A firm foundation for a career in construction

Overhauling TVET for overall socioeconomic benefits

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WORK IN PROGRESS: THE GROWING GLOBAL INFRASTRUCTURE DEMAND

Construction has been – and is poised to be – big business in years to come.

The steady and rapid economic growth and development we are witnessing worldwide is only possible with the right infrastructure in place.

And we have the construction sector to thank for that.

The United Nations has projected the following **global trends by 2050:**

- The global **population will grow** to nearly 10 billion concentrated mainly in emerging and developing countries (EMDCs), with Africa's population alone set to double to 2.5 billion.
- **Global economic growth** will occur mainly in these EMDCs, thus requiring new infrastructure to keep pace with accelerating economic activity and demand for services among a growing global middle class.
- **Two-thirds of the world will live in urban areas** thus requiring more complex infrastructure.
- More investments will be needed for **lower carbon infrastructure technologies**, and new systems to adapt to the impact of climate change.[1]

These numbers alone underscore the significance of the construction sector, the vast and varied long-term employment opportunities it offers, and naturally, the wider socioeconomic benefits for all involved.

Projected investments in infrastructure are no less staggering either.
In 2016, the McKinsey Global Institute stated that by 2030, the world will need to invest about 3.8% of the global GDP – a whopping **annual average of USD 3.3 trillion** – in the core sectors of transport, power, water, and telecommunication to support the growth rates above.[2] Emerging economies, led by Asia, will account for the lion's share of this amount.

[1] Humphrey, Chris; Channelling private investment to infrastructure, ODI, April 2018
https://doi.org/10.3929/ethz-b-000346004
[2] Mc Kinsey Global Institute, Bridging Global Infrastructure Gaps, Full Report, June 2016
www.un.org/pga/71/wp-content/uploads/sites/40/2017/06/Bridging-Global-Infrastructure-Gaps-Full-report-June-2016.pdf

GLOBAL TVET: WHY AN OVERHAUL IS VITAL – NOW

These investments however come with two interconnected preconditions: a fully-functioning, state-of-the-art construction sector and a suitably skilled workforce.

And therein lies the hurdle: Turner and Townsend's International Construction Market Survey 2019 highlights how "two-thirds of worldwide construction markets are reporting skills shortages."[3]

Although unskilled daily labourers are generally open to working on construction sites, that isn't often the case with engineering students or trainees. The demanding (and sometimes risky) work conditions, the perceived "inferior status" of working in construction, or even a general reluctance in accepting trained and willing female staff (<10%) further exacerbate the issue.

Most significantly, **many global TVET systems still practice school-based theoretical vocational education using outdated curricula, and do not offer hands-on training**. This has churned out graduates who fail to meet actual workplace requirements nor have a feel for the nitty-gritty of work on actual construction sites.

It goes without saying that governments and the private sector need to jointly cultivate cutting edge TVET systems. Many countries have been striving to reform their TVET systems by incorporating more employment relevant training, like implementing dual training or competency-based training (CBT). However, this requires time and vast investments into overhauling current national TVET infrastructure and human capacities.

[3] www.turnerandtownsend.com, November 2020

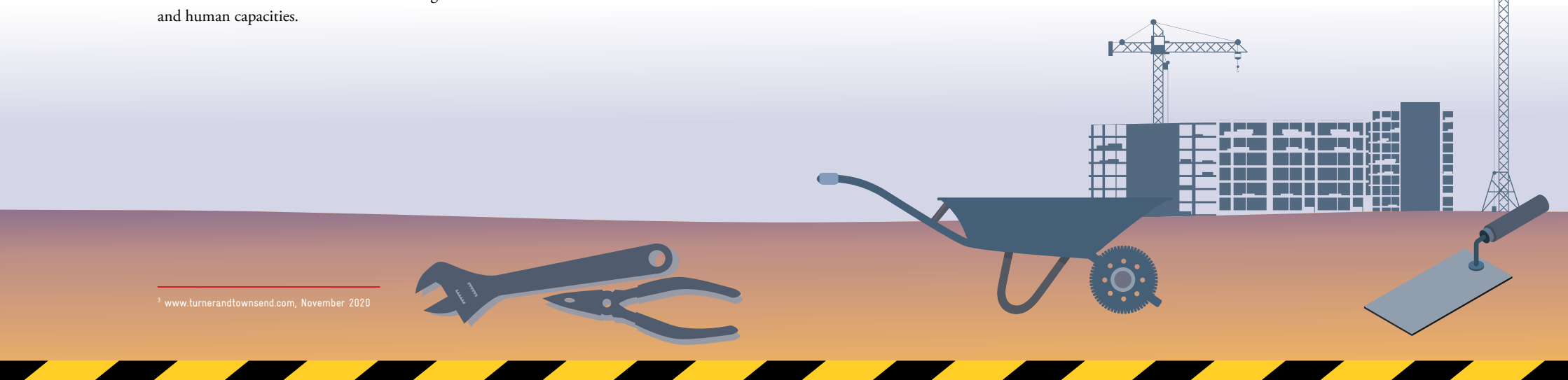
ENTER BUILD4SKILLS

In 2018, the German Federal Ministry for Economic Cooperation and Development (BMZ) and the Asian Development Bank (ADB) jointly set up the global Build4Skills project, selecting Mongolia and Pakistan as implementing countries.

Build4Skills operates on a simple yet practical premise: why not utilise the untapped potential of ongoing infrastructure projects to train TVET students on-site? Workplace-based and nationally accredited training on the construction sites of infrastructure projects won't only enhance the employability of the local workforce but improve TVET graduates' prospects for securing decent work and higher incomes. **The long-term aim is to make TVET a prerequisite in tendering processes for infrastructure projects – akin to social and environmental standards.**

In this matter, Build4Skills has indeed made inroads in Pakistan. **ADB and Build4Skills agreed to make training of prospective employees a criterion for the participation in selected tenders.**

Build4Skills is also addressing the gender imbalance in the construction sector by working with Siemens Pakistan in placing female trainees within the company for short-term training. It's also working on revising teaching and learning materials and sensitising TVET teaching staff to the importance of inclusive gender perspectives in the sector.



PARTNERING WITH MDBs TO POWER INFRASTRUCTURE

Development banks have been financing global basic infrastructure for decades. Despite declining quotas, they have still set up major investment programmes for supra-regional infrastructure. In 2016, direct financial commitments to physical infrastructure projects represented a **total of USD 39 billion or 34% of total commitments by the World Bank Group and major regional Multilateral Development Banks (MDB).**

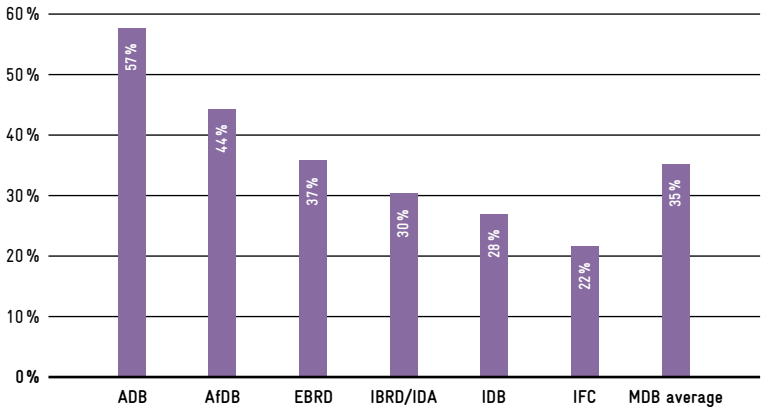


Figure 1: Percentage of global MDB investments going into physical infrastructure
Source: MDB Annual Reports 2016

In Asia, the **ADB** is the main investor in infrastructure projects. It estimates demand for investments in infrastructure in Asia – including climate change mitigation measures – to be **USD 1.7 trillion per year until 2030**. To this end, the ADB scaled up its annual loan and grant approvals to **USD 20 billion** in 2020.[4]

For the African Development Bank (AfDB), infrastructure and urban development project approvals have risen yearly and accounted for 21% of the bank's total portfolio in 2018, when it committed USD 1.9 billion to 19 new projects throughout Africa. AfDB's full infrastructure portfolio totals **USD 15.4 billion**.[5]

[4] ADB, Meeting Asia's Infrastructure Needs, 2017
www.adb.org/publications/asia-infrastructure-needs
[5] AfDB, Infrastructure and Urban Development Department - Annual Report 2018
www.afdb.org/en/documents/document/infrastructure-and-urbandevelopment-department-annual-report-2018-109284

Given its economic growth, the government of **Pakistan is planning extensive infrastructure expansion programmes that includes building five million new houses by 2023.** Amongst several incentives, it is offering tax rebates of up to 90% to attract private investors and contractors to get involved in social infrastructure projects.[6]

Its Federal Medium Term Development Framework (MTDF) has also **allocated USD 36 billion to upgrade roads, railways, electricity and water services, and irrigation.**

Other projects in the pipeline include infrastructure investments for rapid urbanisation at provincial and lower levels, the National Trade Corridor Improvement Programme (NTCIP), the construction of large water reservoirs, and the new Islamabad Airport amongst others.

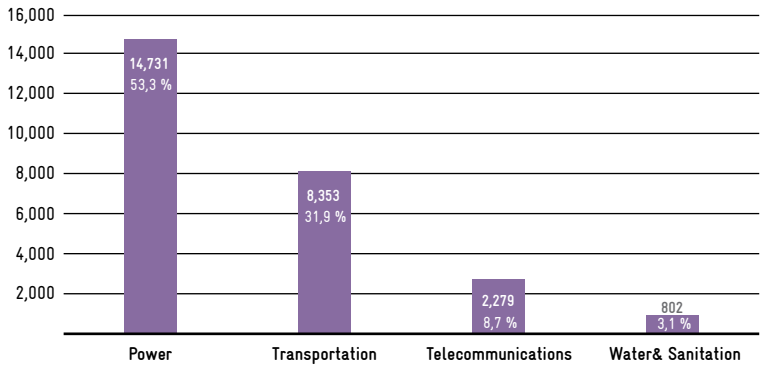


Figure 2: Infrastructure investment needs by sector in Asia, 2016-2030 (USD billion, 2015 prices)
Source: Presentation by Declan Magee ADB Senior Country Economist for Mongolia, 2017

[6] Pakistan Gulf Economist, 20 Jan 2020, available at:
https://www.pakistangulfeconomist.com/2020/01/20/seriousness-of-construction-industrysgrowth-in-pakistan/

PAKISTAN'S CONSTRUCTION SECTOR: AN OVERVIEW

The construction sector is **Pakistan's second largest employer** after the agricultural sector. It employs 7.3% of the total labour force or **4.46 million people – the majority of whom are non-formally trained, unskilled workers.**

While the sector has always been economically and socially significant to the country, the **vicious cycle of a neglected TVET system, the lack of skilled workers, and the absence of private sector engagement** has affected its evolution since the 1970s.

While the Provincial and Central Works Departments engaged contractors to carry out public sector construction, entrepreneurs constructed private residences mostly with the help of semi-skilled workers. Eventually builders and developers began forming associations such as the "Association of Builders and Developers" (ABAD). However, their attempts to improve the sector were long hampered scant political attention, and their own members' limited capabilities. Despite efforts to upgrade local contractors' management and technical skills with the help of foreign advisors and national training programmes, the Pakistani construction sector remained largely inert, with nearly all major projects being executed by foreign firms until the 1990s.[7]

Today though, the infrastructure, housing and building sectors have been forecasted to become the backbone of Pakistan's economy and development, with the government declaring the construction sector an "industry" in April 2020.[8]

Diverse studies have stated however that the sector is far from ready to execute or manage Pakistan's planned investment programmes. There are neither properly trained and skilled workers, nor an appreciation for occupational health and safety (OHS) and project management in general.[9] And while diverse private companies do offer staff training, there is no centralised structure for ensure quality and measure outcomes.

[7] Zahoor, Hafiz et.al., An analytical Review of Occupational Safety research, 2016, available at: https://www.academia.edu/download/53027698/An_Analytical_Review_of_Occupational_Safety_Research_in_Pakistan_Construction_Industry.pdf

[8] Stone News, Press release 2020, available at: https://stonenews.eu/pakistan-construction-sector-hailsgovernments-decision-achieving-status-industry/

[9] Farooqui, R.U.; Ahmed, S. M., Assessment of Pakistani Construction Industry, 2018: Available at: http://journal.cibw117.org/index.php/japiv/article/view/122/121

IDENTIFYING TVET GAPS IN PAKISTAN

Pakistan's TVET system has long been fragmented, disorganised, and marginalised, with the **traditional Ustad-Shagird (master-apprentice) system dominating the sphere of skills acquisition**. The main proportion of Pakistan's labour force – including a growing percentage of women – is employed in the informal economy and trained under this system.

Prevalent mostly in the manufacturing, crafts, trade, and transport sectors, it is based on demonstration, learning by doing, and trial and error. **Without a regulatory framework, formal and contemporary curriculum or even quality assurance, the Ustad-Shagird system sometimes results in exploitative practices such as child labour and long working hours.** Apprentices are hardly exposed to advanced trades or the use of new technologies and processes.

In 2013, the Punjab Skills Development Fund (PSDF) conducted a stakeholders' workshop, at which employers shared that the vast majority of their **new employees were poorly prepared for their jobs.** They underscored how not only the lack of practical work experience hindered recruitment; cross-cutting skills such as OHS awareness, teamwork and communication skills were also lacking.

Very simply, there is a severe mismatch in the demand and supply of both quality and quantity. The formal TVET system only provides TVET capacities for less than 20% of the potential participants. In 2015, 476,850 training places at 3,581 institutes across the country were available for 2.4 million labour market entrants.[9]

There is also the additional deficit of unattractive wages. Small and medium enterprises (SMEs) are the main engines of economic growth in Pakistan but face tough competition from bigger players on the labour market. The Small and Medium Sized Enterprises Development Agency of Pakistan (SMEDA) has stated that salaries in the construction industry vary largely: in 2013 for instance, onsite workers earned between USD 2 and 10 per day, while office employees earned between USD 50 and 1,000 per month.

However, these wages are comparably low in contrast to the wider region. Thus, there has been **high labour migration to neighbouring countries** and regions like the Gulf States where major projects – like the Qatar football World Cup or the Dubai World Expo – are underway. This has further drained the labour market of (especially) qualified staff who face better prospects in more developed markets.

CONSTRUCTION SECTORS FACING QUALIFIED STAFF SHORTAGE IN PAKISTAN:

As climate resilience is slowly becoming a development catchphrase worldwide, more innovative technologies focusing on AI, energy efficiency / climate protection or user convenience are slowly entering Pakistan's construction labour market too.

However, its **current TVET system isn't yet as established or equipped to prepare students for emerging green jobs** and providing them with the necessary green skills and competencies.

Jobs requiring specialised green skills in Pakistan:

- Regenerative energy systems, mainly solar technologies
- Rainwater harvesting and aquifer recharge
- New technologies in HVAC, plumbing, pipe fitting
- Modern scaffolding
- Stone masonry
- Material testing, e.g. for bricks

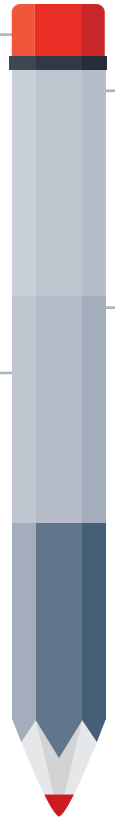
THE ROAD AHEAD: FUTURE PROOFING TVET IN PAKISTAN

The first fundamental innovation in the Pakistani TVET system was the establishment of the Technical Education and Vocational Training Authority (TEVTA) in 1999 in Punjab, followed by other provinces. This agency is primarily responsible for implementing TVET in Pakistan.

Current TVET sub-systems in Pakistan:

Formal vocational training courses
Formal vocational training courses or "Agro-Technical Studies" are offered in lower secondary schools starting from grade five and in selected secondary schools parallel to general school subjects.

Formal post-secondary TVET programmes
called "Technical Education in Pakistan", are offered in over 100 polytechnic institutions and colleges of technology. These three-year diploma programmes offer technical theoretical knowledge and practical skills in over 20 specialisations.



Training Institutes
TVET teacher training in Pakistan is provided by 11 Staff Training Institutes (STIs).

Between 3 months and 1 year
The non-formal sector is mainly run by public autonomous organisations such as vocational schools, technical training centres, or agriculture and vocational training centres. The "apprenticeship system" that was established 1962 is considered part of the non-formal sector of TVET. Vocational institutions offer one-year certificates and two-year diploma courses in various trades. Private providers, SMEs, and welfare organisations offer various skills oriented short-term certified training sessions between 3 months and 1 year.

In April 2010, the five-year TVET Reform Support Programme (RSP) was launched to assist the Pakistani government in implementing its National Skills Strategy 2009-2013 (NSS). This USD 50 million programme was jointly funded by the European Union and the governments of the Netherlands, Norway and Germany. Deutsche Gesellschaft für International Zusammenarbeit (GIZ) GmbH implemented the programme in partnership with the National Vocational and Technical Training Commission (NAVTTC) and in close cooperation with the TEVTAs and the private sector.

It had three main objectives:

- Provide relevant skills for industrial and economic development
- Improve access, equity, and employability
- Assure quality to address the most sensitive issues regarding the TVET system

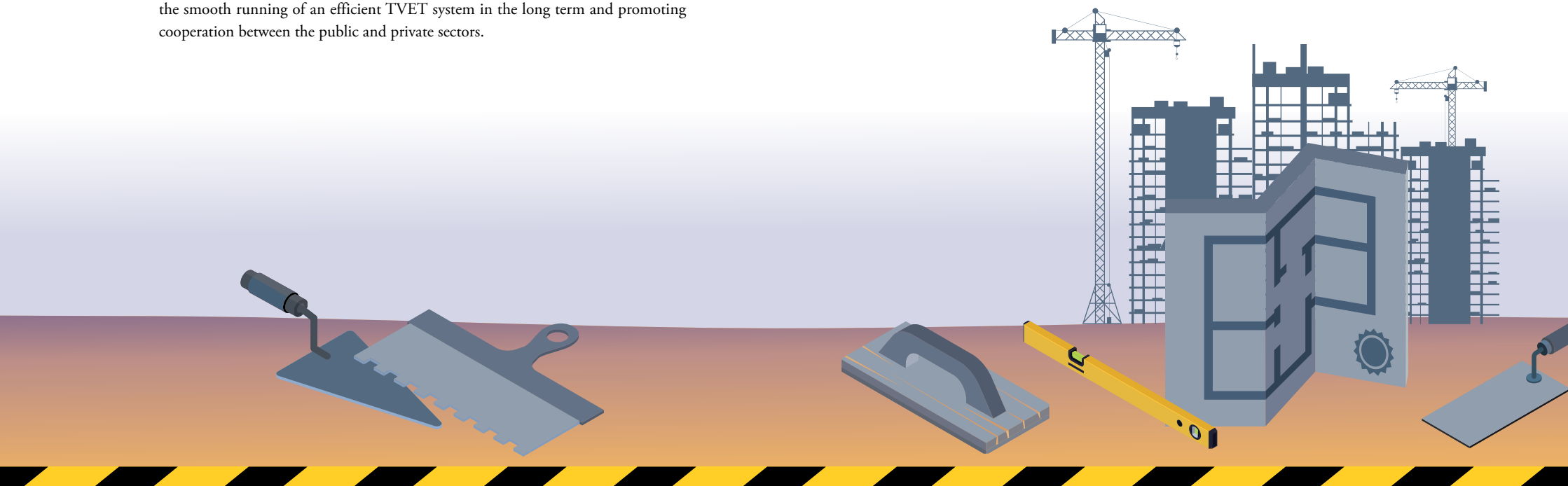
The second phase of the TVET Sector Support Programme which began in January 2017 and which will last another five years will focus among others on the smooth running of an efficient TVET system in the long term and promoting cooperation between the public and private sectors.

Perhaps the most significant reform is the effort to formalise and upgrade the prevalent Ustad Shagird system via "**Recognition of Prior Learning**" (RPL). As part of the Competency Based Training and Assessment (CBT & A) Programme, it applies to a few selected vocational trades nationwide – including HVAC, plumbing, and general electrics.

Since 2017, professionals with informal training could undergo an RPL assessment by the relevant agencies and if successful, they would receive national certificates to improve their access to decent employment.

Meanwhile, some contractors like Gammon Construction Ltd. have begun offering onsite industry training for concrete workers with the promise of retaining the successful ones. This is alongside projects like Build4Skills that continues facilitating on-the-job training in partnership with ADB, national authorities and cooperating enterprises.

Besides underscoring TVET's integral role in the construction sector, all of these efforts point to an indisputable fact: investing in TVET now is investing in the future.



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