

REGIONAL DISPARITIES IN ATHLETE DEVELOPMENT INFRASTRUCTURE WITHIN TAEKWONDO (WT) IN UZBEKISTAN: A DESCRIPTIVE ANALYSIS OF 2022–2025 NATIONAL SELECTION AND COVERAGE DATA

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Annotation

This study provides a descriptive, secondary-data analysis of the territorial distribution of athlete selection, coaching capacity and programme coverage within the Taekwondo (WT) sport in Uzbekistan following Presidential Resolution No. PR–337 (29 July 2022). Using official Taekwondo (WT) Association reporting for 2022–2025 (including regional appendices covering all 14 administrative regions and 208 districts/cities), the study analyses (i) the national dynamics of 493 selection competitions, (ii) the regional distribution of 32,398 athletes and 1,042 coaches, (iii) inter-regional variation in coaching capacity (athlete-to-coach ratio), and (iv) the completeness of district-level programme coverage. Coverage was complete (100%) in 2 of 14 regions (Fergana, Tashkent city) and lowest in Navoiy region (72.7% of districts). The athlete-to-coach ratio varied from 18.8:1 (Jizzakh) to 56.2:1 (Namangan), a coefficient of variation of 27.3% across regions. Twenty-three districts nationally (11.1%), collectively home to an estimated 2,773,628 residents, 1,018 schools and 490,502 pupils, had no operating taekwondo section as of 1 January 2026. The findings identify Navoiy region and Namangan's coaching capacity as priority targets for future development interventions and provide a territorially disaggregated empirical baseline for evaluating the equity of talent-identification infrastructure in a national combat-sport system.

Keywords: taekwondo, talent identification, regional disparity, sports management, coaching capacity, Uzbekistan, district coverage, workforce distribution, combat sports, youth sport development, territorial equity, selection competitions.

Introduction. Talent identification and development (TID) systems are increasingly recognised as central to sustainable performance growth in Olympic combat sports, yet the literature continues to note a lack of consensus on how talent should be

defined and tracked [15], and evidence that early, chronologically anchored selection can narrow rather than widen the developmental pool [10, 11]. A separate but related body of research shows that geographic location is itself an independent determinant of organised sport access: rural and under-resourced areas consistently show lower participation and weaker infrastructure than urban centres, independent of talent supply [9, 8]. Workforce capacity is a further determinant frequently overlooked in TID research: coaching effectiveness depends on integrated professional, interpersonal and intrapersonal knowledge [4], continuing coach education is central to raising coaching standards [5], and a federation's capacity to deliver such development is itself shaped by governmental support and institutional structure [1, 6]. This suggests that the equity of a national TID system cannot be assessed from aggregate national figures alone — it requires disaggregation to the level at which access is actually determined: the region and the district.

In Uzbekistan, the development of taekwondo (WT) has been formalised through Presidential Resolution No. PR–337 of 29 July 2022 [17]. The Taekwondo (WT) Association subsequently reported a nationwide selection and infrastructure programme, and — unlike many administrative sport reports — its most recent reporting (23 December 2025) includes full regional and district-level appendices: athlete and coach counts for each of the 14 regions, together with named executive directors, and a district-by-district audit identifying exactly which of the 208 districts and cities do, and do not, have an operating taekwondo section, along with the population and school-age demographics of the uncovered districts [16]. This level of disaggregation is uncommon in national federation reporting and allows, for the first time in this dataset, a genuine equity analysis of the selection and development system rather than a purely descriptive national summary. This article uses that disaggregated dataset to answer three questions: (1) how evenly is coaching capacity distributed across regions; (2) how complete is district-level programme coverage, and where are the largest gaps; and (3) what is the demographic scale of the population currently outside the organised selection system.

Materials and methods. This is a descriptive, retrospective analysis of secondary administrative data drawn from an official Taekwondo (WT) Association of Uzbekistan report (23 December 2025, covering 2022 to 1 January 2026) and its three statistical appendices [16]: (1) regional athlete and coach counts, disaggregated by sports-institution, club and private-sector training format, for all 14 regions; (2) a district-by-district ($n = 208$) audit of taekwondo section availability within sports schools; and (3) demographic characteristics (mahalla count, population, school count, pupil count) of the 23 districts identified in Appendix 2 as not yet having an operating section. No primary athlete testing was undertaken. Regional programme coverage was computed as the percentage of a region's districts/cities with an operating section. Coaching capacity was expressed as the athlete-to-coach ratio per region. Dispersion across regions was summarised using the population standard deviation and coefficient of variation ($CV = SD / \text{mean} \times 100$); given the small number of administrative units ($n = 14$ regions), no inferential hypothesis testing was performed and all statistics are treated as descriptive.

Results. A total of 493 selection competitions were organised nationally between 2022 and 1 January 2026 (91 in 2022, 114 in 2023, 101 in 2024, and 187 in 2025 — an 85% increase over 2024). These competitions, together with associated organisational measures, coincided with growth of the registered athlete population to 32,398 (20,058 in sports institutions, 12,222 in clubs and private-sector groups, 118 at the specialised Taekwondo Centre) and of the coaching cadre to 1,042 (834 institution-based, 208 club/centre-based), supported by 29 local and 8 international coaching seminars, and of the refereeing cadre to 183 certified referees (163 national, 20 international category) via 38 local and 10 international seminars.

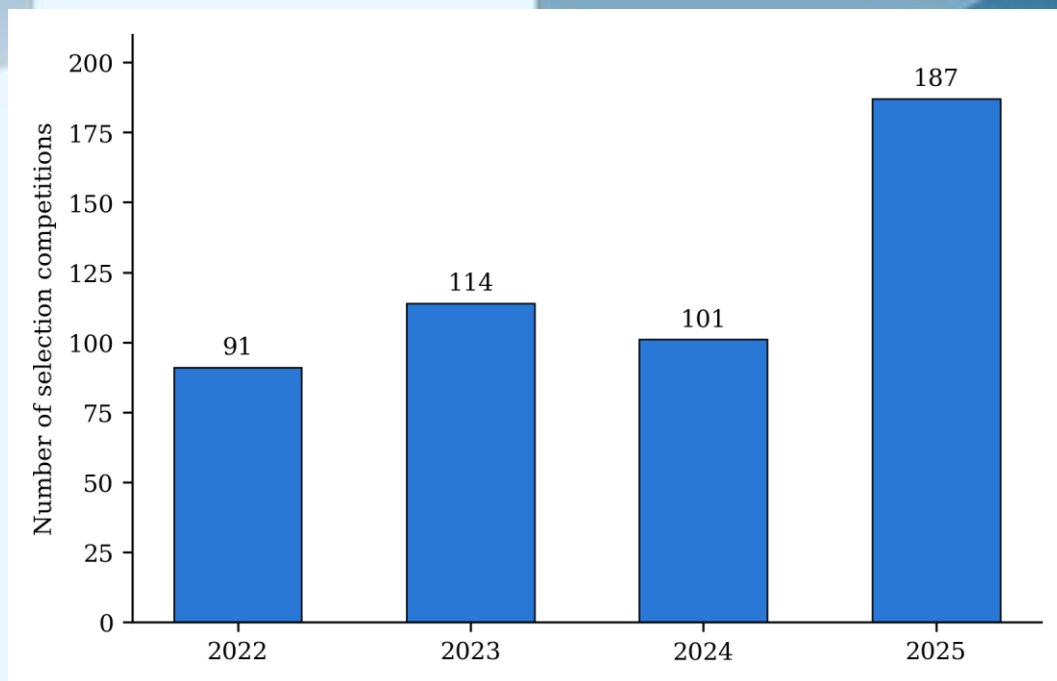


Figure 1. Number of selection competitions by year (2022–2025).

Table 1 presents the regional breakdown of clubs, districts, registered athletes, coaches, and the resulting athlete-to-coach ratio, reconstructed from Appendices 1 and 2 of the source report [16].

Table 1

Region	Districts (total)	Districts (covered)	Athletes	Coaches	Athletes / coach
Karakalpakstan	17	15	1,470	53	27.7
Andijan	16	14	2,568	78	32.9
Bukhara	13	11	2,480	84	29.5
Jizzakh	13	12	2,185	116	18.8
Kashkadarya	16	14	1,468	33	44.5
Navoiy	11	8	1,240	33	37.6
Namangan	14	12	2,698	48	56.2
Samarkand	16	13	2,322	75	31.0
Surkhandarya	15	14	1,958	54	36.3

Syrdarya	11	9	1,202	53	22.7
Tashkent region	22	21	3,770	100	37.7
Fergana	19	19	3,979	126	31.6
Khorezm	13	11	924	31	29.8
Tashkent city	12	12	4,116	158	26.1
National total	208	185	32,398	1,042	31.1

Regional distribution of districts, registered athletes, coaches, and the athlete-to-coach ratio (source: Appendices 1–2 of the Taekwondo (WT) Association report, 23 December 2025 [16]).

The athlete-to-coach ratio ranged from 18.8:1 in Jizzakh region — where the presence of the specialised Taekwondo Centre concentrates additional coaching staff — to 56.2:1 in Namangan region, a threefold difference. Across all 14 regions the mean ratio was 33.0 athletes per coach (population SD = 9.0, CV = 27.3%), indicating substantial relative disparity in coaching capacity that is not visible in the national aggregate figure of 31.1 athletes per coach reported for the country as a whole.

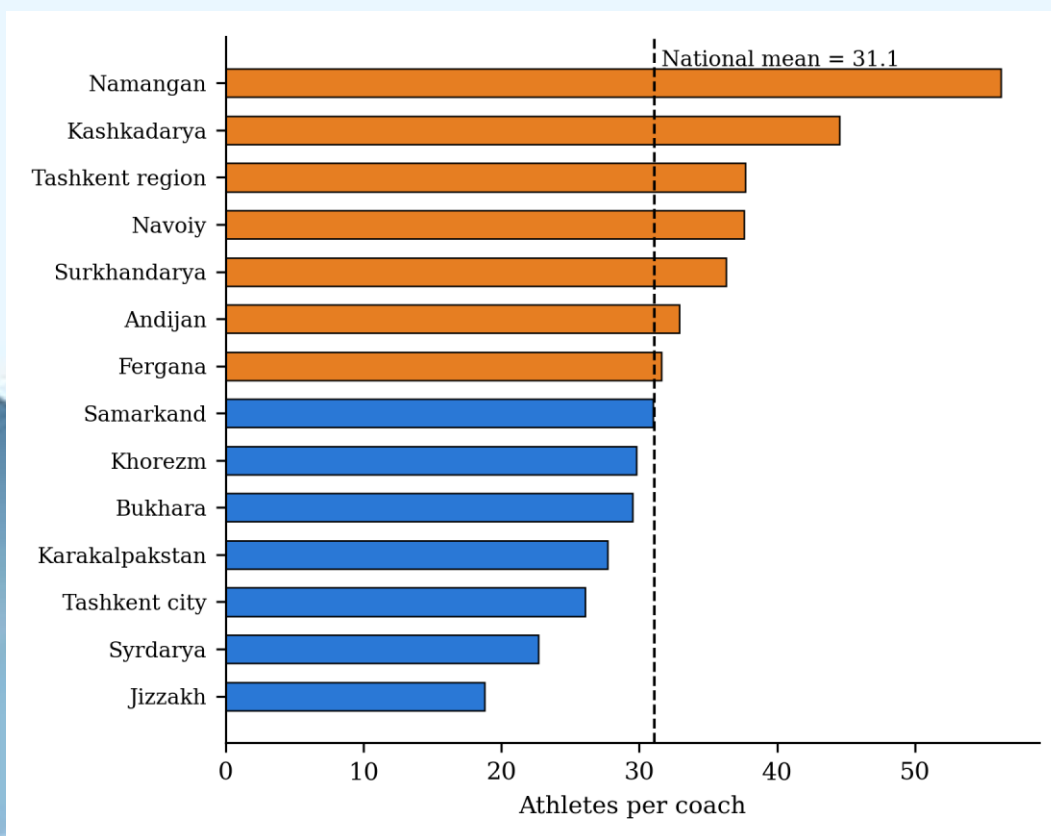


Figure 2. Athlete-to-coach ratio by region (ascending order), with national mean.

Of 208 districts and cities nationally, 185 (88.9%) have an operating taekwondo section within a sports school, while 23 (11.1%) do not. Regional coverage completeness ranged from 72.7% (Navoiy region) to 100% (Fergana and Tashkent city, both fully covered).

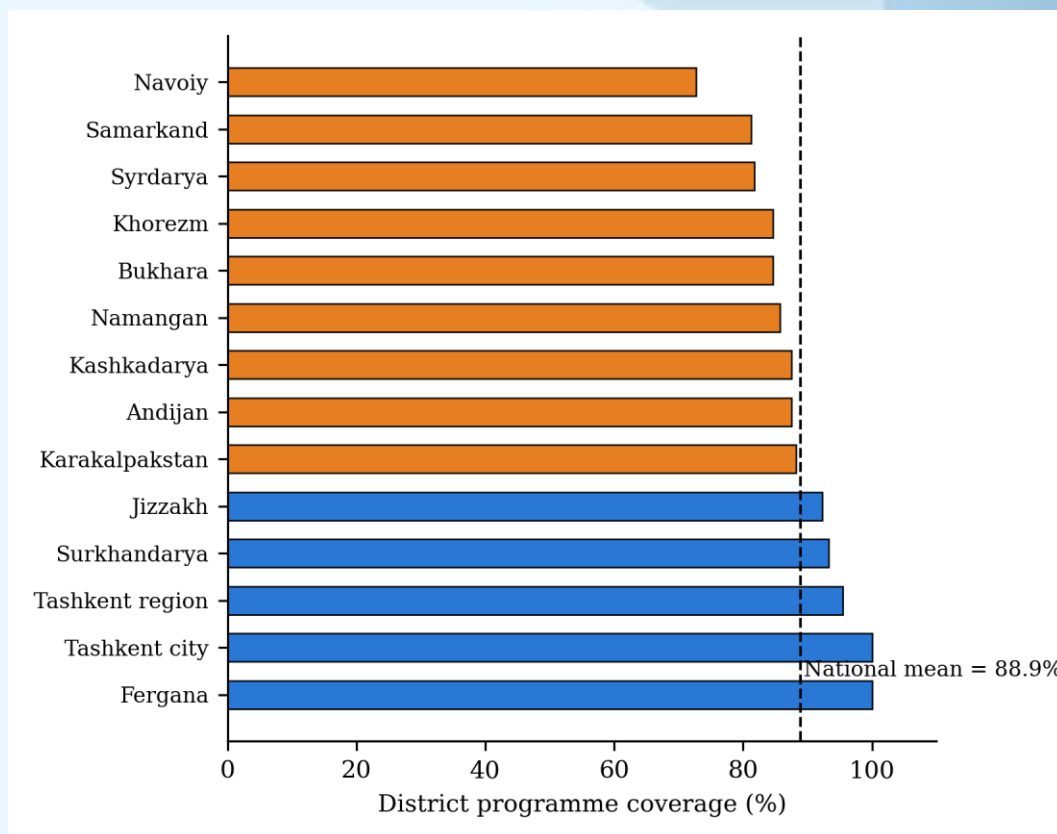


Figure 3. District-level programme coverage rate (%) by region, with national mean.

The 23 districts without an operating section collectively comprise 774 mahallas, an estimated 2,773,628 residents, 1,018 general-education schools and approximately 490,502 pupils. The largest uncovered district, Kattakurgon (Samarkand region), has a reported population of 299,756, while the smallest, Shirin city (Syrdarya region), has a reported population of 19,420.

In 2025, athletes developed within this system won 141 international medals (54 gold, 39 silvers, 48 bronze), including the country's first men's World Championship gold medal in ten years (Wuxi, China) and a first-place team finish in taekwondo at the Islamic Solidarity Games.

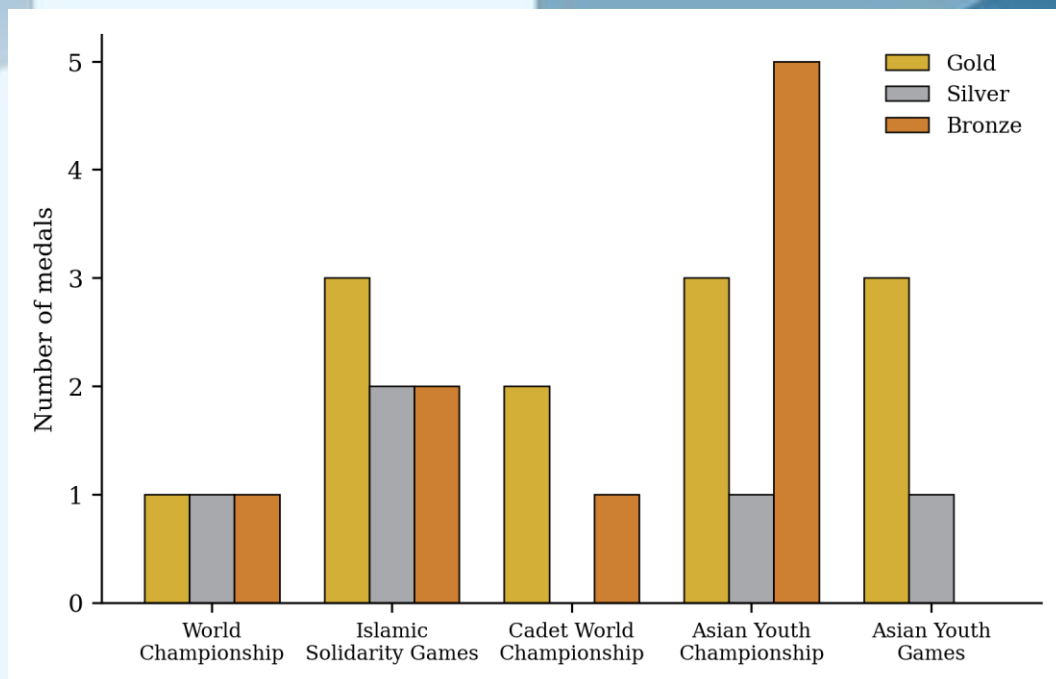


Figure 4. Distribution of medals won at international competitions in 2025.

Discussion. The regional disaggregation shows that national-level figures for taekwondo (WT) development in Uzbekistan mask meaningful inter-regional disparity in both coaching capacity and territorial coverage. A CV of 27.3% in the athlete-to-coach ratio is consistent with the broader finding, in geographically disaggregated sport-participation research, that access to organised sport is unevenly distributed even within jurisdictions that report strong aggregate growth [9, 8]. It also echoes a recurring theme in the international coach-education literature, where continuing professional development is often delivered inconsistently across contexts despite formally centralised programme design [5], and coaching effectiveness itself depends on integrated professional and interpersonal knowledge that is unevenly distributed when coach caseloads vary threefold across regions, as observed here [4]. Combat-sport-specific survey evidence further suggests that coaches themselves rank technical-preparation activities well above administrative and officiating-adjacent duties in importance [12], and community-of-practice approaches documented in other combat and martial arts — such as intergenerational judo coaching programmes [7] — offer a complementary mechanism to formal seminar delivery for building coaching capacity in under-served regions. A parallel evidence base on sport officiating development [13] and on national-federation organisational capacity more broadly [1, 6] suggests that the

taekwondo (WT) governing body's ability to close the identified regional gaps will depend as much on institutional and governmental support structures as on seminar counts alone.

The concentration of low coverage in Navoiy region and of high athlete-to-coach caseloads in Namangan and Kashkadarya suggests that future capacity-building — additional coaching seminars, targeted personnel allocation, or new specialised centres on the Jizzakh model — would have the greatest marginal effect if directed at these specific regions rather than distributed uniformly. The wide range in the demographic scale of uncovered districts (from 19,420 to 299,756 residents) indicates that a uniform national expansion policy is unlikely to be efficient; prioritising districts by combined population and school-age cohort size would concentrate limited new capacity where it reaches the largest unserved population per section established. Consistent with international TID literature [2, 15], the absence of a standardised, criterion-based selection test battery in the reported methodology remains a further limitation independent of the regional coverage question. This analysis is limited to descriptive statistics on officially reported administrative data; the small number of administrative units (14 regions) precludes formal inferential statistical testing, and the data do not permit tracking of individual athletes from selection through to international results, limiting causal interpretation of the relationship between regional infrastructure and the national medal outcomes reported above.

Conclusion. Between 2022 and 2025, Uzbekistan's taekwondo (WT) selection and development system grew substantially at the national level, but regional disaggregation reveals a 27.3% coefficient of variation in coaching capacity and an 11.1% national district-coverage gap concentrated disproportionately in Navoiy region. Three priorities follow directly from the disaggregated data: (1) targeted coach recruitment and seminar allocation to Namangan, Kashkadarya and Tashkent region, where athlete-to-coach ratios exceed the national mean by 20% or more; (2) phased extension of section coverage into the 23 uncovered districts, prioritised by population and school-age cohort size; and (3) development of a longitudinal, athlete-level tracking dataset linking regional selection-stage indicators to

subsequent competitive outcomes, allowing the equity findings presented here to be connected causally to performance outcomes in future research.

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