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From Policy Design to Lived Experiences: Developing University Research Capacity in Tajikistan Since 1991

Emma Sabzalieva

Introduction

On obtaining independence from the Soviet Union in 1991, Tajikistan inherited ten public HE institutions (HEIs) and a branch of what was formerly the Soviet Academy of Sciences (DeYoung et al., 2018). Participation in HE was 15% of the 20–24 age cohort for a population of five million, below the 26% rate achieved on average across the Soviet Union but comparable to Azerbaijan and Kyrgyzstan (Platonova, 2018). At the end of the Soviet period, there were 4900 university teachers, 38% of whom held a Candidate of Sciences degree, and 3% of whom held the higher level Doctor of Sciences[1] (USSR State Statistics Agency, 1989). There were just over 9000 scientists and researchers employed at the

[1] Lower than the USSR-wide rates, where 51% of university teachers had a Candidate of Sciences and 5% had a Doctor of Sciences.

E. Sabzalieva (✉)
North York, ON, Canada
e-mail: e.sabzalieva@unesco.org

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Academy of Sciences and other research institutes, of whom 37% held a Candidate of Sciences and 3% had a Doctor of Sciences[2] (ibid.). In 1986, it was reported that 8 out of 10 HEIs in Tajikistan had incorporated 'the results of scientific and research work' into the classroom (ibid.), that is to say that HEIs were drawing on research to inform curriculum content and pedagogy.

As in the other former Soviet states, Tajikistan brought forward not only a legacy of higher education (HE) and research infrastructure from the previous regime but also the values and norms associated with the Soviet HE system. In relation to research, these included the separation of teaching (which took place primarily in universities) and research (located mainly in the Academy of Sciences), high value placed on step-by-step progression up the research career ladder, and a widespread appreciation of science. The research that did take place in HEIs was tightly coupled to economic needs and to preparing the next generation of academic teachers and leaders (Kataeva & DeYoung, 2018).

However, unlike some of its former sister republics, Tajikistan's HE and research system did not have a history extending back prior to Soviet rule. Whilst a tradition of higher learning in the territory now known as Tajikistan can be traced back centuries (Nazarov, 2011), it was only in the twentieth century that a system to organize and govern education and science emerged and rapidly institutionalized. The first HEI opened in 1931, the first university in 1947, and the Tajik branch of the Academy of Sciences was founded in 1951 (DeYoung et al., 2018). This relatively recent establishment of formalized structures for teaching and research is an important consideration in understanding the subsequent trajectory of research in Tajikistan.

This chapter traces how research in Tajikistan has developed in the three decades since independence. Whereas the main thrust of this book is on research capacity in universities, in the case of Tajikistan it is also important to include the Academy of Sciences alongside HEIs in recognition of its continued role in driving the country's research agenda. In the immediate period following independence, the country was beset by civil

[2] Comparable to the USSR-wide rates, where 33% of researchers had a Candidate of Sciences and 3% had a Doctor of Sciences.

war between 1992 and 1997, as a result of which there was little change in the research functions of HEIs (Nazarov, 2011; Kataeva & DeYoung, 2018). Coupled with the aftermath of an economic crisis resulting from the collapse of the Soviet Union, the 1990s saw the outflow of a large number of established academics from the system; physical destruction of some of the education infrastructure; and serious under-funding across all aspects of HE (Juraeva, 2008).

As the effects of war subsided, reform efforts in HE have focussed on restoring the hallmarks of the highly regarded Soviet-era education system whilst delineating a Tajik national education system that was also internationalized and part of the global research community (Nazarov, 2011). However, an external study of the Tajik HE sector in 2014 noted that 'Tajik HEIs are not engaged in research since research has traditionally been conducted primarily by Academy of Sciences, with little linkage with the former' (World Bank, 2014, p. 82). This picture is not entirely correct: this chapter shows that the Tajik government and HEIs have adopted the language of research and provided guidance to academics on doing research; and academics are able to set a research agenda and take up opportunities to do research. However, this research mission has not yet been internalized at institutional level, and research in Tajikistan continues to be concentrated in the Academy of Sciences. The development of a research mission in universities is further constrained by the heavily politicized and increasingly authoritarian environment that characterizes the contemporary education and research system in Tajikistan (Sabzalieva, 2020).

Methodology

This chapter draws from policy document analysis, literature by Tajik academics, and interviews with researchers working in Tajikistani HE in the 2010s. Interviews were particularly helpful in filling the ongoing gaps in the overall body of literature and publicly available data on Tajikistan. Policy documents included laws relating to education, science, and research as well as government directives and pronouncements. Literature by Tajik academics came from books and journals published in English

and Russian languages by teachers, researchers, and scholars with first-hand experience of the country's HE and research infrastructure.

Seven semi-structured interviews were conducted by phone and telecommunications applications (Skype and WhatsApp) between December 2019 and March 2020. The interviewees were primarily working in universities in Tajikistan (6/7); one interviewee is a senior researcher at the Academy of Sciences. Of those working in universities, most had 20 or more years of experience in HE (4/6). Three of the respondents are female and four are male; five were based in the capital city Dushanbe and two in the northern city of Khujand. Most of the interviewees (5/7) had leadership experience at their institution, for example, as Head of Department or Vice-Dean/Deputy Director for Research/Science. Six of the interviews were in Russian and one was in English. Quotes and written sources originally in Russian have been translated into English by the author.

The Policy Landscape for HE and Research

Despite the 1992–1997 civil war and the economic crisis, the Tajik state maintained some basic activities related to HE and research in the early years of independence. The 1993 Law on Education establishes the structure, activities, and governance of the education system (Government of Tajikistan, 1993). The first government science and technology policy defines terms such as basic research and applied research and specifies that research can be conducted by students and faculty/staff by creating 'scientific and educational complexes' at universities as well as at the Academy of Sciences and government ministries with research responsibilities (Government of Tajikistan, 1998).

Regulations governing state accreditation of scientific organizations, which are still in force, aim to ensure ongoing improvements to the quality of research as well the preparedness of academic staff through monitoring and reporting (Government of the Republic of Tajikistan, 2000). In addition, a policy specifically targeted at research development was the establishment of Presidential Fund for Basic Research (Government of Tajikistan, 1996). The Fund, which still operates, is financed primarily by

the state and provides targeted funding for basic research in order to support innovation and stimulate economic development.

More pro-active efforts at shaping the national HE and research system emerged since the 2000s. The National Concept of Education adopted in 2002 was the first government strategy for education and it underlines the importance of fundamental research as well as the need to integrate science with teaching and industry (Government of Tajikistan, 2002). By the end of the 2000s, over 150 legislative and regulatory acts had been approved by the government (Government of Tajikistan, 2003, 2009, 2013; Ministry of Education, Republic of Tajikistan, 2005; Nazarov, 2011). However, at the same time, the state has continued to closely manage and control research, creating a political situation that 'places significant constraints on academic freedom and the environment in which research can be done' (Sabzalieva, 2020, p. 109).

The guiding principle underlying HEIs' role in research has been the integration of research into teaching through the 'elaboration of theoretical and applied problems; preparation of textbooks and manuals; training of high-skilled staff; and conducting scientific and methodical research' (Brunner & Tillett, 2007, p. 152). By this time, the Ministry of Education and Science (MoES) had set out a series of requirements for research in HEIs to be measured largely by quantitative indicators such as number of publications, number of defended theses, involvement of students in research, and number of conference papers presented (ibid.). HEIs complete annual reports on these indicators, which are evaluated as part of the state's accreditation process. Since 2019, accreditation has been undertaken in conjunction with the Kazakhstan-based Independent Agency for Accreditation and Rankings (Avesta, 2019).

Nevertheless, the Education Development Strategy to 2020[3] observed that 'HE is weakly integrated with scientific [research] activity in the Republic, which negatively affects the quality of training and also decreases the potential to develop scientific research' (Government of Tajikistan, 2012, p. 17). The country's National Development Strategy to 2030 identified an additional barrier in the ageing research and development workforce (Government of Tajikistan, 2016), which

[3] At the time of writing, a post-2020 version of the strategy had not been finalized.

elsewhere a government agency has called a 'disastrous generation gap' (National Patent Information Centre, 2017, p. 18). The implication of the generation gap is that not enough emerging scientists are coming through the research pipeline—fewer than 20% of the country's Candidate of Science holders are aged under 35 (ibid.).

The government has a declared strategy to increase research capacity in universities as part of three declared areas of reform: modernization of the content of education, greater integration of HEIs and research institutes as well as teaching and research functions in HE, and achieving access to quality education (Government of Tajikistan, 2012). The National Development Strategy envisages change occurring through the creation of clusters combining research, teaching, and industry in priority economic sectors, which are identified as agriculture, energy, and transport (Ministry of Education, Republic of Tajikistan, 2005, p. 45). In this context, laws have been passed on science parks (2011), innovation (2012), a new science and technology policy (2015), strategies for the development of innovation (2015–2020), intellectual property (2014–2020), programmes on developing the country's intellectual potential and property (2012–2020), state funding for entrepreneurship (2012–2020), developing innovation (2011–2020), a national research concept on issues relating to human development, and the continued development of democratic principles and civil society (2013–2028) (Innovative Cooperation, n.d.; Government of Tajikistan, 2015; Government of the Republic of Tajikistan, 2013).

Other post-2010 reforms include the opening of a national Higher Attestation Committee in 2011, ending the previous reliance on Russia for accreditation of doctoral degrees and therefore taking greater ownership of the system and pipeline of researcher formation. A major World Bank grant (World Bank, 2019) has led to the adoption of European Bologna Process principles, which includes greater integration between the formerly deeply separated system of teaching and research. A late 2019 presidential directive sets out a long-term vision for the development of natural sciences and mathematics in Tajikistan (Firuz et al., 2019), which is likely to lead to new avenues for postgraduate training as well as funding for research projects in HEIs.

Researchers' Views on the 'Crisis' in Science

Despite the number of policies and directives on education, the lived experiences of researchers illustrate that actual change on the ground was slow to arrive during the 1990s and 2000s, if indeed it was forthcoming. This section uses literature by Tajik researchers and scientists to highlight some of the challenges they identified (and, in many cases, experienced first-hand). The scientific community had been hit hard by the impact of the 1990s and had suffered from major brain drain with the outflow of qualified researchers (Nazarov, 2011). The capacity for research was further weakened because of a 'dearth of reliable and valid data due to the underdeveloped research tradition, the lack of research facilities, critical scholarship and the confidence to share research data' (Niyozov & Bahry, 2006, p. 212).

The underdevelopment of research was seen to be the result of Soviet centralization on the one hand, meaning that advanced research took place mainly in the centre (Moscow) and was merely replicated in peripheral Tajikistan. On the other hand, this was also seen to be related to the overtly politicized nature of Soviet-era scholarship (Niyozov & Bahry, 2006). A Tajik philosopher and academic who co-created a major long-term research project to reform the humanities curriculum that began in 1998 further identified 'a weak desire [in academia] to integrate new knowledge' (Jonboboev, 2010, p. 13). Interest in change was low despite the involvement of a team of local experts that accounted for 'indigenous traditions of Central Asia … with some modern innovations' (16). The barriers to change were the continuing central organization of HE, which limited choice for students, and the pre-existing ideological framework: 'the majority of research is still being conducted by application of Marxist-Leninist methods' (ibid., p. 17).

Whilst the government's efforts to reform education attempted to modernize the system, this has been criticized as '"catch-up" modernization, the uncritical copying of the Western [European] system of education' (Nazarov, 2011, p. 281). Attempting to 'catch up' during a period of intensifying globalization placed Tajikistani education and science—and the country as a whole—at risk, leading it to be 'constantly under

threat of being ousted to the global periphery' (Nazarov, 2011, p. 278). In his 2012 book *Games in Science*, a leading philosopher detailed what he called a 'deep crisis' in science (Navruzov, 2012, p. 9). He put this down to multiple factors, including a lack of coordination between research institutes, poor-quality training for researchers, low levels of adaptation to the needs of research in a market economy and related idealization of the past, and the continued outflow of qualified researchers from the profession because of 'poverty, the market economy and political careerism' (ibid., p. 13).

The crisis identified by Navruzov and described by others appears to have persisted. Contemporary issues faced by universities include 'meeting international standards in research and teaching' (Kataeva & DeYoung, 2018, p. 252) that stem from government control and limited institutional autonomy, the inherited institutional culture, universities having few incentives and little power to stimulate research productivity, and scarcity of public funding. The lack of funding is also highlighted by Jonbekova (2015), who cites a faculty member: 'even if salaries were increased, I wouldn't have stayed, as conditions for teaching were poor, and due to a shortage of resources, we could not undertake research' (ibid., p. 176). In an essay that is otherwise strongly pro-government, the Head of the Social Issues Analysis Department of the Centre for Strategic Research (a government agency) nevertheless notes that 'Tajik science [research] is today facing a serious financial and spiritual crisis. Having long ago lost its true mission of producing new knowledge and its leading potential in socio-economic and cultural-political life, it has turned into a barren industry' (Kurbonov, 2019).

Research Policies and Practices in Tajikistan's HEIs

This section turns to the findings from the interviews undertaken for this chapter with current faculty members in Tajikistan to uncover contemporary practices in HEIs as they relate to research.

Governance and Organization of Research

All domestically operated HEIs in Tajikistan continue to be state (publicly funded) organizations; respondents suggested that research is organized similarly across the system, with differences arising linked to the function of each HEI. Specialized HEIs often operate in fields that lend themselves more to applied research than the investigation of basic research, which are mainly taken up at the Academy of Sciences. There is also some variation based on institutional differentiation. The introduction of 'state national university' in 1997, later 'national university' status in 2008 (President of the Republic of Tajikistan, 2008), afforded autonomy and self-governance to Tajik State (now National) University, the country's flagship university. This status brought more funding for the university, which came directly from the state budget (DeYoung et al., 2018). At the time of writing, national university status had not been extended to any other HEIs.

HEIs have a governance structure for research that is usually headed by a Pro (Vice)-Rector for Research (or Research and Innovation); each department has a Deputy Dean for Research (and Innovation) whose responsibilities include overseeing and evaluating research activities and organizing conferences and other research-related events in the department. HEIs are governed by a Charter that lays out the functions and aims of each HEI and which is signed off by the MoES. For example, one of the main functions laid out in the Charter of the Technological University of Tajikistan is to 'undertake theoretical and practical research in various areas of science' (point 18), which should take place in conditions of autonomy and academic freedom (section 3). The Charter explains that research is based on a 'thematic plan' that is approved by the Academic Council (point 94) (Technological University of Tajikistan, 2019).

These thematic plans set the overall direction for research activity from which departments will work on an annual research theme that relates to the overall institutional plan. As such, the themes in departmental plans are fairly generic. The departmental workplan and research topic then feeds into the annual workplans for individual academics. This allocates

a set number of hours to which the faculty member should devote to activities such as teaching, research, pastoral and supervisory responsibilities, conferences/seminars, and community engagement. The workplan also contains planned outputs for the year, for example, the number of articles to be published or conference papers to be presented. Faculty members are required to report on their progress during the year and in an end of year report. In the late 2010s, the government introduced a points-based system for assessing faculty research productivity. This requires faculty to provide proof of their accomplishments, and also offers a financial incentive for certain activities such as publishing in an internationally indexed publication.

For the most part, faculty undertake research in their current areas of specialization (with adjustments made as necessary to fit the year's topic), although it was noted that the government will occasionally intervene by requesting research on certain topics. Topics of such state-commissioned studies have included anti-terrorism and major holidays/events that support national identity development. This may be done directly by commissioning research or indirectly through, for example, topics highlighted by the president or government officials in speeches. Sometimes faculty members will try to pre-empt research that is seen to be of interest for the government: one respondent explained that this had led to a high quantity of research on Tajikistan's independence and the country's constitution.

Funding for Research

Research is funded primarily by the government, although income from student fees supports expenditure for self-funded universities, a model introduced in the 2009 Law on HE (Government of Tajikistan, 2009). A small number of the 39 HEIs in Tajikistan had transitioned to this self-funded model at the time of writing including Tajik National University and Tajik State University of Commerce. As described by respondents, self-funded universities are all still considered to be state organizations, but do not receive any core financial support from the government. With minimal funding from grants and donations, this means self-funded

universities are reliant on student fees. The main advantages of being self-funded according to respondents are the ability to set student numbers and fee rates as well as flexibility in allocating expenditure, which usually means a pay increase for faculty members. Other HEIs are constrained by government rules which involve a transfer of some of the income from student fees to the government as well as a firm cap of 50% of total expenditure on salaries.

Although it was noted that core financing for research has improved over the past 20 years, it was also felt that funding was still insufficient to advance in some areas. This is confirmed by an external study that found that 'while the Law on HE defines that research is integral to an institution's accreditation, research at HEIs is typically under-financed primarily because research is conducted by the Academy of Sciences, which are separate institutions' (World Bank, 2014, p. vi). A respondent at one of the leading technological universities noted that a science park and other research-related infrastructure have been developed, but also relayed that undertaking basic research at that university was hindered by the lack of laboratory facilities. Another respondent conveyed how a colleague had to rely on old equipment to carry out their research on crystals, which was not only time-consuming but ineffective as the outdated equipment does not generate consistent results. Respondents also noted that there was little active institutional support for research (e.g. assistance with grant writing, fieldwork funding) although when individual researchers were able to secure outside funding, it was welcomed by HEI leaders.

Tajikistan does not have a national Research Council or similar structure that manages large-scale, consistent, and/or competitive funding for research. There are, as noted earlier in the chapter, some special funds for research although respondents did not say that this was a large or significant source of research funding. Government grants have typically been less than US $5000, 'which is insufficient to result in impactful research' (World Bank, 2014, p. 54). The main additional source of large-scale funding for research in recent years has come from a major World Bank loan and grant to Tajikistan for HE, prior to which there was 'no special allocation [of government funding] for such major functions of HEIs as research' (World Bank, 2014, p. 26).

Researchers planning to apply for research grants from other sources must first seek the approval of the MoES and may only proceed having received a letter of permission. One respondent explained that they had waited for two months for approval from the MoES to undertake research in universities for a project funded by an international organization. The issue had eventually been resolved, but only after the minister that had been holding up the project was removed from their post for unrelated reasons as part of a government reshuffle. One respondent suggested that corruption—specifically, the desire of government officials to receive a share of funding from international grants—was behind the lack of state support for research.

Identifying the Next Generation of Researchers

A key strategy raised by the majority of respondents as relevant to the development of research capacity was the identification and training of the next generation of researchers. A major shift in the Tajik education system was the introduction of European-style Bachelor's, Master's, and PhD degrees, which are in the process of replacing the Soviet-era five year Specialist and postgraduate Candidate of Sciences degrees. Not only has this led to major structural change in HEIs, but it has also increased the possibilities of integrating research into the curriculum. All students now undertake research work, whether at the level of an undergraduate essay or by obtaining experience of publishing in journals, which is a requirement for both Master's and PhD degrees.

Youth also have extra-curricular opportunities to engage in research, whether through a student society or by participating in competitions. The MoES organizes a number of these competitions, including the annual 'The student and progress in science and technology' contest. One respondent noted that the winner of one of these competitions had gone on to become a lecturer in the same department, an indication of the prestige of the contests as well as their utility in identifying future researchers. The Academy of Sciences also offers annual prizes and diplomas to student scientists, partly under the remit of its standing Council of Young Scientists and partly as a recruitment strategy for the new

postgraduate degrees that the Academy now also offers. State-funded places on Academy of Sciences Master's degrees are offered to students who rank first or second in Academy-organized competitions as well as those who complete high school with top grades (the 'Red Diploma'). The Academy of Sciences also aims to engage young people in science by inviting students to lectures and conferences and offering opportunities to publish in Academy journals/conference proceedings.

Although some respondents had concerns about the ways in which the new degree system has been introduced, there was consensus that the Master's degrees were creating new opportunities for students with the interest and potential to continue to train in research. One respondent said that the increased support for students to continue to postgraduate study was one of the main achievements in research in Tajikistan. At the Academy of Sciences, increased demand for the Master's degrees has led to there being two or three applicants for each place, whereas in previous years it was hard to fill the vacancies. It was felt that this reflected growing interest in science in the population as a whole.

There was less optimism amongst respondents in relation to the PhD, offered as an alternative to the Candidate of Sciences since the mid-2010s. The requirements for the PhD are demanding: a monograph-length thesis pursuing an original research question must be completed within three years, and students must publish a minimum of three articles in VAK[4] indexed journals and a minimum of two articles in international journals within three years. Rather than raising the bar for future researchers, these challenging obligations were seen by respondents as having led to a drop in quality. Many HEIs now expect faculty without a PhD to obtain one within a relatively short space of time. The opportunity to transition to the upgraded status of National University is opening up and one of the requirements is that at least 50% of faculty must have a PhD/Candidate of Sciences. However, current rates are nearer 25%, partly explaining the growth in demand for doctoral level study. This has

[4] VAK is the Russian language abbreviation used widely in former Soviet academic systems for the Higher Accreditation Commission, the government agency responsible for awarding postgraduate degrees. According to one respondent, there are currently only three VAK-accredited journals in Tajikistan, published by the Academy of Sciences, Pedagogical University, and the Russian-Tajik Slavonic University.

led to a boom in the number of publications and theses, widely seen to be at the expense of quality. Furthermore, the creation of the Tajik VAK in 2011 was seen to be of much lower quality than the Russian version that was previously used to assess thesis work.

Publish, Publish, Publish

According to one respondent, the new publication requirements for Master's and PhD students are partly responsible for the surge in the number of publications. This respondent had commissioned an analysis of publications at their HEI since 2012, finding that the number increased by 20–30% in less than eight years and by as much as 50% in some fields. The points-based system for assessing faculty productivity has also spurred both the requirement to publish as well as the quantity of publications being produced. More points are awarded for publishing in prestigious journals (those considered to be international and those indexed by the Russian VAK). Unsurprisingly, the pressure to publish was connected by respondents to a decline in originality, particularly for early career researchers. One respondent explained how the government also recognizes this problem and has instructed all HEIs to carry out anti-plagiarism training.

Many HEIs in Tajikistan publish their own journals which are less prestigious than those indexed by a VAK or an international journal, but still considered viable outlets. However, one respondent pointed out that these journals are hard to access as they are not published online, inevitably shrinking their readership potential. Even when articles are published online and are not plagiarized, a respondent noted that Tajikistan's relative isolation from international academic communities can lead to articles lacking innovation in, for example, applying different theories or combining theory with empirical studies. Another side effect of the push to publish has been an increase in the number of conferences organized by HEIs, which are an opportunity to publish proceedings as well as to increase prestige by inviting international delegates to participate. Some respondents saw conferences as a means of community building between universities in Tajikistan, although others were less convinced that

HEI-to-HEI coordination has improved. Respondents also explained how conferences provide opportunities to share research with the local business community.

Supporting National Economic Development, Reaching Out Internationally

Respondents discussed how research was often connected to the main issues facing Tajikistan. Most of the examples given were connected to the Academy of Sciences, rather than HEIs. Agricultural research was identified as a priority area, with multiple examples provided by respondents of research in this field. These included projects such as a food safety laboratory opened at the Institute of Botany, Physiology and Plants (part of the Academy of Sciences) in 2019 with Chinese partners, research done by the Centre for Biology and Medicine (also part of the Academy of Sciences) on medicinal herbs, research on agricultural technology and water usage at a technological university, and research that aims to develop different methods of planting as well as cultivate new types of crops that are better suited to Tajikistan's geography and climate.

One respondent pointed out that research at their HEI—which specializes in commerce—should be relevant for national economic policy. This means focussing research on economic competitiveness, entrepreneurship, and innovation. An example of this in action is the HEI's plan to partner with a local bank to support student learning and research in banking. Another respondent from a technological university also gave examples of research on satellite technology and the use of geographic information systems (GIS), also relevant to economic development. This alignment of HEI research with national priorities is arguably self-reinforcing: even in HEIs that do not have a specific mandate that lends itself to economic development such as commerce or technology, research is often directed towards projects that are thought to be beneficial to the country. This stems in part from researchers' natural inclination to better understand the world and find ways to address existing challenges, but the heavily top-down governance of HE in Tajikistan also leads towards certain choices being made.

HEIs in Tajikistan extend their research impact by engaging in international research collaborations, most of which are with other countries of the former Soviet Union are established using faculty members' pre-existing networks. The number of partnerships has proliferated everywhere, although one respondent noted that of the 200 or so agreements their university has internationally, the number of active partnerships was fewer than ten. The major World Bank project referred to previously has also stimulated new partnerships as part of the project's capacity building mission. Respondents clarified that it was funding provided by the World Bank that facilitated new institutional connections as HEIs are not typically able to self-fund costs such as per diems for visiting international researchers. The main impact of international research collaborations is co-authored publications. Respondents noted that co-authorship facilitates prestige through international publication, whether for the partner through an article in a Tajik journal, or vice versa. Generally speaking, publication is in Russian with most ex-Soviet partners and in English for other international partners.

Conclusion

The severe economic issues that stemmed from the collapse of the Soviet Union and the onset of the civil war in 1992 meant that the first decade of independence was one in which the focus was on day-to-day survival, not the future development of research. As the economic situation has stabilized, the outlook has gradually changed. Respondents agreed that more young people are now interested in a career in research and there are better defined pathways to train future generations of scientists. All HEIs engage in an array of international partnerships, the conditions for research have improved, and funding has increased since the 2000s. Notwithstanding the positively viewed steps that have been taken to enhance HEIs' capacity to undertake research as well as research advances in some fields, there remain a number of challenges for HEI research in Tajikistan.

One of the most critical issues is funding. Researchers in Tajikistan are very dependent on material support to supplement their salaries, fund

international travel, invite partners to Tajikistan, buy equipment, and so on. In universities that rely on tuition fee income, many lecturers have such heavy teaching loads (up to eight hours a day, according to a respondent) that they are unable to find the time or the energy to pursue research. The lack of large-scale national research funding schemes leads researchers to seek out grants from international organizations and HEIs. These call for specific skills that are not yet embedded in all HEIs, and also require navigating the cumbersome MoES bureaucracy.

Interwoven with the challenge of funding is that of the extensive involvement of the government in all aspects of HE. This leads to a highly prescriptive set of responses by HEIs in relation to research: the focus of research is commonly related to national economic goals, the increase in publications is a result of government requirements, and the governance of research is standardized. Academic freedom to pursue research is in principle enshrined in law and documents such as university charters, but in practice is heavily constrained by the practicalities of working within a heavily politicized environment.

It is clear that many changes have taken place, as evidenced both in respondents' testimony and in the number of policies and directives that have been introduced. However, as a respondent pointed out, the foundations of HE have remained in place. The Soviet-era characteristics of university research—its inextricable links to economic development, and central governance and control—are firmly rooted in what has since become the Tajik research model. Although the HE system is now national, it continues to be organized and structured very similarly to the inherited Soviet system. The Academy of Sciences continues to be the central institution for basic research and universities continue to be mainly teaching-centred. Although Tajikistan seeks to emulate international HEI models, it is not yet possible to say that there are research-intensive universities, a model from Western HE systems.

Despite multiple government directives, the research mission in universities has not been internalized. The capacity and the academic freedom at institutional level to carry out this mission are not sufficiently deep, even though individual academics are both willing and well-prepared to do research. The reorganization of postgraduate education may over time alter the ways in which research is approached in HEIs and

shift the orientation of the research system towards international education models. Yet, without deep structural reform and the granting of genuine autonomy to HEIs—both of which will require major political change that does not appear to be on the horizon—research capacity in Tajikistan will remain fettered.

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