scholars quit their jobs to work as bazaar shuttle traders to feed their families. Regrettably, we lost many of our kandidat nauk holders and docents in this way*" (interviewee 1). Some scholars left the country: "*Strong and competent specialists who could afford to leave the country and were able to find opportunities elsewhere moved abroad. If you are good at what you do, you are always in demand*" (interviewee 5). Those who stayed in academia had to combine multiple jobs to make ends meet. Just as in many other FSU countries (Osipian, 2009; Heyneman et al., 2008), engaging in unethical and corrupt practices such as soliciting bribes from students became an endemic problem in Uzbek HE.

Overall, teaching remained the main mission of HEIs from 1991 to 2016, preventing research from becoming an integral part of the academic workload. As a result, universities lagged behind in research productivity. According to the World Bank (2014), the number of theoretical and applied academic articles published by Uzbek researchers in internationally recognised research outlets declined from over 300 in 1996, which was already very low compared to other FSU countries, to fewer than 150 in 2011. As interviewee 5 (a vice rector) noted,

The research capacity of HEIs declined sharply in the early years of independence. During the Soviet period, there was a rule, a rule of thumb, according to which at least 55-65% of the staff of HEIs had to have research degrees. ... This indicator decreased to 33% across the country in the early years of independence. At some HEIs, it fell to 16-18%.

4. Building Research Capacity: A Delayed Start

Uzbekistan managed to achieve some success during the survival phase of its economic development. It experienced the smallest GDP decline and managed to become one of the first transition economies to surpass the pre-independence GDP level (Ruziev et al., 2007). The country moved to the growth phase in the early 2000s, aiming to become an upper middle-income country by 2030 (IMF, 2013, p. 4). By the early 2010s, it had become clear that this strategy was working: the average real GDP growth exceeded 8% in 2004-2011 (Ruziev, *in press*). Unsurprisingly, most significant reforms aimed at improving HEI physical facilities, human capital and research capacity were introduced in the 2010s after the country's macroeconomic situation stabilised and government finances became robust.

The first key document was a 2011 presidential decree (GU, 2011) that focused on improving physical facilities and other tangible assets at HEIs over the period 2011-2016 (see also EC, 2017). Official documents show that the government spent most of these funds on improving the physical infrastructure of HEIs by refurbishing buildings, auditoriums, and laboratories and creating basic IT infrastructures. Although official statistics on the scale of infrastructural investments are not openly accessible, it is clear from our interviews with stakeholders that almost all HEIs benefitted from the initiative.

The subsequent presidential decree (GU, 2012) aimed at improving the training and evaluation of academic staff at HEIs. Since doctoral degrees have always been considered as the key official indicator of research capacity, the reforms focused on restructuring the postdoctoral training system.

In particular, the government formally abolished the two-level *kandidat nauk* and *doktor nauk* system in favour of a single DSc degree (*Fan Doktori* in Uzbek). However, when the new rules came into effect in 2013, they largely brought the country’s postgraduate research training system to a halt, according to our interviewees. At the same time, some academics who obtained their doctoral degrees in Moscow, Leningrad, etc. during the Soviet period and were therefore seen as the “old guard” were critical of the excessive gap between the master’s and the DSc. “*We used to have a system in which candidates would progress from bachelor’s to master’s and then to kandidat nauk and doktor nauk. ... At one point, one discussed the possibility of allowing holders of bachelor’s degrees to start a doctorate. This was a very big jump*”, explained interviewee 5. For most researchers, the doctoral degree was the apex of their research careers. It was (and still is) a means of landing top administrative jobs. From this perspective, the old guard’s reaction was predictable.

As a result, the criteria for assessing DSc dissertations became a lot more stringent, calling for at least three publications in international journals in addition to other requirements. Our interviews show that all of this led many postgraduate students to drop out of DSc degree programmes. Only a select few who chose research topics in the government’s priority areas were awarded DSc degrees at the time.

Table 1 presents official data on the qualifications of academic staff at HEIs, which is available only for selected years. From 2013 to 2016, only around 100 individuals managed to get *doktor nauk* degrees in the whole country. Insofar as the SAC stopped conferring *kandidat nauk* degrees in 2013 and as the older generation of staff with *kandidat nauk* degrees also started retiring, the number of academics with *kandidat nauk* degrees fell by almost 1,000 during this period (PhD degrees started to be awarded only in 2017). As a result, this official yet crude indicator of research capacity dropped from 40.6% in 2013 to 32.7% in 2017 (last row of Table 1).

Table 1. Qualifications of Academic Staff at HEIs in 2013 and 2016-2019

	2013	2016	2017	2018	2019
<i>Doktor nauk</i> (A)	1314	1415	1666	2023	2201
<i>Kandidat nauk</i> and PhD (B)	7491	6451	6649	7050	7769
No advanced research degree (C)	12893	15436	17103	17224	16867
Total (D)	21698	23302	25418	26297	26837
Indicator of research capacity ($E=[(A+B)/D] \times 100$)	40.6%	33.8%	32.7%	34.5%	37.2%

Source: MHSSE (2020)

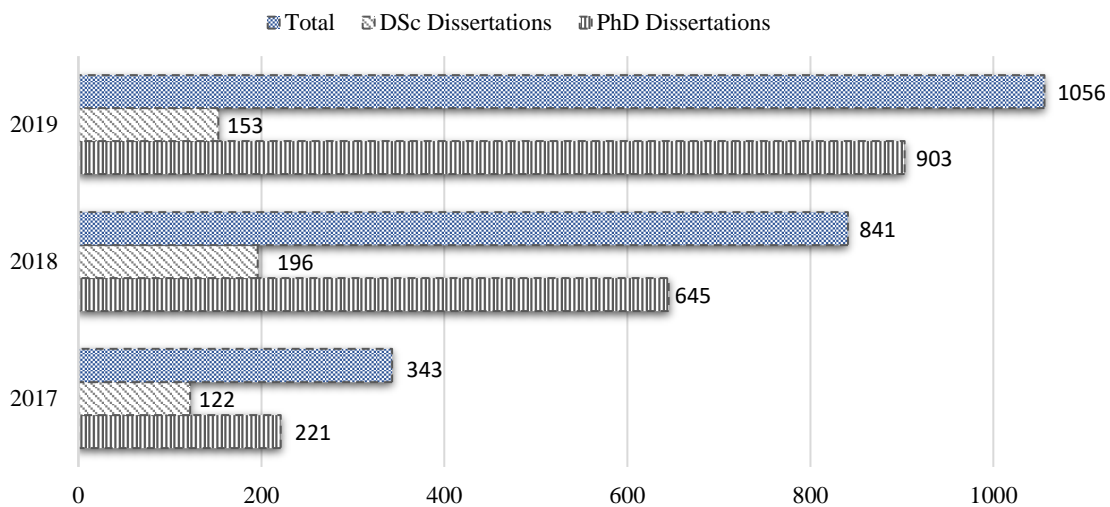
After coming to power in 2016, President Mirziyoyev’s government introduced a series of reforms in the HE sector (one of its policy priorities has been the rapid expansion of access to HE). Since doctoral degrees remain the key official indicator of research capacity, the new government sided with the old guard’s argument in order to break the deadlock, reintroducing a two-level research degree system in 2017. Following a joint proposal by the Ministry of Higher and Secondary Specialised Education (MHSSE), the Academy of Sciences and the SAC, the government established a new two-level postgraduate system comprising a ‘basic’ doctorate (Doctor of Philosophy - PhD) and a ‘research’ doctorate (Doctor of Science - DSc) that came into effect in July 2017 (GU, 2017a).

Reforming academic degrees was just one of the steps taken towards boosting research capacity. Our interviewees noted that the government also increased academic salaries. By their estimates, salaries have grown by as much as a factor of 2.5 since late 2016. In addition, a presidential decree created financial incentives for PhD and DSc degree candidates by paying them stipends at the level of the basic salaries of apprentice researchers and senior research fellows, respectively (GU, 2017a). Our interviewees spoke favourably of this initiative. “*The monthly stipend of doctoral students is about 3 million soum [approximately US\$300]. In the context of Uzbekistan, this largely suffices*,” interviewee 2 said. These incentives revived interest in academic jobs in general and doctoral studies in particular. According to interviewee 1,

There were times when we struggled to attract applicants to our postgraduate programme. If we compare those times with the situation today, the difference is enormous. For example, the application deadline for our doctoral programme was a few days ago. Our admissions team worked until midnight to process applications. They were all tired; I was tired, too. Nevertheless, it makes you happy to see that interest is very high now.

Figure 1 shows recent data on the number of defended PhD and DSc dissertations since the 2017 change of rules. It shows, in particular, that, although the number of awarded DSc degrees remains fairly low, the number of awarded PhD degrees has increased fourfold within a very short period. Considering the strong restrictions on awarding of doctoral degrees between 2012 and 2017, this is clearly a positive development, at least in quantitative terms.

Figure 1. Number of Defended PhD and DSc Dissertations, 2017-2019.



Source: MHSSE (2020)

Furthermore, the new government began taking more active steps to reorganise the research and innovation system, viewing it as a vital factor of economic growth. The 2017-2021 Action Strategy aims to modernise the country’s economy and views academic research as a catalyst for achieving this goal. It envisages developing the national research and innovation system by (i) creating experimental research laboratories, advanced technology centres and techno-parks managed by universities and research institutes of the Academy of Sciences, (ii) offering new incentive mechanisms to reward research and its applications and (iii) changing the model of research funding (GU, 2017b).

Our interviews indicate that, from 1991 to 2006, research funding was allocated by sectoral ministries, which sought to meet their strategic needs. The largest share of funding went to the Academy of Sciences and its research institutes, which remain the main research producers in the country today, with the Academy of Sciences being the single largest employer of researchers. In 2021, it had a total staff of over 4,700, of which over 2,200 were researchers (Academy of Sciences of Uzbekistan, 2021). The share allocated to an individual HEI mostly depended on its number of postgraduate students, which in turn was determined by MHSSE. In 2006, a presidential decree allowed research teams from HEIs to submit additional research proposals and requests for funding to MHSSE and the Ministry of Finance (GU, 2006). Detailed official statistics on the amount of research funding are not publicly available. Some post-2017 regulatory documents, however, claim that only 0.5% of the basic and applied research projects funded by the government resulted in real-world applications (GU, 2017a; 2017c).

The 2017-2021 Action Strategy led to the adoption of several other new laws and policy documents. In particular, the Law “On Science and Scientific Activity” sets out the principles of a new competitive grant system of research funding. In keeping with the new law, the government transferred the responsibility for funding research and innovation from MHSSE and the Ministry of Finance to the Ministry of Innovative Development (MID) set up in November 2017 (GU, 2017c). The MID is responsible for announcing research funding competitions, collecting the applications, selecting the winners, and monitoring the implementation of the research projects. A broad community of researchers from both public and private HEIs and research centres, including the Academy of Sciences and its research institutes, can now apply for funding to the MID. Until 2016, government spending on research and development was fixed at 0.18% of the GDP, and, although the government plans to increase this share to 0.50% of the GDP in 2020-21 (Mamirova, 2019), official data on the implementation of this plan is not yet available.

Another important policy document is a 2019 presidential decree that establishes the key principles of development for the Uzbek HE System until 2030 (GU, 2019a). It contains a long list of targets the government would like to achieve by 2030, including increasing the HE gross enrolment rate to 50%, turning the HE sector into a “corruption free area”, helping at least 10 HEIs to make it into the top 1000 in world university rankings, turning the National University (NU) and Samarkand State University (SSU) into the country’s flagship HEIs, helping NU and SSU to make it into the top 500 in world university rankings, and assisting national research outlets in being listed in leading international publication databases.

Thus, while the government started to introduce some HE reforms in the early 2010s, they were mostly haphazard in nature. The pace of reforms has accelerated since 2017, however. The government introduced more changes since 2017 than during the previous 26 years. Although the official regulatory documents still refer to “research capacity” in its traditional narrow sense, i.e., as the percentage of research degree holders, recent reforms aim at building research capacity in a broader sense. For example, instituting a national university ranking and encouraging domestic HEIs through administrative nudging and financial incentives to make it into well-known international university rankings where research capacity plays an important role clearly indicate the current government’s intentions to improve university research capacity.

5. Building Research Capacity at the Institutional Level

The government’s recent efforts to boost research capacity at universities are clearly a step in the right direction. To start with, one of the key overarching factors contributing to the low research activities of Uzbek HEIs is the relative ineffectiveness of the existing organisational structure of research. In Uzbekistan, HEIs enjoy only a minimum degree of financial autonomy; to all intents and purposes, it is the government that sets their research strategies. Uzbek HEIs, therefore, use a model that makes it virtually impossible to balance the research and teaching loads of staff members. For example, the annual workload of full-time academic staff at Uzbek HEIs is 1,540 standard hours (MHSSE, 2015; 2018). Our interviews show that, although the model requires research to comprise 20% of the workload of associate professors, professors and department heads and 15% of the workload of lecturers and senior lecturers, in practice contact teaching takes up almost the entire working time of academic staff members, leaving little time for research. In addition to contact teaching, academic staff members also spend considerable time on such duties as grading student assessments, supervising projects, pastoral care, mentoring, and improving curricula (MHSSE, 2015). According to our interviewees, many academic staff members try to compensate for low salaries with additional workloads, sometimes even doubling it.

As a result, senior administrators at HEIs do not emphasise research production. All of our interviewees described teaching and preparing specialists for the national economy as the main missions of HEIs; they mentioned research only when asked. In the context of Uzbekistan’s economic transition (Ruziev, *in press*), the presence and dominance of such a model in Uzbekistan can also be attributed to the serious funding problems faced by HEIs. This was confirmed by vice-rectors for research on several occasions during the interviews: “*teaching makes up most of the academic*

workload in practice”, “*we cannot afford research-focused positions financially*”, “*the university budget is not ready to create research-focused positions*”.

Table 2 lists the government-imposed criteria used by HEIs for assessing the annual performance of academic staff. Since Uzbek HEIs are not formally divided into research-intensive and teaching-oriented institutions, in principle all academic staff members are expected to conduct some research.

Table 2. Assessment Criteria for the Performance of University Academic Staff

Teaching activities	Research activities	Pastoral care	Contribution to the university’s development	Other personal achievements	Total points
40	30	20	10	10	110

Sources: MHSSE (2015; 2018) and our interviews.

Although research activities account for 27% of staff assessment, as shown in Table 2, this does not necessarily encourage participation in research, as the passing score is usually relatively low and does not require one to engage in research. In practice, hardly anyone fails the assessment. As interviewee 3 put it,

When we started assessing staff performance, the overall passing score was 33 points, which was then raised to 40 points. Now, all academic staff members have to score 50 points or above out of 110, which can come from any of the five criteria.

While the academics we interviewed complained about heavy teaching workloads, vice rectors for research who spearhead university research strategies pointed out that the government’s crude measure of research capacity, which requires HEIs to hire and retain staff with doctoral degrees, gives such staff, especially those with DSc degrees, a lot of negotiating power. As interviewee 5 explained,

At western HEIs, senior managers can hold professors accountable for the research outputs they are expected to produce. Our professors have a lot of negotiating power and often feel safe in their positions even if they have not engaged in research in the recent past.

While they received over two thirds of their funding from tuition fees, HEIs were not allowed until recently to allocate these funds as they saw fit in any domain, including staff remuneration (Ruziev & Burkhanov, 2018). As a result, academic salaries remained generally low and failed to attract a sufficient number of talented individuals to pursue academic careers. Recently, however, the authorities have allowed HEIs to spend up to 30% of their revenues generated from tuition fees on incentives for members of academic staff, including financial rewards for research publications (GU, 2020). In practice, the amount of institutional rewards seems to vary from 0.2 to 3 times the monthly staff salaries, depending on the quality of journal publications. Moreover, as the current government views research and innovation as a top priority (GU, 2017b; 2017c), it also started to offer significant additional monetary incentives for research publications. Our interviewees confirmed that the government has increased academic staff salaries by about 2.5 times since 2016. In 2019, the monthly starting take-home academic salary was about 3 million *soums* (around US\$300), while the top salary given to professors with DScs was about 7 million *soums* (around US\$700). In comparison, the official minimum monthly salary in 2019 was 634,880 *soums* (around \$63.5) (GU, 2019b).

Nevertheless, the impact of the monetary incentive mechanisms introduced since late 2016 has been relatively small, as the total number of articles published in reputable international research journals only amounted to 2,254 in 2017-19 (MHSSE, 2020).² Both academic staff and vice-rectors for research at HEIs agree that this is mostly due to the policy makers’ lack of understanding of the need to invest in tangible and intangible inputs of research. In particular, our interviewees highlighted the

² MHSSE does not give a definition of “reputable” international journals. According to interviewees, the government usually considers journals listed in the Scopus database to be reputable.

urgent need for longer-term investments in improving academics' language competencies, familiarity with contemporary applied research methods, and access to sophisticated statistical packages and other modern research tools.

Our interviews also show that financial incentives, pressure for quick publication results, and shortage of time and skills have encouraged unethical research practices, include a reliance on external companies that charge fees for assisting academics in placing their publications in journals. Due to a combination of these factors and as an unintended consequence of recent government policies, poor-quality papers published in junk or predatory "international" journals have proliferated. Interviewee 7 complained that *"since the introduction of the new policy for providing incentives for research publications, the quality of research papers has declined, as some academics have tried to publish more to get bonuses for publications"*. The government and HEIs have started to encourage publications in reputable international peer-reviewed journals only recently. Our interviews with vice-rectors show that Scopus and the Web of Science are most often used to measure the reputability of journal publications.

6. Summary and Conclusions

Until the early 2010s, the HE sector was one of the least reformed areas in Uzbekistan. Years of neglect and underinvestment in HE eroded the physical infrastructure and human capital of HEIs. As the economy revived and growth accelerated in the 2000s, the government launched a series of action plans for improving the physical facilities and tangible assets of HEIs. Although the country's shift to a Bologna-style three-tier degree system was reinforced by the adoption of the NPPT framework in the mid-1990s, the Soviet two-tier *kandidat nauk* and *doktor nauk* model was abolished only in 2012. Ironically enough, this change temporarily brought the country's postgraduate training programmes to a halt. At the insistence of the academic old guard, policy-makers decided to revert to a two-level (PhD and DSc) doctoral programme in 2017. On the whole, research and research capacity building have not been the main priorities of HEIs for much of the past three decades.

The current Uzbek government that came to power in late 2016 seeks to maintain the high economic growth of the 2004-2016 period by transforming the country's commodity-based economy into a high-value-added economy. Recognising that university research can serve as a catalyst for spurring innovation and creating a more sophisticated economic system, the current government has carried out more fundamental reforms in the HE sector since late 2016 than during the previous 26 years. In particular, it started to increase staff salaries slowly but surely and instituted additional monetary incentives for research outputs, making academic careers an attractive prospect for a new generation of scholars. In addition, government spending on research and development has increased from 0.18% to 0.50% of the GDP, and a special ministry (Ministry of Innovative Development) has been set up to manage the new competitive research funding process. Recently, HEIs have received the permission to spend up to 30% of their revenues from private tuition fees on staff remuneration. All of these changes should help HEIs to rebuild and improve their research capacities in the long run. Unfortunately, more detailed data on the implementation of these plans was not available at the time of this study.

At the same time, some key structural problems that prevent HEIs from planning and building their research capacities independently have not been addressed. For example, the Soviet-inherited organisational system of research, in which the Supreme Attestation Commission, the Academy of Sciences and its associated research institutes play influential roles, has not been completely dismantled. Furthermore, the current national research model does not give HEIs enough freedom and flexibility to develop their own unique research strategies. Moreover, while the current government seems to appreciate the importance of investing in research to modernise its HE sector, the incentive mechanisms created so far are mostly geared at quick fixes and speedy outcomes. There are no robust and carefully designed long-term plans to improve research capacity in the broad sense, i.e., to make long-term investments in people, processes, and research facilities and to link them to research outputs.

An important caveat is that the analysis presented in this study does not (and cannot) do justice to all the changes that have occurred over the past three decades, as we have only focused on key reforms, which were also highlighted by our interviewees. Although we tried to capture the relevant trends and issues as accurately as possible by conducting in-depth interviews with key stakeholders and reviewing relevant policy documents and available official statistics, a larger sample size stemming from the better availability of official statistics would improve the accuracy of some of our evidence and claims.

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