INTERNATIONAL JOURNAL OF RESEARCH CULTURE SOCIETY ISSN: 2456-6683 Volume - 3, Issue - 10, Oct – 2019
Monthly, Peer-Reviewed, Refereed, Indexed Journal Scientific Journal Impact Factor: 4.526
Received on : 29/09/2019 Accepted on : 19/10/2019 Publication Date: 31/10/2019

Ways and bargaining methods of geodescents in regional systems of the state cadastre of the Republic of Uzbekistan

[1] D.B. Eshnazarov, [2] M.M. Nuretdinova, [3] S.S. Ibrokhimova, [4] M.A. Abdukadirova

[1, 2, 3] PhD researchers. State Scientific-Design Institute "Uzdavyerloyiha".
[4.] Teacher of Geodesy,Cartography and Cadastr of the Fergana Polytechnic Institute
E-mail: [1]eshnazarov1984@mail.ru, [2]saidmuxammad3774@mail.ru, [3]maxfuza85@mail.ru, [4]ferpi_info@edu.uz

Abstract: *This article reveals the role and importance of new geodetic networks for a unified system of state cadastre in the field of construction and consolidation of geodetic networks in the field of polygonometry.*

Keywords: *development of a unified system of state geographic data banks, construction of state geodetic networks, polygonmetry method.*

1. INTRODUCTION:

In recent years, a number of measures have been undertaken in Uzbekistan aimed at the rational and efficient use of land, the provision of control and comprehensive regulation of land relations, geodesy, cartography and state cadastre.

Presidential Decree "On measures to regulate rational use and protection of land, improvement of geodesy and cartography activities, regulation of state cadastres"

On the basis of the Regulation "On the procedure for establishing and maintaining the Uniform System of State Geographical Data Banks", approved by the Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated May 31, 2005 No. UP-5065 [1] and Resolution of the Cabinet of Ministers

No 66 dated 16 February 2005.

The book of state cadastre of the district (city) takes into account the area and quality of lands and their value is given. Acquiring the required and sufficient number of public areas at the city boundary should provide legal basis for effective land use [3].

Cadastral services are a special feature of cadastral objects, differentiated by legal, territorial and economic relations, with the purpose of preparing and locating the land cadastre documentation of the cadastral object [4].

2. METHODS:

Objects of research are the Ferghana Region land plots. Trends are generally convenient and economically acceptable than the method of triangulation in publicly populated areas, large cities and forestry areas, with the use of commonly used methodological guidelines, including polygonometry, for the construction and consolidation of high-accuracy geodetic networks.

It is known that the smallest road of the III class is 3 km and 2 km of 4 classes. In sections 3 and 4, the horizontal angles of 1.5 "and 2.0" (in the case of closed polygons) are measured by mid-square errors. On the 3 and 4 class polygonometry tracks, the length of the sides is 1 / 200,000 and 1/150,000 in mid-square error [6].

The total density of points 1, 2, 3 and 4 of the state satellite geodetic network is at least one point per 50 km^2. The geodetic coordinate system (SR42), currently in force in 1942, is in the territory of the Republic of Uzbekistan [7].

The most promising method of geodetic network construction can be the polynomometry of the city. In the territory of smaller cities, the 4th grade, 1 and 2 degrees of polynometric units serve as the only geodesic basis [8].

3. DISCUSSION:

Today, the development of the national information system development, improvement and development of a unified system of state cadastres is urgent. It is well known that the location and the coordinates of the object should be clear for each object to be placed in the uniform system of the State cadastre. This, in turn, leads to the increasing demand for geodesic industries.

Depending on the location of the geodetic base points, the economically best practices are chosen [5].

The basic methods of building state geodetic networks are triangulation, polygonometry and trilateralization. In each particular case, the choice of one or another method is determined by the accuracy and cost-effectiveness required to establish the net.

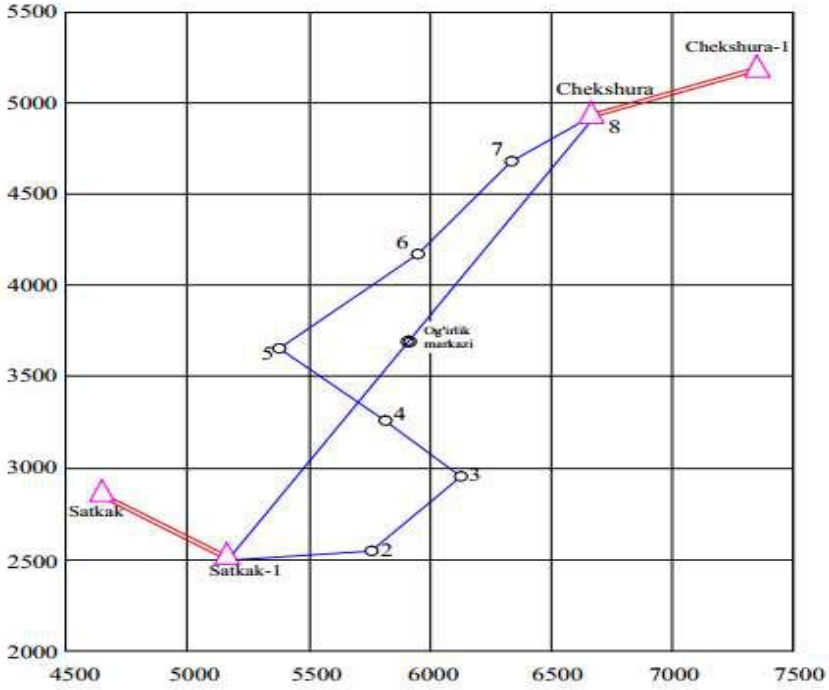
4. RESULTS:

In the research, electronic devices and GPS devices were used to build and consolidate geodetic networks. The smallest aspect of class 3 in constructing geodetic points 3 km, 2 km in 4 class, 3 and 4 grade polygonometry, with horizontal angles of 1.5 "and 2.0" (closed polygon non-contact).

In this case, we will do the same by matching the polygonometric net between the Satkak-1 and Chekshura polynomometry points. The distance between them is 2766 meters. The diagonal angle and the length of the sides of the angle are measured in the base point coordinates in Table 1.

Table 1

Directional angles		Coordinates			
Neighborhood Satkak-1	Chekshura Chekshura-1	Satkak-1		Chekshura	
		x	y	x	y
$121^0 13'14''$	$74^0 58'53''$	2500	5200	4841,229	6673,463



Picture 1. Polygonometric network diagram.

Table 2 Values of angles and side lengths

Punctuation Name	Rotation angles	Side lengths, S_i	Field measurements accuracy
Satkak-1 1	$145^0 20'31''$		$\mu=\pm 0{,}0004$ $\lambda=0{,}000020$ $m_\beta=2''$
		460,153	
2	$138^0 15'42''$		
		583,614	
3	$95^0 04'18''$		
		335,216	
4	$178^0 35'05''$		
		638,708	
5	$263^0 14'30''$		
		702,911	
6	$181^0 19'52''$		
		617,385	
7	$198^0 44'21''$		
		400,555	
Chekshura 8	$193^0 11'30''$		

The following mathematical calculations are made to equate the polygonometry net:

1. Weigh the measured β_1 angles (column 2) $\sum_{1}^{n+1} \beta_i = 1393^0 45'49''$

2. We consider the angle error.

$$f_\beta = \alpha_{\acute{o}} + \sum_{1}^{n+1} \beta_i - (n+1)\cdot 180^0 - \alpha_0 \qquad (1)$$

where α_p and α_l - are the angular and end portions of the curve
$\alpha_p = 121^0 13'14''$, $\alpha_l = 74^0 58'53''$
$f_\beta = 121^0 13'14'' + 1393^0 \cdot 45'49'' - 8\cdot 180^0 - 74^0 58'53'' = +10''$

$$f_\beta^{\text{limited}} = 2 \cdot m_\beta \sqrt{n+1} = 4'' \sqrt{8} = 11'',3$$

$$f_\beta < f_\beta^{\text{limited}}$$

3. f_β the error is distributed to the angles that are measured by the opposite sign.

4. The values of the primary and lateral sides of the angle of the angles of the neighborhood are given in Table 2, and the Chekshura - Chekshura-1 sides, $\alpha_{n,n+1} = \alpha_{n-1,n} + 180^0 + \beta_i$ calculated by the formula.

Based on the data given, the coordinates are considered as errors.

$$f_x = [\Delta x'] - (x_l - x_p) = 2341{,}221 - 2341{,}229 = -0{,}008 \text{ m};$$

$$f_y = [\Delta y'] - (y_l - y_p) = 1473{,}469 - 1473{,}463 = +0{,}006 \text{ m},$$

where x_l and y_l are the end point coordinates, x_p and y_p are the starting point coordinates. Length lag should comply with the following requirement:

$$f_s = \pm\sqrt{f_x^2 + f_y^2} < f_S^{\text{limited}} = 2M$$

$$M^2 = \mu^2[S] + \lambda^2 L^2 + \frac{m_\beta^2}{\rho^2} L^2 \frac{(n+3)}{12}$$

$$f_s = \sqrt{(-0{,}8)^2 + (0{,}6)^2} = 1{,}0 \text{ см} = 0{,}01 \text{ m}.$$

$$\frac{f_s}{3738{,}542} = \frac{0{,}01}{3738{,}542} = \frac{1}{373854} < \frac{1}{T} = \frac{1}{300000}$$

f_x and f_y were calculated by dividing the values of Δx and Δy by the opposite sign. Based on these, we calculate the coordinates of the polygonometry points [9]

$$\left.\begin{aligned} x_i &= x_{i-1} + \Delta x \\ y_i &= y_{i-1} + \Delta y \end{aligned}\right\} \qquad (2)$$

The results are written in Tables 9 and 10 of Table 3.

Table 3

Schedule of coordinates of polygonometry points.

Punches	Rotation Corners	Directional angles	Side lengths	Coordinate increases				Coordinates		
				Δx'	Δy'	Δx	Δy			
1	2	3	4	5	6	7	8	9	10	
Neighborhood		$121^0 13'14''$								
Satkak -1 1	-1 $145^0 20'31''$			+1 27,593	-1 459,325	27,594	459,324	2500,00	5200,00	1
		$86^0 33'44''$	460,153							
2	-1 $138^0 15'42''$			+1 413,946	-1 411,405	413,947	411,404	2527,594	5659,324	2
		$44^0 49'25''$	583,614							
3	-1 $95^0 04'18''$			+2 256,395	-1 -215,943	256,397	-215,944	2941,541	6070,728	3
		$319^0 53'42''$	335,216							
4	-1 $178^0 35'05''$			+1 478,216	-1 -423,387-	478,217	-423,388	3197,938	5854,784	4
		$318^0 28'46''$	638,708							

5	-2 263^{0}14'30"			+1 524,657	-1 467,781	524,658	467,780	3676,155	5431,396	5
		41^{0}43'14"	702,911							
6	-1 181^{0}19'52"			+1 451,15	421,46 0	451,151	421,460	4200,813	5899,176	6
		43^{0}03'05"	617,385							
7	-2 198^{0}44'21"			+1 189,264	-1 352,828	189,265	352,827	4651,964	6320,636	7
		61^{0}47'24"	400,385							
Chekshura 8 Chekshura -1	-1 193^{0}11'30"							4841,229	6673,463	8
		74^{0}58'53"								

$\sum_{1}^{n+1}\beta_i$ = 1393^{0}45'49" ΣS_i= 3738,542 L = 2766 $\Sigma\Delta x'$ = 2341,221 $\Sigma\Delta y'$ = 1473,469 $\Sigma\Delta x$ = 2341,229 $\Sigma\Delta y$ = 1473,463

As it is evident from the above, the errors of the coordinates of the new geodesic network at the object are very small, and the error of interconnection between them is 0.01 meters.

It is necessary to conduct compacting works in geodesic networks if large-scale topographic plans, construction project designs, engineering-related surveys are not sufficient in state-run geodetic network sites [10].

5. CONCLUSION:

The object coordinates of the object are taken as a condition. The use of modern geodetic measuring instruments today in the construction of local coordinate systems will yield great results. In turn, the state cadastre provides a significant effect on the development of unified systems and maintaining the land cadastre, building and consolidating new geodetic networks.

REFERENCES:

1. The Decree of the President of the Republic of Uzbekistan of May 31, 2017 PF-5065
2. The Cabinet of Ministers of the Republic of Uzbekistan Resolution No 66 of 16 February.
3. Bobojonov A.R, Ruzziboev S.B. The cadastre of the inhabited localities. Tashkent, Tafakkur publishing house, 2011
4. Koroteeva L.I. Zemelno-cadastral raboty. Rostov-na-Donu, Phoenix, 2007, - 159 p.
5. Kuziboev T. Geodesy. - Tashkent: "Teacher" publishing house, 1975.-428 p.
6. Muborakov H.M, Toshpulatov S.A., Nazarov B.R. High geodesy. -Tashkent, 2014. - 459 p.
7. Avchiev Sh.K. Educational Geodesy in Engineering . Tashkent. 2007.
8. Trevogo I.S., Shevchuk P. M. Gorodskaya polygonometry. Moscow, "Nedra", 1986, -199 p.
9. Podshivalov V.P, Nesterenko M.S. Inventory geodesy / Uchebnik. - Minsk: vyssh. shk., 2011. - 463 p.
10. Tashpulatov S.A, Avchiev Sh.Q., Kovalyov N.V. "High Geodesy" / Curriculum. -Tashkent, 2002. -69 p.