Teoretičeskaâ i prikladnaâ nauka

Theoretical & Applied Science

Philadelphia, USA

Teoretičeskaâ i prikladnaâ nauka

Theoretical & Applied Science

06 (122)

2023

International Scientific Journal
Theoretical & Applied Science

International Scientific Journal
Theoretical & Applied Science

Editorial Board:

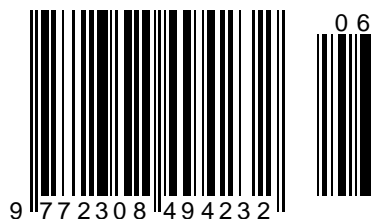# International Scientific Journal
Theoretical & Applied Science

Impact Factor ICV = 6.630

Impact Factor ISI   = 0.829
based on International Citation Report (ICR)

The percentage of rejected articles:

49%
Accepted

51%
Rejected

Annaguly Rejepovich Deryaev
Scientific Research Institute of Natural Gas of the State Concern „Turkmengas"
Doctor of Technical Sciences, Senior Researcher,
Corresponding Member of International Academy of
Theoretical and Applied Sciences,
Ashgabat, Turkmenistan
annagulyderyayew@gmail.com

ACCRUAL OF CONTINGENT DEPRECIATION AND CLASSIFICATION DRILL PIPES

Abstract: the article analyzes the accrual of wear and classification of drill pipes, as well as calculations of the amount of conditional wear to be accrued taking into account the increase in pipe wear as the depth of the well increases. For the calculation of conditional depreciation, the norms of conditional depreciation given in the "Handbook of Enlarged Estimated Norms" were used, and the depreciation rates were used in the "Price List of district prices for the construction of oil and gas wells".

Partial control of drill pipes on the drilling rig is effective in eliminating most of the potential sources of accidents from the drill string. If the share of accidents occurring in the controlled area is small, then partial control will not have a noticeable effect. After the elimination of seizures or accidents, it is necessary to conduct an extraordinary inspection of the drill string.

This work can be used to perform the tasks set when drilling wells and to avoid accidents and complications associated with drill pipes in order to successfully drill to the design depth in extremely difficult mining and geological conditions at abnormally high reservoir pressures.

Key words: drilling coefficient, flaw detection, defect, wear, cavities, tightening, vibration, marking, class, thread, drill string, curvature, hole.

Language: English

Citation: Deryaev, A. R. (2023). Accrual of contingent depreciation and classification drill pipes. *ISJ Theoretical & Applied Science, 06 (122),* 1-7.

Soi: http://s-o-i.org/1.1/TAS-06-122-1   *Doi*: cross^ref https://dx.doi.org/10.15863/TAS.2023.06.122.1

Scopus ASCC: 2209.

Introduction

The acquisition of drill, weighted drill and lead pipes according to standard sizes with the registration of separate passport logs on them and their operation during the wiring of certain specific wells make it possible to keep accurate records of work, as well as to keep records after the write–off of all pipes of the value of the complete development of each set.

During the operation of a set of drill pipes by a drilling foreman, detailed information about the operation of a set of pipes is regularly noted in the passport journal [1].

Information about accidents with a set of pipes (in accordance with the accident acts) is entered into a special form jointly by representatives of the drilling company and the pipe division. Marks on the types of preventive maintenance and repair of a set of pipes in a pipe division are also made in special forms by a representative of the pipe division.

The forms for recording work, accidents, prevention and repair of a set of drill pipes provided for in the set's passport journal are given in the guidance document. There are also passport forms, and the corresponding forms of accounting for work, prevention and repair of the leading pipe.

For timely and high-quality provision of drilling enterprises with pipes of the required standard sizes, as well as for the purpose of planning the work of the pipe division, the latter keeps records of: receipt, availability and consumption of drill pipes and locks;

movement of drill pipe sets; types and volumes of preventive and repair work with drill pipes.

For the purpose of monthly accounting of costs from the rental of drill pipes under the article "Costs of tool operation during well wiring", conditional depreciation in manats is accrued on drill, weighted drill, lead pipes and locks, depending on the volume of penetration in meters. The amount of conditional wear to be accrued on all pipes of this set is calculated taking into account the coefficient of increase in pipe wear as well depths increase [2, 3], determined for each depth interval after 500 m, and other factors of well wiring.

Conditional wear in kilograms and manats is calculated for pipes involved in drilling wells, determined based on the number of meters drilled in this well [4, 13].

The amount of conditional depreciation to be accrued on all pipes of this set is calculated from the following expression:

$$S = \alpha c\delta(l_1k_1n_1 + l_2k_2n_2 .... + l_nk_nn_n) \quad (1)$$

where a is the specific rate of metal consumption of pipes for 1 m of conditional penetration (kg / m) with coefficients k, c, δ, n equal to one;

k, c, δ, n, c is the coefficient of drillability for a given drilling area;

$k_1, k_2, ..., k_n$ are coefficients that take into account the increase in pipe wear as the depth of the well increases; determined by the formula

$$k = 1 + 0,001lH_s \quad (2)$$

N_s - the depth of the sole of this interval, m;

$l_1, l_2, ..., l_n$ — penetration in the interval 1, 2....... p (500 m long), m;

δ is a coefficient that takes into account the influence of the drilling method and the inclination of the borehole on the wear of pipes (for the turbine method of drilling vertical wells δ=1; for inclined δ = 1.35; for rotary δ= 1.65);

$n_1, n_2, ..., n_n$ — the number of pipe sections with a length of 500 m involved in drilling intervals respectively 1, 2, ..., n.

Indexes $1, 2, ... n$ denote the sequence numbers of the trunk intervals of 500 m, counting from the wellhead.

The norms of conditional depreciation are given in the "Handbook of Enlarged estimated Norms", and the depreciation rates are in the "Price List of district prices for the construction of oil and gas wells".

Depreciation in manats for a set stops when its total amount reaches 70% of the original cost of pipes and 90% of the cost of locks screwed on these pipes [5, 6].

Depending on the amount of conditional wear of the pipe can be divided into three classes:
Class...................................... I II III
Conditional wear, % of the
weight of the set .... <50 51-85 86-100

The classification of drill pipes in operation and their marking are carried out on the pipe base based on the results of flaw detection of the planted ends of pipes, including sections of pipe threads.

The pipes of the first three classes are suitable for operation.

The classification system for drill pipes of prefabricated construction with diameters of 114 and 140 mm is shown in Table 1.

Table 1.

Pipe class (marking)	Type and size of the defect
I (one white stripe)	No defects found
II (two white stripes)	Small metallurgical defects (shells, pores, non-metallic inclusions, etc.) were not detected in the threaded and (or) smooth part of the planted end; clamps in the smooth part (outside the thread) with a depth of less than 3 mm
III (three white stripes)	Fatigue cracks or suppers in the thread area with a depth of up to 2 mm; suppers in the smooth part of the planted end with a depth of up to 5 mm
IV (one white and one red stripe)	Fatigue cracks or clamps in the threaded part up to 4 mm deep
V (one red stripe)	Fatigue cracks or suppressions in the threaded part with a depth of more than 4 mm; s clamps in the smooth part with a depth of more than 5 mm. There is no end pulse on an arc more than ¼ of the circumference of the pipe

Intermediate is the IV class of pipes. Pipes of this class are transferred to Class III after re-cutting the thread or into marriage if the remaining length of the planted part of the pipe is insufficient for re-cutting.

If during repeated flaw detection (after thread re-cutting) it is determined that the crack depth does not

exceed the values set for Class III pipes, then the pipe is transferred to class III; otherwise, the pipes are rejected. Pipes with unacceptable defects are classified as class V - defective.

Classification and marking are not carried out on the drilling rig. When checking on the drilling rig,

pipes having a lower class than those of which the drill string consists are rejected. For example, if the drill string consists of Class I pipes, the pipes corresponding to Class II, III, IV and V are withdrawn; if the string consists of Class I and II pipes, the pipes of class III, IV and V are withdrawn [7,14].

Class I pipes are used without restriction in accordance with their strength category and standard size.

Class II pipes are not recommended for use in deep wells with a bottom hole of more than 4000 m, as well as in highly complicated conditions (for example, in the presence of cavities or intense curvature of the borehole during rotary drilling). It is recommended to use Class III pipes when drilling to a depth of no more than 2500 m and their development

should be carried out in a fixed trunk, checking monthly by means of flaw detection.

In drill pipes with welded locks (DPWL) pipes, transverse and volumetric defects are detected in the weld zone and in the section of the tunnel junction to the coupling. In light alloy drill pipes, operational defects (mainly fatigue cracks) are detected in sections of pipe threads. In addition, the light alloy drill pipes body is controlled, as well as the rest of the drill pipes [8, 15].

Used pipes made of D16T alloy assembled with locks, manufactured according to TU 1-2-85-72, are classified according to the wear values of the pipe wall (Table 2).

The maximum permissible loads on the hook for pipes with various degrees of wear are calculated from the yield strength, taking into account the safety factor of 1.3.

Table 2

Diameter, mm		Smallest wall thickness, mm	Smallest cross-sectional area, cm^2	Permissible stretching load, MN	Permissible rotating moment, N m
Nominal (wall thickness)	The smallest external				
Class I pipes (one strip)					
147 (13; 11; 9)	145,5	11,8; 10; 8	54,7; 47; 39	1,45; 1,24; 0,99	66 700 52 900 46 900
129 (11; 9)	127,5	10,8; 8	40,8; 33,9	1,34; 1,12	36 900 34 900
114 (10)	112,8	9,0	32,6	0,86	24 500
93 (9)	92,0	8,1	23,7	0,62	14,300
73 (9)	72,0	8,1	18,1	0,48	8 100
Class II pipes (two lanes)					
147 (13; 11; 9)	142,0	10,5; 8,5; 7,5	42,4; 36,2; 32	1,18; 0,91; 0,82	64 300 50 700 43 100
129 (11; 9)	124,0	8,5; 7,5	31,4; 27,8	0,76; 0,70	34 200 32 300
114 (10)	109,5	8,4	25,1	0,58	20 500
93 (9)	90,0	7,5	19,4	0,48	10 400
73 (9)	70,5	7,5	15,9	0,40	5 200
Class III pipes (three lanes)					
147 (13; 11; 9)	139	8,5; 7,7; 7,0	34,5; 29,7; 26,2	0,82; 0,70; 0,56	60 200 45 500 39 200
129 (11; 9)	122	8,0; 7,0;	25,8; 22,9	0,5; 0,25	28 100 20 300
114 (10)	108	7,0	20,6	0,5	16 400
93 (9)	89	7,0	16,0	0,4	7 100
73 (9)	69	7,0	12,5	0,31	3 200
Pipes of class IV (four lanes) - defect					
147 (13; 11; 9)	139	<8,5; 7; 7			
129 (11; 9)	122	<7			
114 (10)	108				
93 (9)	89				
73 (9)	69				

The frequency of inspections of drill pipes on the drilling rig depends on the conditions of their operation: the depth of the well, the category of rocks, the drilling method, the degree of curvature of the borehole, the corrosive properties of the medium, the size and pipe strength groups, pipe quality, etc

Table 3 shows the data of inspections of drill pipes on the drilling rig.

Table 3

Drilling method	Well depth, m	Frequency of inspection of drill pipes (type of inspection - flaw detection), day.	
		Sections of pipe threads of steel drill pipes of prefabricated construction	Zones of welded seam of pipes of type DPWL
The rotor	<2500	60	60
	2500 – 3500	45	60
	3500 - 5000	30	45
	> 5000	20	45
Downhole engines	<2500	90	120
	2500 – 3500	65	120
	> 3500	45	90

When drilling in complicated conditions (cavities, puffs, vibrations caused by drilling hard rocks with large-pitch chisels, trunk bends with a deviation of more than 3° per 100 m of penetration), as well as when drilling ultra-deep wells, the frequency of monitoring may be 1.5-2 times less than indicated in Table 3.

In many cases, it is advisable, without shortening the intervals between inspections of the entire column, to more often monitor sections of the drill string operating in highly complicated intervals of the borehole, as well as drill pipes located above the drill collar. In such cases, individual sections of the column can be monitored once every 10 or more days [9, 10, 16].

Pipes of class III are recommended to be checked by means of flaw detection monthly (prefabricated construction).

After the elimination of seizures or accidents, it is necessary to conduct an extraordinary inspection of the drill string. Partial control of drill pipes on a drilling rig is effective when most of the potential sources of accidents from the drill string are eliminated. If the share of accidents occurring in the controlled area is small, then partial control will not have a noticeable effect [11, 12, 17]. Therefore, recommendations are not given for monitoring on the drilling site of pipe threads LDP (light alloy drill pipes) and pipes of the type DPIE (drill pipes planted inside with ends) and DPOE (drill pipes planted outside with ends).

Drill pipes are written off according to their actual condition based on the results of inspection, flaw detection and instrumental measurements given in Table 4.

Table 4. Classification of drill pipes

Type of defect	Pipe class	
	2	3
Uniform wear of the pipe on the outer surface:		
wall thickness after wear, %, not less	80	65
Eccentric wear on the outer surface:		
wall thickness after wear, %, not less	65	55
Dents, % of the outer diameter, no more	3	5
Crumpling, outer diameter, no more	3	5
Neck, % of the outer diameter, no more	3	5
Residual narrowing:		
reduction of the outer diameter, %, no more	3	5
Residual expansion:		

increase in outer diameter, %, no more	3	5
Longitudinal incisions, notches:		
remaining wall thickness, %, not less	80	65
Transverse incisions:		
remaining wall thickness, %, not less	90	80
incision length, % of the circumference of the pipe,	10	10
no more		
Pitting corrosion, erosion:		
wall thickness at the site of the deepest corrosion, % from nominal, not less than	80	65

Depending on the actual wear during operation and changes in the geometric dimensions of the pipe are transferred to II and III classes.

Table 5 shows the degree of wear and the magnitude of defects, upon reaching which the pipes are transferred to the next class. Based on the data in Table 5, the strength characteristics of pipes of II and III classes are compiled.

The degree of wear of the lock thread is determined either by reducing the distance between the thrust ledge of the nipple and the thrust end of the coupling, or by reducing the number of revolutions required for complete screwing of the drill lock.

For a thread with a pitch of 6.35 mm (4nX") and a taper of 1/6, the distance between the ledge and the end of the locking parts is equal to 25 mm, for a thread with a pitch of 5.08 (5nXl") and a taper of ¼ -14.5 mm.

The maximum wear values of drill locks on the outer surface are given in Table 5. The first class corresponds to the nominal diameter of the lock, the second and third are determined by the amount of wear. If the diameter values are less than those specified for Class III, the locks are rejected.

The write-off of drill pipes is made out by an appropriate act drawn up by the employees of the drilling company with the participation of a representative of the pipe division and approved by the management of the drilling company.

Table 5. Wear of drill locks

Lock size	Outer diameter of the lock, mm			
	with uniform wear		with uneven wear	
	by class		by class	
	II	III	II	III
ZN -80	77,6	75	78,8	77,0
ZN -95	92,0	89	93,5	92,0
ZN -108	104,7	102	106.4	106,0
ZN -140	135,8	133	137,9	136,5
ZN -172	166,8	164	169,4	168.0
ZN -197	191,0	188	194,0	192,5
ZSH -108, ZSHK -108	104,7	100-	106,4	104.0
ZSH -118, ZSHK -118, ЗУК-120	114,5	109	111,3	113,5
ZSH -133, ZUK -133	129,0	125	131,0	129,0
ZSH -146, ZUK -146	141,6	136	143,8	141,0
ZSH -178, ZUK -178	172,6	167	175,3	172,5
ZSH -203	197,0	191	200,0	197

| ZU -155, ZUK -155 ZU -185 | 150,3 179,4 | 148 177 | 152,6 182,2 | 151,5 181,0 |

References:

1. Deryayev, A.R. (2023). The program for selecting the bottom-hole assembly for drilling for drilling in an elongated direction and under the conductor of the directional borehole. *International Scientific Journal "Theoretical & Applied Science"* №03 (119) - USA-Philadelphia: Publishing: "Theoretical & Applied Science", pp.7-12.

2. Deryayev, A.R. (2023). Selection of the bottom-hole assembly for drilling for drilling under the intermediate technical column of the directional well. *International Scientific Journal "Theoretical & Applied Science"* №03 (119) - USA- Philadelphia: Publishing: "Theoretical & Applied Science", pp.13-18.

3. Deryayev, A.R. (2023). Selection of the bottom-hole assembly for drilling under the production column of the directional well. *International Scientific Journal "Theoretical & Applied Science"* №03 (119) - USA- Philadelphia: Publishing: "Theoretical & Applied Science", pp.19-26.

4. Deryayev, A.R. (2022). Geological, commercial and technological bases for choosing a method of dual completion exploitation to increase production and accelerated development of multi-layer fields. *International Scientific Journal «Science Time»* Issue №2 (109) - Kazan: Scientific publication: «Society of science and creativity», pp.55-89.

5. Deryayev, A.R. (2023). General provisions of the feasibility study of the application of the method of dual completion operation in the design of wells. *International Journal of Development Research* vol. 13, issue 02, february - Publishing: "Academe Research Journals", pp.61853-61858.

6. Deryayev, A.R. (2023). A brief scientific and practical overview of the drilling of a directional well on the western Cheleken field. *International Scientific Journal "Theoretical & Applied Science"* №02(118) - USA- Philadelphia: Publishing: "Theoretical & Applied Science", pp.189-192.

7. Deryayev, A.R. (2022). Monitoring of the technological regime of wells and borehole equipment. *European Science Review Scientific journal* №9-10-Vienna: Publishing:"Premier publishing", pp.20-23.

8. Deryayev, A.R. (2022). Analysis of technological modes of operation and justification of the methodology for forecasting development for gas condensate fields. *International Journal of Recent Advances in Multidisciplinary Research* vol. 09, issue 10 - India - Deli: Publishing: "International Journal of Recent Advances in Multidisciplinary Research", pp. 8083-8090.

9. Deryayev, A.R. (2022). Justification of choice of recommended methods of operation of wells, wellhead and downhole equipment. *Sciences of Europe* №103 - Praha - Czech Republic: Publishing: "Sciences of Europe", pp. 72-74.

10. Deryayev, A.R. (2022). *Fixing of directional wells for development by a method dual completion.* Proceedings of the collective scientific monograph "Modern technologies for solving actual societys problems". (pp.24-40). Publishing: Poland -Katowice: House of University of Technology.

11. Deryayev, A.R. (2022). Selection of downhole equipment for dual completion of several horizons. *Austrian Journal of Technical and Natural Sciences scientific journal,* №5-6, - Vienna: Publishing:"Premier publishing", pp.40-44.

12. Deryayev, A.R. (2022). Justification of the adopted methodology for forecasting technological development indicators for gas condensate field during development by the method of dual completion. *Eastern European Scientific Journal "EESJ",* №5 (81) part 1 - St.Peterburg, Russia: Publishing: "Logika+LLC", pp.18-24.

13. Gulatarov, H., Deryaev, A.R., & Esedulaev, R.E. (2019). *Osobennosti tekhnologii bureniya gorizontal'nyh skvazhin sposobom elektrobureniya.* (Monografiya) (pp.170-178). Ashgabat, Nauka.

14. Deryaev, A.R. (2012). Burenie naklonno napravlennyh skvazhin na mestorozhdeniyah Zapadnogo Turkmenistana. / *Nebitgazylmytaslama institutynyň makalalar ýygyndysynyň* 2-nji (29) göýberilişi Aşgabat: Türkmen döwlet neşirýat gullugy, pp. 267-276.

Clarivate Analytics **indexed**

15. Deryaev, A.R. (2012). Opyt bureniya skvazhin s gorizontal'nym okonchaniem stvola v Zapadnom Turkmenistane Sbornik statej instituta "Nebitgazylmytaslama", vypusk 2(29) Ashgabat: Turkmenskaya Gosudarstvennaya sluzhba pechati, pp. 277-285.

16. Deryaev, A.R., Gulatarov, H., Esedulaev, R., & Amanov, M. (2020). *Tekhnologiya burenie naklonno-napravlennyh i gorizontal'nyh skvazhin i raschety proektirovaniya.* (Nauchnaya monografiya) (p.608). Ashgabat Ylym.

17. Deryaev, A.R., Mamedov, B., & Amanov, M. (2021). *Vnedrenie receptur burovyh rastvorov dlya bureniya naklonno-napravlennyh i vertikal'nyh skvazhin.* Mezhdunarodnaya nauchno-prakticheskaya konferenciya studentov, magistrov, aspirantov, soiskatelej i doktorantov. "Rynok i effektivnost' proizvodstva-18", posvyashchennaya 30-letiyu Nezavisimosti Respubliki Kazahstan. Sbornik trudov, (pp. 258- 261). Kokshetau.

Annaguly Rejepovich Deryaev
Scientific Research Institute of Natural Gas of the State Concern „Turkmengas"
Doctor of Technical Sciences, Senior Researcher,
Corresponding Member of International Academy of
Theoretical and Applied Sciences,
Ashgabat, Turkmenistan
annagulyderyayew@gmail.com

DESIGN OF DRILLING MODE FOR OPERATIONAL EVALUATION OF DIRECTIONAL WELLS

Abstract: the proposed article discusses the design of calculation and selection of technological parameters of the drilling mode of a directional production and evaluation well for the purpose of successful drilling of well No. 707 at the Western Cheleken field in the coastal zones of the coastal waters of the Caspian Sea. For the design calculation and selection of technological parameters of the drilling mode were used:
- the results of studies of drilling support wells on a given area or on areas with similar geological conditions.
- if drilling has not yet been carried out on the well area, statistical data are insufficient and the ability to represent the properties of rocks is only approximate, then axial loads can be approximately set in accordance with the selected bits, their passport data and drilling experience with similar geological conditions.
- data on the durability of the bits and the mechanical speed obtained from the results of working out the bits in this area from previously drilled wells.
This work can be used to perform the tasks set when drilling directional wells and to design the calculation and selection of technological parameters of the drilling regime in extremely difficult mining and geological conditions at abnormally high reservoir pressures.
Key words: drilling mud, hardness, abrasiveness, plasticity, downhole motor, flushing holes of the bit, manifold, downhole, profile, drilling mode.
Language: English
Citation: Deryaev, A. R. (2023). Design of drilling mode for operational evaluation of directional wells. *ISJ Theoretical & Applied Science, 06 (122),* 8-16.
Soi: http://s-o-i.org/1.1/TAS-06-122-2   *Doi*: crossref https://dx.doi.org/10.15863/TAS.2023.06.122.2
Scopus ASCC: 2209.

Introduction

The drilling mode of a well is a factor regulated and created during the drilling process on which the successful completion of the well depends.

Consider the indicators of the drilling mode.

- the consumption of drilling mud, ensures the operation of downhole engines, which is determined by the technical indicators of the type of engines used. The amount of drilling mud is necessary to clean the well from the drilled rock, which is determined by the velocity of the upward flow of drilling mud, depending on the drillability of the rock.

- the axial load on the bit is determined taking into account the type of bits used and the physical and mechanical properties of the rock (hardness, abrasiveness, plasticity, etc.), lithological section, rock movement, etc. In addition, it is necessary to know the intervals of core sampling and the characteristics of the selected rocks (loose, loose, hard, strong, etc.). When choosing the drilling mode, it is also necessary to take into account data on the possible durability of the bits and the mechanical speed obtained from the results of working out the bits in this area (by area); at the same time, the wear of the bits should be taken into account. If such materials are not available for this deposit, then in this case it is possible to use information on other areas with similar geological conditions [1].

- the frequency of rotation of the bit is due to the fact that energy costs for idle rotation of the column are reduced, the time of working out of bits and drill pipes is increased, vibrations and breakage of the drill tool are reduced. Soft rocks are drilled at high bit rotation frequencies and in small axial loads, in hard rocks, on the contrary, the rotation frequency decreases, and the load on the bit increases.

Let's consider the design of technological indicators of the drilling regime of the operational and estimated directional well No. 707 Western Cheleken.

First of all, we will consider the volume flow of drilling mud (pump supply) for drilling the well in question. Drilling of a well is designed from the wellhead to 800 meters by a rotary method, and from a depth of 800 meters to a design 2764 meters (along

the hole) by a rotary controlled system (RCS).

During rotary drilling, the drilling fluid flow rate is determined based on the upstream velocity, the value of which should be at least 0.8 – 1.2 m/s. In soft rocks, the formation of sludge is greater and therefore the value of the upstream velocity of the drilling fluid should be greater than when drilling hard rocks.

In the interal from 0 m – up to 50 m under the elongated direction, the flow rate of drilling mud is 58 l/sec and in the interal from 50 m – up to 800 m under the conductor is 42 l/sec;

Calculate the volume flow rate of drilling mud (pump supply) for drilling a well with downhole motors up to the design depth of 2764 m (along the hole) under the following conditions.

Table 1. Drilling mud density by intervals:

Drilling interval, m	0-200	200-800	800-2119	2119-2764
Mortar density, g/cm^3	1,4	1,47	1,68	1,81

The drilling rig is equipped with two F-1600 pumps.

We determine the maximum supply of drilling pumps when drilling from "zero" (*L=0*) according to the formula (1).

$$Q = \sqrt{\frac{N_{usef.}}{(A_d + A)\rho_{dr.m.}}} \qquad (1)$$

where $N_{usef.}$ is the useful power of the drilling pump, kW;

A_d is the coefficient of pressure drop in the

downhole engine;

A is the coefficient of pressure drop, independent of the depth of the well;

$\rho_{dr.\,m}$ is the density of drilling mud, g/cm^3.

Table 2 shows the technical characteristics of the F-1600 drilling pump.

$$A_{d.} = \rho_{tabl.} / \rho_{dr.m.} Q^2_{tabl.} \qquad (2)$$

where ρ_{tabl} is the pressure drop in the downhole engine (MPa) when feeding Q_{tabl} (dm^3/s).

Table 2.

Interval, m		Type of technological operation	Type of drilling pump	Number of pumps	Hydraulic power factor of operation	Fill factor	The sum of the pump capacity at intervals of h/p
from	before						
50	800	Drilling	F-1600	2	0,44	0,8	42
800	2119	Drilling	F-1600	2	0,62	0,8	41
2119	2764	Drilling	F-1600	2	0,53	0,8	28

continuation of table 1

Interval, m		Type of technological operation	Type of drilling pump	Diameter of cylindrical bushings	Maximum working pressure kgf/cm^2	Number of revolutions per minute	Capacity h/p
from	before						
50	800	Drilling	F-1600	178	258	70	21
800	2119	Drilling	F-1600	165	322	78	20,5
2119	2764	Drilling	F-1600	165	322	54	14

The coefficient A is determined by the formula:

$$A = a_{m.} + a_{DC}l_{DC.} + a_{b.} + \alpha_{d.p.} \qquad (3)$$

where am is the coefficient of pressure drop in the manifold. (If a lead pipe with a bore diameter of 85 mm is used, then $a_m = 34 \cdot 10^{-5}$; if the bore diameter is 100 mm, then $a_m = 30 \cdot 10^{-5}$);

a_{DC} is the coefficient of pressure drop in weighted drill collar. For drill collar (DC) with a diameter of 203 mm, $a_{DC} = 0,224 \cdot 10^{-5}$;

a_b is the coefficient of pressure drop in the flushing holes of the bit, which is determined by the formula:

$$a_{b.} = 0,12/F^2 \qquad (4)$$

where F is the total area of the flushing holes of the bit.

We determine the consumption of drilling mud.

The permissible drilling depth with the required feed is determined by the formula:

$$L_{per.} = \frac{N_{HAC} - (A_{d.} + A)\rho_{dr.m.}Q^3}{B\rho_{dr.m.}Q^3}, \qquad (5)$$

where B is the pressure drop coefficient, depending on the drilling depth and determined by the formula:

$$B = a_{c.p.} + a_{lock}/L_{lock} + a_{c.d.}, \qquad (6)$$

where $a_{c.l.}$ is the coefficient of pressure drop in drill pipes.

a_{lock} - pressure drop coefficient in drill locks;

l_{lock} - average distance between locks, m;

$a_{c.d}$ is the coefficient of pressure drop in the annular space.

Based on the interval calculation of determining the maximum supply of drilling pumps and the permissible drilling depth with the required supply, the following results were obtained, which are shown in table 3.

Table 3.

Drilling interval, m	Diameter of cylindrical collars, mm	Drilling mud consumption h/p	Drilling mud density, g/cm³
0 -50	178	58	1,40
50 - 800	178	42	1,47
800 - 2119	165	41	1,68
2119 - 2764	165	28	1,81

When choosing the optimal values of the axial load on the bit and the frequency of its rotation, it is necessary to use the results of studies of drilling support wells on a given area or on areas with similar geological conditions [2]. In the absence of such information, you can use the method of mathematical statistics, if there is sufficient information.

If drilling is carried out on a new area where the reference wells have not yet been drilled, statistical data are insufficient and rock properties can only be presented approximately, then axial loads can be approximately set in accordance with the selected bits, their passport data and drilling experience with similar geological conditions [3].

The optimal rotation speeds of M-type bits are in the range of (26.2 - 41.9) rad/s or (250-400) rpm; MS-type - (15.7-31.4) rad/s or (150-300) rpm; type C, ST - (10.5-20.9) rad/s or (100-200) rpm; type T - less than 15.7 rad/s or 150 rpm; type K - less than 10.5 rad/s or 100 rpm.

The drilling method and the type of downhole motor are chosen depending on the optimal bit rotation speed (Table 4).

The areas of rational application of rotary drilling are as follows:

-drilling deep intervals of wells with ball bits, where it is necessary to maximize the penetration per voyage and the optimal rotation speed of the bit is in the range of (3.7- 10.5) rad/s or (35-150) rpm;

Table 4.

Type of bit rotator	Optimal bit rotation speed, rad/s (rpm)
Rotor, electric drill with two gearboxes-inserts	3,7-10,5 (35-100)

Rotor, volumetric hydraulic motor, turbobur with hydraulic braking grilles, electric drill with gearbox insert	10,5-26,2 (100-250)
Spindle turbos with precision casting turbines and turbos with a pressure line falling to the brake, electric drills with a gear-insert	26,2-52,3 (250-500)
Turbo drills and electric drills for diamond drilling	52,3-83,7 (500-800)

- drilling of powerful thicknesses of plastic clays, dense clay shales and other rocks, in which it is advisable to use three-bladed and three-bladed bits with large teeth and a large pitch, it is necessary to create high speeds of drilling mud outflow from nozzles (100-120 m/s) and requires the implementation of a significant part of the hydraulic power developed by drilling pumps in the bit;

- if it is necessary to drill wells with bits with a diameter of less than 215.9 mm, especially deep intervals, except in cases of drilling branched horizontal wells;

- when drilling wells in conditions requiring the use of weighted drilling fluids with a density of more than 1.7-1.8 g / cm^3, when in specific conditions an electric drill has no advantages or there is no possibility to use it;

- when drilling in conditions of high downhole temperatures (more than 140-150 °C) and complications associated with violations of the borehole zone of the well or strong absorption of drilling mud [4];

- when drilling with core sampling;

- when drilling with face blowing with air and flushing with aerated drilling mud with a high degree of aeration (if it is impossible to use an electric drill under these conditions);

- when drilling support wells.

The use of electric drills is rational in the following conditions: drilling wells with a diameter of 190.5-393.7 mm with flushing of the borehole with drilling fluid, including weighted to 2.3 g / cm^3, at a temperature not higher than 130-140 °C, taking into account ensuring optimal values of the bit rotation frequency;

- drilling of support and technological wells;

- drilling of inclined and vertically directed wells in combination with telemetry systems, especially in difficult geological conditions, ensuring optimal values of the bit rotation frequency in all sections of the well profile;

- opening of productive horizons with horizontal and branched-horizontal holes to increase the flow rate of wells and the coefficient of oil recovery from the reservoir [5,13];

Table 5. Technical characteristics of downhole screw hydraulic motors of Russian production

Indicators	Engine size			
	D2-195	D 2-170	D -127	D -85
Liquid flow rate, dm^8/s	35-45	20-36	12-15	5-7
Output shaft rotation speed, rad/s (rpm)	14,65-17,8 (140-170)	12,04-20,93 (115-200)	20,93-26,17 (200-250)	20.93-29,31 (200-280)
Pressure drop, MPa	6,0-7,0	4,5-6,0	3,5-6,0	3,0-3,5
Rotating moment, Nm	6500-8000	2900-4150	1000-1200	340-400
Length, mm	6900	6900	4500	3160
Weight, kg	1140	770	300	90

- drilling with downhole blowing with air and flushing with aerated drilling mud with a high degree of aeration or foams;

- drilling with diamond bits and bits of the ISM

type (a bit developed by the Institute of Superhard Materials), except in cases when the temperature of the drilling mud at the bottom exceeds 130 °C.

Clarivate Analytics indexed

Table 6.

Type of bit	Bit diameter, mm	Turbine drilling			Rotary drilling		
		bit load, MN	drilling mud consumption, dm'/s	bit rotation speed, rad/s (rpm)	bit load, MN	drilling mud consumption, dm'/s	bit rotation speed, rad/s (rpm)
ISM	149	0,02—0,06	14—20	12,04—23,03 (115—220)	0,03—0,06	25	8,37 (80)
ISM -RG	149	0,0175—0,05	14-20	12,04-23,03 (115-220)	0,02—0,06	25—30	8,37 (80)
ISM	188	0,06—0,08	20—25	26,17—36,63 (250—350)	0,06—0,08	20-25	10,47—12,56 (100—120)
ISM - RG	188	*	**	26,17-36,63 (250-350)	0,04—0,08	20—30	10,47 (100)
ISM	212	0,08—0,10	30—32	36,63—47,1 (350-450)	0.10—0,12	25-30	8,37—12,56 (80-120)
ISM - RG	212	*	**	36.63—47,1 (350—450)	0,05—0,10	25—40	12,56 (120)
ISM	241	0,08—0,10	30—35	41,87—52,3 (400—500)	0,10—0,12	30—35	12,56 (120)
ISM - RG	241	*	**	41,87-52,3 (400-500)	0,08—0,10	35-40	12,56 (120)
ISM	267	0,12—0,14	40—45	47,1-57,57 (450—550)	0,12-0,15	30-40	14,65 (140)
ISM - RG	267	*	**	47,1—57,57 (450—550)	0,07—0,13	30-40	14,65 (140)
ISM	292	0,14—0,16	40—45	47,1-62.8 (450—600)	0,13-0,17	40—60	14,65 (140)
ISM - RG	292	*	**	47,1—62,8 (450—600)	0,08—0,14	45-70	14,65 (140)

* — the maximum value perceived by the engine.

* * - the same, within the limits recommended for the engine.

Drilling with hydraulic downhole motors is rational in the following cases:

- drilling of vertical wells with a diameter of 190.5 mm or more with roller bits with a depth of up to 3000-3500 m (in some cases, deeper ones) with a drilling mud density of no more than 1.7-1.8 g/cm³, when the optimal values of the bit rotation speed are selected to the required limit specified in the passport of the downhole engine used [6, 7, 16];

- drilling with diamond bits and bits of the ISM type, except in cases when the density of the drilling fluid exceeds 1.7-1.8 g/cm³, and the temperature in the well is 140-150 °C for engines with rubberized parts [8, 17];

- drilling of directional wells in the intervals of a set of curvature and the formation of a given azimuth, regardless of the optimal values of the bit rotation frequency, and in the intervals of stabilization of the slope and transition to the vertical - provided that their optimal values are provided [9, 10, 14];

- opening of productive layers with horizontal and branched-horizontal wells, as well as drilling of holes in cased wells of the old fund to restore them and increase the flow rate of low-yielding wells [11, 15];

- drilling with plug-in bits without lifting pipes in conditions where the use of this type of turbine drilling method is advisable; in these cases, plug-in downhole motors are used;

- drilling with flushing with aerated drilling mud with a low degree of aeration while ensuring optimal values of the bit rotation speed;

- volumetric screw motors with a diameter of 172 mm are rationally used when drilling vertical or directional wells up to 3000 m deep in hard and strong, as well as abrasive rocks with ball bits with diameters of 190.5 and 215.9 mm, having sliding supports and designed for low rotation speed.

The rotary drilling method for unsupported bits of ISM and diamond types with a fracture mechanism

in the form of surface fracture and micro-cutting is economically unjustified in depth ranges up to 4000 m, since the main criterion is the mechanical drilling speed, which is more dependent on the bit rotation frequency, is small compared to the required one.

At great depths, when the mechanical speed of the ball bits decreases sharply, and the penetration into the bit becomes very small, the use of a rotary drilling method with ISM bits may be economically feasible (Table 6).

At the projected operational and estimated directional well No. 707 of the Western Cheleken

area, when choosing the optimal values of the axial load on the bit and the frequency of its rotation took into account the data on the durability of the bits and the mechanical speed obtained from the results of working out the bits in this area from previously drilled wells.

Table 7 shows the layout of the bottom of the drill strings (BHA) necessary to create an axial load on the bit in the projected well No. 707 of the Western Cheleken area.

Table 7.

Number BHA	Sequence number	Dimensions, code	Distance from the bottom to the installation site, m	Technical characteristics			Total length of the BHA, m	Total weight of BHA, tons	Note
				Outdoor diameter, mm	Length, m	Weight, kg			
1	1	Bit III 660,4	0	660,4	0,6	670	42	11,7	Getting hole verticality for elongated direction
	2	KLS (calibrator) 660.4	0,6	660,4	1,3	650			
	3	DC - 245	1,9	245	6,5	1735			
	4	KLS 660.4	8,4	660,4	1,3	650			
	5	DC - 229	9,7	229	13	3554			
	6	KLS 660.4	22,7	660,4	1,3	650			
	7	DC - 203	24	203	18	3862			
2	1	Bit 444,5 PDC	0	444,5	0,5	235	84	20	Obtain the verticality of the barrel and create a draft axial load on the bit
	2	KLS 444,5	0,5	444,5	1,3	515			
	3	DC -245	1,8	245	6,5	1735			
	4	KLS 444,5	8,3	444,5	1,3	515			
	5	DC -229	9,6	229	13	3554			
	6	KLS 444,5	22,6	444,5	1,3	515			
	7	DC -203	23,9	203	60	12876			
3	1	Bit 311,1 PDC	0	311,1	0,4	88	84	18,3	Obtain the verticality of the barrel and create a design axial load on the bit
	2	KLS 311.1	0,4	311,1	1,2	350			

3	DC - 203	1,6	203	5	1073
4	KLS 311.1	6,6	311,1	1,2	350
5	DC - 203	7,8	203	13	2790
6	KLS 311.1	20,8	311,1	1,2	350
7	DC - 203	22	203	62	13305

continuation of table 7

4	1	bit 311,1 PDC	0	311,1	0,44	88	138	24,2	Drilling an obliquely-directed shaft at a given angle and create a design axial load on the bit
	2	RCS PD900	0,44	308,.0	4,21	1300			
	3	KLS 308,0	4,65	308,0	1,52	1700			
	4	Telesystem NF	6,17	213,6	7,53	3300			
	5	DC - 203	13,69	203,0	9,40	5500			
	6	K 305,0	23,09	305,0	2,30	6000			
	7	Filter sub	25,39	203,0	1,52	6400			
	8	Sub	26,92	203,0	1,00	6600			
	9	DC - 203	27,92	203,0	28,20	12900			
	10	Sub	56,12	203,0	1,00	13100			
	11	DC - 178	57,12	178,0	28,5	17700			
	12	Sub	85,62	178,0	1,52	18000			
	13	165mm hydraulic jar	87,14	165,0	9,50	18800			
	14	Sub	96,64	165,0	1,52	19000			
	15	DC - 178	98,17	178,0	28,5	23700			
	16	Sub	126,67	168,0	1,52	23900			
5	1	Bit 215,9 PDC	0	215,9	0,23	40	124	13,7	Drilling an obliquely-directed shaft at a given angle and create a design axial load on the bit
	2	RCS PD675	0,7	171,5	4,11	700			
	3	KLS 212,8	0,9	212,0	1,52	900			
	4	Telesystem 675NF	1,8	172,0	7,53	1800			
	5	DC - 172	3,3	172,0	9,42	3300			
	6	KLS 209,0	3,5	209,0	1,52	3500			
	7	Filter sub	3,6	172,0	1,00	3600			
	8	Sub	3,8	172,0	1,00	3800			
	9	DC - 146	6,7	146,0	27,43	6700			
	10	165 mm hydraulic jar	7,4	165,0	4,87	7400			
	11	DC - 146	10,3	146,0	27,43	10300			
	12	Sub	10,5	164,0	1,00	10500			

The calculations of the hydraulic resistances were carried out on the basis of two pumps of the F-1600 type of the ZJ 70 DV drilling rig.

The required flow rate of drilling mud is determined by the specific flow rate of 1 cm^2 at the bottom of the well. It is advisable to keep the specific consumption of drilling mud within 0.035 - 0.05 $dm^3/sec/cm^2$.

Depending on the flow of drilling mud, the number of drilling pumps and the diameters of cylindrical bushings are selected in accordance with the technical characteristics of drilling pumps.

For satisfactory cleaning of the bottom of the well, a nozzle of drill bits is designed, which can create a flow rate of at least 80 m/sec of the washing liquid.

Based on the selected drilling fluid flow rates, pressure losses during circulation are determined.

Calculations are performed in accordance with the "Instructions for drawing up a hydraulic well drilling program", RD 39 – 047009 - 516 - 86.

The pressure drop on the bit and circulation systems should not be higher than 0.8 times the pressure of the selected diameters of cylindrical bushings created by pumps.

The indicators of the distribution of pressure dropes during circulation are given in Table 8.

Table 8. Distribution of pressure dropes during circulation

Interval, m		Type of technological operation	Face pressure on supports, kgf/cm2	Pressure drop at the bottom (kgf/cm^2)				
				On the elements of the BHA		In the drill pipe	In the annular space	On drilling equipment
from top	to bottom			On the bit (nozzles)	On the downhole engine			
1	2	3	4	5	6	7	8	9
50	800	Drilling	113	61	-	44	-	8
800	2119	Drilling	200	40	12	25	-	5
2119	2764	Drilling	170	40	10	27	-	5

During drilling operations, based on actual mining and geological conditions, it is necessary to make a change in the indicators [12].

Based on the calculations, the obtained interval technological parameters of the drilling mode for the projected well are shown in Table 8.

Table 8.

Interval, m		Type of operation	Drilling method	Conditional number of the BHA	Drilling mode indicators			The speed of technological operations, m/hour
from	before				Axial load, ts	Bit rotation speed, rpm	Drilling mud consumption, l/sec	
1	2	3	4	5	6	7	8	9
10	50	Drilling	Rotary	1	4 - 6	30 - 40	58	Actual
50	800	Drilling	Rotary	2	10 - 16	60 - 100	42	Actual
800	1650	Drilling	Rotary	3	10 - 14	60 - 100	41	Actual
1650	2119	Drilling	Rotary	4	5 – 10	120 - 130	40 - 45	Actual
2119	2764	Drilling	Rotary	5	5 - 10	120 - 130	25 - 30	Actual

Note: the projected parameters of the drilling mode can be changed according to the actual conditions during the drilling process.

References:

1. Deryaev, A.R. (2023). *The choice of the of dual completion operation method for increasing production and accelerated development of multi-layer fields.* The 3th International scientific and practical conference "Theoretical aspects of education development". (p.569). Poland-. Warsaw.

2. Deryaev, A.R. (2023). *Geologo-promyslovye i tekhnologicheskie osnovy vybora metoda odnovremennoj razdel'noj ekspluatacii dlya*

uvelicheniya dobychi i uskorennoj razrabotki mnogoplastovyh mestorozhdenij. «Potencial innovacionnogo razvitiya v novyh geopoliticheskih usloviyah» monografiya vypusk №73. (pp.5-47). Ufa: Nauchnoe izdanie: NIC "Aeterna".

3. Deryaev, A.R. (2022). *Obosnovanie vybora rekomenduemyh sposobov ekspluatacii skvazhin, ust'evogo i vnutriskvazhinnogo oborudovaniya i harakteristika pokazatelej*

ekspluatacii skvazhin. Sbornik statej po materialam XLIX mezhdunarodnoj nauchno-prakticheskoj konferencii "Nauchnyj forum: innovacionnaya nauka" №3 (49). (pp.20-25). M: Izdatel'stvo: «MCNO».

4. Deryaev, A.R. (2023). *Kratkij analiz issledovaniya tekhnologii bureniya odnovremennoj razdel'noj ekspluatacii mnogoplastovogo mestorozhdeniya.* Sbornik statej Mezhdunarodnoj nauchno-prakticheskoj konferencii "Research forum - 2023". (pp.29-34). Petrozavodsk: Nauchnoe izdanie: MCNP "Novaya nauka".

5. Deryaev, A.R. (2022). Determination of saturation and physical properties of reservoir fluids, gas and physiclithological characteristics of productive horizons for dual completion operation of wells. *International Scientific Journal "Theoretical & Applied Science"* №11(115) - USA- Philadelphia: Publishing: "Theoretical & Applied Science", pp.605-609.

6. Deryaev, A.R. (2022). Laboratory and calculation methods determination of properties and composition of oil, gas and condensate for field development by dual completion operation. *International Scientific Journal "Theoretical & Applied Science"*, №11(115) - USA-Philadelphia: Publishing: "Theoretical & Applied Science", pp.610-617.

7. Deryaev, A.R. (2022). *Vybor tekhnologicheskih rezhimov ekspluatacii skvazhin mnogoplastovyh mestorozhdenij.* Sbornik statej po materialam nauchnyh statej s SHHHV Mezhdunarodnoj nauchno-prakticheskoj konferencii "Innovacionnye podhody k sovremennoj nauke", №3 (135), (pp.44-60). Moskva: Izdatel'stvo: «Internauka».

8. Deryaev, A.R. (2022). Results of gas-hydrodinamic and thermodynamic studies of wells and formations for dual completion of wells on the Altyguyi field. *Journal of science. Lyon.* №36 - Lyon - France: Publishing: "Journal of science. Lyon.", pp. 13-17.

9. Deryaev, A.R. (2022). *Trebovaniya k konstrukciyam, provedeniyu burovyh rabot, metodam vskrytiya plasta i osvoeniyu skvazhin.* Sbornik statej V Mezhdunarodnoj nauchnoj-prakticheskoj konferencii "Innovacionnyj diskurs razvitiya sovremennoj nauki i tekhnologij." (pp.8-14). Petrozavodsk: Nauchnoe izdanie: MCNP "Novaya nauka".

10. Deryaev, A.R. (2022). Analysis of technological modes of operation and justification of the methodology for forecasting development for gas condensate fields. *International Journal of Recent Advances in Multidisciplinary Research* vol. 09, issue 10 - India - Deli: Publishing: "International Journal of Recent Advances in Multidisciplinary Research", pp. 8083-8090.

11. Deryaev, A.R. (2022). *Selection of equipment for dual completion extraction of gas and oil by two tubing columns. "Study of world opinion regarding the development of science".* Proceedings of the IX International scientific and practical conference. (pp.572-577). Publishing: Czech Republic - Prague: International Science Group «isg-konf.com».

12. Deryaev, A.R. (2023). *Harakteristika produktivnyh gorizontov i opredelenie fiziko - himicheskih svojstv ih produkcii dlya razrabotki mestorozhdenij metodom odnovremennoj razdel'noj ekspluatacii.* Sbornik statej Mezhdunarodnoj nauchno-prakticheskoj konferencii "Proryvnye nauchnye issledovaniya: problemy, predely i vozmozhnosti". (pp.31-43). Ufa: Izdatel'stvo OOO "Omega sajns".

13. Gulatarov, H., Deryaev, A.R., & Esedulaev, R.E. (2019). *Osobennosti tekhnologii bureniya gorizontal'nyh skvazhin sposobom elektrobureniya.* (Monografiya). (pp.50-56). Ashgabat, Nauka.

14. Deryaev, A.R (2012). Burenie naklonno napravlennyh skvazhin na mestorozhdeniyah Zapadnogo Turkmenistana. */Nebitgazlymytaslama institutynyň makalalar ýygyndysynyň* 2-nji (29) göýberilişi Aşgabat: Türkmen döwlet neşirýat gullugy, pp. 267-276.

15. Deryaev, A.R. (2012). Opyt bureniya skvazhin s gorizontal'nym okonchanie stvola Zapadnom Turkmenistane. *Sbornik stat'ej instituta "Nebitgazylmytaslama"*, vypusk 2(29) Ashgabat: Turkmeniskaya Gosudarstvennaya sluzhba pechati, pp. 277-285.

16. Deryaev, A.R., Gulatarov, H., Esedulaev, R., & Amanov, M. (2020). *Tekhnologiya burenie naklonno-napravlennyh i gorizontal'nyh skvazhin i raschety proektirovaniya.* (Nauchnaya monografiya). (p.608). Ashgabat Ylym.

17. Deryaev, A.R., Mamedov, B., & Amanov, M. (2021). *Vnedrenie receptur burovyh rastvorov dlya bureniya naklonno-napravlennyh i vertikal'nyh skvazhin.* Mezhdunarodnaya nauchno-prakticheskaya konferenciya studentov, magistrov, aspirantov, soiskatelej i doktorantov. "Rynok i effektivnost' proizvodstva-18", posvyashchennaya 30-letiyu Nezavisimosti Respubliki Kazakhstan. Sbornik trudov, (pp.258-261). Kokshetau.

Javohir Ismoilovich Safarov
Tashkent Economic University
senior lecturer, Tashkent, Uzbekistan
safarov54@mail.ru

ABOUT SOME FEATURES OF THE APPLICATION OF MATHEMATICAL METHODS ON ACCOUNTING IN THE ECONOMY

Abstract: *Relevance. The implementation of the Government's program "Digital Economy of the Republic of Uzbekistan" should contribute to the creation of such an economic environment in which, through digital technologies, effective interaction of all economic organizations is ensured. Such interaction of subjects in the economic sphere in the context of digitalization requires both the development of a special regulatory system and the formation of new relevant personnel competencies using mathematical and computer methods.*

Target. The essence, advantages and disadvantages of innovative forms of organization of accounting in the digital economy are revealed. Identification of the most relevant areas for improving the quality of accounting activities and the development of a competency-based model for training specialists in the field of accounting in modern Uzbekistan.

Tasks. The essence of the concept of the digital economy, as well as the advantages and disadvantages of the current software used in accounting in foreign countries, cloud technologies, blockchain technologies are explored. Determination of the characteristics of the accounting service of organizations in the context of digitalization. Identification of problems of modern methodology and accounting practice in Uzbekistan at the present stage.

Methodology. General scientific methods of cognition of the methodological basis of the work: observation, generalization, comparison, deduction and induction, methods of analytical evaluation of the content of legal documents in the field of accounting and reporting.

Results. In addition to the automation of accounting processes, the accounting service of companies in the digital economy has undergone a number of changes that have changed the functional purpose of both the accounting service of organizations and the accounting profession. These transformations require, first of all, a change in the competency-based model of training accountants.

Conclusions. For the effective fulfillment of its tasks, accounting at the present stage has an insufficiently perfect methodological base, which requires serious improvement at the level of republican regulation.

Key words: *Digital economy, software, blockchain, accounting, data aggregation system, automated accounting systems, subject, online services, client.*

Language: *Russian*

Citation: Safarov, J. I. (2023). About some features of the application of mathematical methods on accounting in the economy. *ISJ Theoretical & Applied Science, 06 (122),* 17-21.

Soi: http://s-o-i.org/1.1/TAS-06-122-3   *Doi*: crossref https://dx.doi.org/10.15863/TAS.2023.06.122.3
Scopus ASCC: 2000.

О НЕКОТОРЫЕ ОСОБЕННОСТИ ПРИМЕНЕНИЕ МАТЕМАТИЧЕСКИЕ МЕТОДЫ НА БУХГАЛТЕРСКОГО УЧЕТА В ЭКОНОМИКЕ

Аннотация: *Реализация программы Правительства «Цифровая экономика Республики Узбекистан» должна способствовать созданию такой экономической среды, в которой посредством цифровых технологий обеспечивается эффективное взаимодействие всех экономических организации. Такие взаимодействие субъектов в экономической сфере в условиях цифровизации требует как разработки особой*

системы нормативного регулирования, так и формирования новых соответствующих кадровых компетенций с применением математические и компьютерные метод.

Цель. Раскрыты сущность, преимущества и недостатки инновационных форм организации бухгалтерского учета в цифровой экономике . Выявление наиболее актуальных направлений повышения качества бухгалтерской деятельности и разработка компетентностной модели подготовки специалистов в области бухгалтерского учета в современном Узбекистане..

Задачи. Исследуются сущность концепции цифровой экономики, а также преимущества и недостатки текущего программного обеспечения, используемого в бухгалтерском учете в зарубежных странах, облачных технологий, технологий блокчейн. Определение характеристик бухгалтерской службы организаций в условиях цифровизации. Выявление проблем современной методологии и бухгалтерской практики в Узбекистане на современном этапе.

Методология. Общенаучные методы познания методологической основы работы: наблюдение, обобщение, сравнение, дедукция и индукция, методы аналитической оценки содержания юридических документов в области бухгалтерского учета и отчетности.

Результаты. Помимо автоматизации учетных процессов бухгалтерская служба компаний в условиях цифровой экономики претерпела ряд изменений, изменивших функциональное назначение как бухгалтерской службы организаций, так и бухгалтерской профессии. Эти преобразования требуют, прежде всего, изменения компетентностной модели обучения бухгалтеров.

Выводы. Для эффективного выполнения своих задач бухгалтерский учет на современном этапе имеет недостаточно совершенную методологическую базу, что требует серьезного совершенствования на уровне республиканского регулирования.

Ключевые слова: Цифровая экономика, программное обеспечение, блокчейн, бухгалтерский учет, система агрегирования данных, автоматизированных систем бухгалтерского учета, субъект, онлайн-услуг, клиент.

Введение

Одна из основных реформ, проводимых в нашей стране, - это цифровизация нашей экономики. В нынешнем процессе глобализации конкурируя со странами по всему миру, не прибегать к цифровой экономике практически невозможно. Цифровая экономика служит нам не только для общения со странами мира, но и для полного избавления от скрытой экономики прозрачной, то есть нашей экономики.

При переходе к цифровой экономике, прежде всего, требуется оцифровка бухгалтерского учета. Готова ли вообще отрасль к переходу к цифровой экономике, хватает ли профессионалов и их уровень и квалификация, работающих в отрасли. Готовы ли существующие в нашей стране информационные технологии к переходу к цифровой экономике? Такие вопросы сегодня стали очень актуальными.

Так что же такое цифровая экономика? В разных источниках есть разные подходы к этому термину. По Ш.Соатовой: к цифровой экономике описываются следующим образом - это экономические, социальные и культурные связи это система внедрения, основанная на применении цифровых технологий. Иногда это также выражается в терминах интернет-экономики, новой экономики или интернет-экономики [1].

По мнению экономиста Ш. Мустафакулова: Цифровая экономика - это система, позволяющая значительно повысить эффективность хранения, продажи и доставки различных производств, технологий, оборудования, товаров и услуг на основе использования результатов анализа и обработки больших объемов данных. Цифровые данные - это деятельность, которая является ключевым производственным фактором [2,3].

На наш взгляд, цифровая экономика - это предприниматель основной фактор при производстве товаров (работ, услуг) в виде цифр хранение, обработка и передача всех данных, более эффективные решения деятельности хозяйствующего субъекта с использованием система провайдера. Другими словами, цифровая экономика - это система агрегирования данных в одной системе, предоставления онлайн-услуг клиентам, электронного осуществления всех передач данных и платежей, электронной коммерции и других видов обмена информацией между пользователями.

Методы.

В экономике часто применяется цепь Маркова - это марковский процесс с дискретным временем и дискретным пространством состояний. Итак, цепь Маркова - это дискретная последовательность состояний, каждое из которых берётся из дискретного пространства состояний (конечного или бесконечного), удовлетворяющее марковскому свойству [4].

По мнению всемирно известных экспертов McKinsey, сегодня около 10 процентов мирового ВВП приходится на цифровые активы, однако темпы их развития в мировой экономике равняется 30 процентам от их увеличения. Развитие

цифровых активов носит на основе ускорительный характер.

Как следствие снижение затрат с использованием информационных технологий в цифровой экономике достигается оптимизация и повышенная эффективность.

Хорошо известно, что сегодня цифровая экономика также играет важную роль в создании добавленной стоимости. Различные алгоритмы, процессы и цифровая информация становятся ключевыми факторами в стратегическом развитии корпоративного бизнеса. Цифровые нефинансовые факторы определяют конкурентоспособность банков и влияют на их эффективность [3,4].

Развитие мировой экономики и информационных технологий заложила основу и для развития бухгалтерского учета. Это создало возможности для использования автоматизированных систем бухгалтерского учета.

Сегодня в нашей стране используется ряд бухгалтерских программ, для некоторых объектов бухгалтерского учета в том числе программы 1uz, 1c, uzasbo, estat и сайты my.soliq.uz, faktura.uz, интернет-банкинг, didox.uz. Вышеупомянутые программы и сайты значительно увеличивают обмен информацией между организациями.

Существуют следующие способы организации бухгалтерского учета в цифровой экономике нашей страны.

Работать путем подключения к базе данных программного обеспечения, таких как 1uz, 1c, uzasbo, estat

Использование облачных технологий Google drive, Яндекс

Использование дисковых технологий, Onedrive, Dropbox;

Использование технологии блокчейн;

Использование мобильной бухгалтерии.

У использования каждой технологии в бухгалтерском учете есть свои плюсы и минусы. Программное обеспечение, такое как 1uz, 1c, uzasbo, estat, позволяет бухгалтерам управлять взаимосвязанными областями бухгалтерского учета, иметь актуальную информацию для управленческого персонала и принимать управленческие решения.

Автоматизация бухгалтерского учета значительно упрощает обработку данных по сравнению с ручной обработкой. Автоматизация бухгалтерского учета автоматизирует первичные документы заполнение деталей, обработка больших объемов данных, предоставление информации пользователям в различных формах возможности, избыточное потребление бумаги, руководство и подчиненные, быстрый обмен информацией между организационными подразделениями, устранение арифметических ошибок, онлайн-общение с регулирующими

органами и банками, способность быстро реагировать на изменения в законодательстве [5,6]

Еще одно современное приложение в цифровой экономике это - технология блокчейн.

Блокчейн - это следование определенным правилам хранения информации, цепочка блоков в структурированной непрерывной последовательности (связанный список). Связь между блоками осуществляется не только с помощью нумерации, но у каждого блока своя сумма и сумма предыдущего блока. Чтобы изменить данные в блоке, вам нужно отредактировать все последующие блоки. Часто копии блокчейнов хранятся на разных компьютерах независимо друг от друга. Это уникальный, без централизованного управления, распределенного по компьютерам база данных. Блокчейн часто называют «распределенной базой данных».

По словам российские экономисты Н.В.Емельянов, Ю.А.Ермиловой такие технологии, как блокчейн, является необходимым условием в оцифровке бухгалтерского учета.

Предприятия должны вести учет операций в едином реестре и может храниться, в котором ведется распределенный и взаимосвязанный учет данные предоставляются как система. Возможность фальсификации и уничтожения информации становится практически невозможной из-за системы распространения и криптографической защиты. Такая система называется «трехсторонним письмом» [7,8].

В технологии блокчейн нет необходимости проводить инвентаризацию с контрагентами при внедрении технологии блокчейн в систему бухгалтерского учета организации, так как формирование и списание дебиторской и кредиторской задолженности при заключении транзакции осуществляется одинаково. Задача бухгалтера будет заключаться в правильной классификации приобретенных или переданных активов и регистрации соответствующих доходов или расходов, проведении расчетов в режиме реального времени и во избежание уклонения от уплаты налогов, поскольку все операции оцифровываются [9,10,11].

Одна из самых популярных цифровых технологий сегодня - это облачные технологии. Облачная технология - это модель Интернет-хранилища, в которой данные хранятся на нескольких распределенных серверах в сети и доступны клиентам для использования. Особенность использования данной технологии в том, что организации не нужно покупать дорогостоящее оборудование, нанимать специалистов для его обслуживания или устанавливать специализированное программное обеспечение. Доступа в Интернет достаточно для использования облачных сервисов. Самыми

простыми примерами облачных технологий являются виртуальная память, например, Google диск (диск), Яндекс диск, Onedrive, Dropbox.

С любого устройства с использованием облачных технологий (ноутбук, планшет, мобильное устройство) можно оплачиват желаемый пакет, что также необходимо пользователю, кроме этого существует независимый выбор доступных функций (скорость подключения, объем памяти, вычислительная мощность, а также время аренды облака).

Оцифровка бухгалтерского учета дает следующие преимущества в данной сфере:

✓ ускоряется поток данных;
✓ повышается надежность данных;
✓ повышается производительность труда;
✓ экономит время, затрачиваемое на заполнение документов;
✓ точно рассчитана стоимость товара;
✓ возможность быстро обрабатывать большие объемы данных;
✓ предотвращается чрезмерный расход бумаги;
✓ исключены арифметические ошибки;
✓ снижается важность пространства, времени и устройств в работе, т.е. к данным можно получить доступ где угодно, в любое время и через любое устройство (ноутбук, планшет, мобильное устройство) имеется в наличии;
✓ наличие гарантии не потерять данных;
✓ быстрая гибкость при изменении нормативных документов;
✓ гибкость в соответствии с международными стандартами;
✓ нет риска отклонения по налогам и другим платежам в бюджет и так далее.

Из вышесказанного мы можем видеть, что цифровизация бухгалтерский учет очень важна не только для предприятия, но и для государства.

Оцифровка бухгалтерского учета, наряду с преимуществами в данной сфере, также создает ряд проблемных ситуаций:

✓ сокращение рабочих мест, в результате автоматизации всех отделов рабочие места могут сократиться;
✓ раскрытие данных субъектов хозяйствования в результате утечки данных из общей системы;
✓ возрастающая зависимость от программного обеспечения;
✓ низкое качество интернет-услуг приводит к некоторым дефектам в системе;
✓ отсутствие высококвалифицированных кадров в отрасли.

В заключение можно сказать, что экономика нашей страны цифровизация - основа для нашего выхода на мировой рынок это один из факторов. Цифровизация экономики расширяет возможности пользователей бухгалтерского учета, повышает качество и эффективность бухгалтерского учета и формирует современные инновационные подходы к интеграции различных видов бухгалтерских услуг.

В результате исследования мы разработали следующие предложения и рекомендации:

1. Применение современных информационных технологий в бухгалтерском учете создает возможность замена делопроизводства на автоматизированный учет и это улучшает результаты работы. В данный момент онлайн-учет операций в бухгалтерии, банках и информационные технологии включены в повседневную работу бухгалтера специальные онлайн-сервисы, позволяющие создавать портфели, следует вводить путем объединения отраслей.

2. Следует популяризировать облачных и блокчейн-технологий в бухгалтерском учете в нашей стране. Это приводит хранение в определенных базах данных, их быстрый обмен, прозрачность данных, избежание отклонений по налогам и другим платежам в бюджет, а также сокращается расход бумаги, что приводит к небольшому снижению затрат предприятий.

3. Внедрение мобильной бухгалтерии. Путем создания разных мобильный приложений, которые предоставляют пользователям бухгалтерской услуги широкий спектр возможностей. Мобильный учет снижает важность пространства, времени и устройств в работе пользователей, т.е. данные можно использовать в любом месте, в любое время и на любом устройстве (планшете, мобильном устройстве). Это позволяет пользователям учетной информации (руководителям, менеджерам, менеджерам) своевременно принимать необходимые решения и повышать эффективность работы.

4. Цифровизация экономики выведет на новый уровень бухгалтерского учета. В свою очередь, требует от государства, отраслевых экспертов и практиков формирования модели основных концепций, законодательства, нормативных актов, руководящих принципов и правил для создания нормативной базы бухгалтерского учета в новой цифровой экономике.

References:

1. Soatova, Sh. (2020). *Chto nuzhno znat` o cifrovoj jekonomike?* Retrieved 27.01.2020 from https://sof.uz/uz/post/need-to-know-what-is-about-the-digital-economy

2. Mustofokulov, Sh. (2020). Cifrovaja jekonomika - novaja jera razvitija novogo Uzbekistana / *Narodnaja rech`*,25.02.2020. №. 40. http://tsue.uz/?p=12549

3. Dzhumaev, N. (n.d.). *Zachem nam nuzhna cifrovaja jekonomika i chto ona daet?*

4. (n.d.). Retrieved from https://review.uz/oz/post/digital-economy-is-the-guarantee-of-the-development-of-our-country

5. Ivanov, P.V., et al. (2014). *Metody prinjatija upravlencheskih reshenij.* (p.415). Rastov - na «Feniks».

6. Sokerin, P.O. (2019). Primenenie snezhnyh tehnologij v buhgalterskom uchete. *Nauchnye stremlenija*, №. 25, pp. 72-74.

7. Emel`janov, N. V., & Ermilova, Jy. A. (2019). Vlijanie cifrovizacii jekonomiki na razvitie buhgalterskogo ucheta. *Jekonomicheskie issledovanija i razrabotki*, №. 1, pp. 8-12.

8. Krulikovskij, A.P., & Taratusina, T.S. (2019). Cifrovaja transformacija buhgalterskogo ucheta. Aktual`nye problemy i perspektivy razvitija. *Jekonomika*, 2019, pp. 207-211.

9. Budovich, Yu. I. (2018). *Digitalization of corporate accounting.* Human capital in digital economy format: International scient. conf. (pp.117-125). Moscow.

10. Yermilova, Yu. A. (2016). *Aspects of accounting and analytical support of innovative activity at enterprise. Regional innovative economy: essence, elements, problems of formation, new challenges.* (pp.18-21). Ulyanovsk.

11. Labyntsev, N. T., & Belyunova, E. A. (2019). Digital economy and its impact on development of national and international economy. *Problems of accounting, analysis, audit and statistics in market conditions: scient. notes,* Rostov-on-Don, Issue 2.

12. Sidorova, M.I. (2013). *Razvitie modelej buhgalterskogo uchjota v uslovijah sovremennyh informacionnyh tehnologij:* avtoreferat dis. na soiskanie stepeni doktora jekonomicheskih nauk. Moscow.

Jasurjon Zafarjonovich Artikov
Moscow State Educational Institution
a second-year master degree student of the Faculty of Law under MSEI

Natalya Leonidovna Emelkina
Moscow State Educational Institution
Scientific adviser
Associate Professor of the department of criminal procedure and forensic science
azm1977@mail.ru

FUNCTIONS OF PROSECUTION AND DEFENSE IN JUDICIAL INVESTIGATION UNDER THE CONDITIONS OF COMPETITIVENESS OF PARTIES

Abstract: *The article dwells on the issue beset with functions of prosecution and defense in judicial investigation under the conditions of competitiveness of parties. It is noted that the Code of Criminal Procedure for the first time delineated the procedural functions of the prosecution, the defense and the powers of the court. Currently, the idea of separating criminal procedural functions, in accordance with the principle of competition, which was previously often rejected, is supported by many prominent proceduralists who managed to explore the relevant issue. It is concluded that the nature and nature of procedural functions are determined by the content of criminal procedural activity, which is heterogeneous. In this regard, the question of the correspondence of procedural functions to the nature of the criminal process can be resolved on the basis of an analysis of the content side of criminal procedural activity.*

Key words: *functions of prosecution and defense, judicial investigation, competitiveness of parties, the Code of Criminal Procedure.*

Language: *Russian*

ФУНКЦИИ ОБВИНЕНИЯ И ЗАЩИТЫ В СУДЕБНОМ СЛЕДСТВИИ В УСЛОВИЯХ СОСТЯЗАТЕЛЬНОСТИ СТОРОН

Аннотация: *В статье рассматривается вопрос о возложении функций обвинения и защиты в судебном расследовании в условиях состязательности сторон. Отмечается, что Уголовно-процессуальный кодекс впервые разграничил процессуальные функции обвинения, защиты и полномочия суда. В настоящее время идею разграничения уголовно-процессуальных функций в соответствии с принципом состязательности, которая ранее часто отвергалась, поддерживают многие видные процессуалисты, которым удалось изучить актуальный вопрос. Делается вывод о том, что сущность и характер процессуальных функций определяются содержанием уголовно-процессуальной деятельности, которое неоднородно. В связи с этим вопрос о соответствии процессуальных функций характеру уголовного процесса может быть решен на основе анализа содержательной стороны уголовно-процессуальной деятельности.*

Ключевые слова: *функции обвинения и защиты, судебное следствие, состязательность сторон, УПК.*

Введение

Разделение трех основных процессуальных функций выступает одним из функциональных признаков состязательной формы уголовного процесса. Следовательно, практическое обеспечение состязательности уголовного судопроизводства требует нормативного закрепления содержания каждой из этих функций.

Для дальнейшего исследования целесообразно подчеркнуть, что мы не согласны с тем, что функции обусловлены ролью и назначением их носителей. В противном случае следовало бы прийти к выводу, что сначала были созданы органы обвинения, защиты и правосудия, а уже затем возникла уголовно-процессуальная деятельность с выделением в ней конкретных направлений — функций. В настоящее время в странах СНГ, в том числе в Таджикистане предпринимаются попытки создать именно идеальную форму состязательного процесса – активные и равноправные стороны представляют суду свои выводы об обстоятельствах совершения преступления. Взяв состязательность за основу уголовной процедуры в Республике Таджикистан, законодатель ее гарантировал, закрепив в ст. 20 УПК РТ положения о разделении функций в уголовном процессе, о нейтральном отношении суда к функциям сторон, а также о равноправии сторон. Равноправие сторон, закрепленное в ст. 15 УПК РФ и в ч. 3 ст. 20 УПК РТ, является необходимым условием приближения к достижению идеи состязательности сторон в уголовном судопроизводстве.

Уголовно-процессуальный кодекс впервые разграничил процессуальные функции стороны обвинения, стороны защиты и полномочия суда. В настоящее время идея разделения уголовно-процессуальных функций, в соответствии с принципом состязательности, которая ранее часто отвергалась, находить поддержку многими видными процессуалистами, которым удалось исследовать данную проблематику. Одни авторы предлагают четко разделить уголовно-процессуальные функции и распространить принцип состязательности на весь уголовный процесс, другие считают, что в условиях современного Таджикистана состязательное построение уголовного судопроизводства невозможно как в досудебном производстве, так и в судебном. Определенные авторы предлагают обратиться к опыту западных стран и закрепить в УПК РТ правила, свойственные не только континентальной системе права, но и англосаксонской [1, с.25]. Есть мнения, согласно которым Таджикистан должен искать свой путь, поскольку западные правила просто неприемлемы для национального правоприменителя [2, с.41-42].

Принцип состязательности означает прежде всего: 1) разграничение функций обвинения (уголовного преследования) и защиты и возложение этих функций на стороны обвинения и защиты соответственно; 2) отделение функции разрешения дела (правосудия) от функций обвинения и защиты; 3) процессуальное равноправие сторон. В этих целях УПК РФ обозначил круг участников процесса, выполняющих функцию обвинения (гл. 6), функцию защиты (гл. 7) и возложил на суд исключительно функцию правосудия (гл. 5). В то же время следует иметь в виду, что КС РФ в своем постановлении от 29 июня 2004 г. N 13-П указал, что положения ч. 2 статьи 15 УПК РФ в их конституционно-правовом смысле не освобождают должностных лиц государственных органов - участников уголовного судопроизводства со стороны обвинения - от выполнения при расследовании преступлений и судебном разбирательстве уголовных дел конституционной обязанности по защите прав и свобод человека и гражданина, в том числе от незаконного и необоснованного обвинения, осуждения, иного ограничения прав и свобод [3, с.32].

Решение задач уголовного судопроизводства во всех его стадиях во многом зависит не только от качества работы лица, производящего расследование, но и от степени активности сторон по участию в доказывании. Данное положение закреплено в государственной программе судебно-правовой реформы в Республике Таджикистан, которая указала важнейшие моменты развития демократических начал уголовного судопроизводства, в том числе и на необходимость расширения состязательности и равноправия сторон.

Уголовно-процессуальная деятельность – это система процессуальных действий, которые имеют определенные направления, уголовно-процесуалные функции, связанные с специальным назначением и ролью в уголовном судопроизводстве каждого из его участников. Определенное время термин «функция» был термином исключительно теоретическим. Исследователи неоднократно подвергали критике законодателя за нерешительность в вопросах определения уголовно-процессуальных функций на уровне нормативных актов.

Принятый 03 декабря 2009 года Уголовно-процессуальный кодекс Республики Таджикистан [4] употребляет термин «уголовно-процессуальные функции». Так, в ст.ст. 6, 20 УПК РТ, раскрывая принцип состязательности сторон, исходя из публичных и частных интересов законодатель указывает, что функции обвинения, защиты и разрешения уголовного дела отделены друг от друга и не могут быть возложены на один

и тот же орган или одно и тоже должностное лицо. Модельный Уголовно-процессуальный кодекс для государств-участников СНГ [5, с.6] также обозначил термин «функция» (правда, только в одном случае и к тому же не в основном тексте, а лишь в разделе, посвященном разработке концепции модельного Уголовно-процессуального кодекса). Использование в п. 21 ст. 10 МУПК таких терминов как «уголовное преследование», «защита», «стороны» позволяет сделать вывод о том, что, законодатель прямо не употребил термин «уголовно-процессуальная функция», но все же его подразумевает. По мнению 3.3. Зинатуллина и Т.3. Зинатуллина, уголовно-процессуальные функции имеют следующие свойства: а) функция есть урегулированная законом процессуальная деятельность; б) функция осуществляется участниками уголовного процесса - представителями либо со стороны обвинения, либо со стороны защиты от обвинения; в) это деятельность направлена на достижение предназначения уголовного судопроизводства [6, 11].

Чаще всего под уголовно-процессуальными функциями ученые понимали основные направления процессуальной деятельности [7, с.10]. Так, М.С.Строгович определял процессуальные функции в следующей форме: «Уголовно-процессуальные функции - это определенные стороны, определенные направления деятельности, не совпадающие друг с другом и не поглощаемые друг другом» [8, с.15].

Сторонники такого толкования исходили из наличия в уголовном судопроизводстве трех основных уголовно-процессуальных функций: обвинения (уголовного преследования), защиты, разрешения дела. Такой подход традиционен, поскольку для выделения названных функций используется состязательная конструкция уголовного процесса.

Следует отметить, что ранее ученые, характеризуя уголовно-процессуальные функции, особый акцент делали на процессуальном положении должностных лиц органов государственной власти. Руководящее, а значит, и первостепенное положение всегда отдавалось должностным лицам. Такая позиция ученых вполне объяснима, поскольку УПК не только Республики Таджикистан, но других союзных республик до 90-х годов ХХ в. был ориентирован на защиту государственно-публичных интересов при полном игнорировании диспозитивных начал. При таком подходе речи о защите интересов граждан не могло и идти.

Сегодня законодатель назначением уголовного судопроизводства видит: 1) защиту прав и законных интересов лиц и организаций, потерпевших от преступлений; 2) защиту

личности от незаконного и необоснованного обвинения, осуждения, ограничения ее прав и свобод; 3) уголовное преследование, привлечение к уголовной ответственности только виновных лиц и назначение только виновным справедливого наказания; 4) отказ от уголовного преследования невиновных, реабилитация каждого, кто необоснованно подвергся уголовному преследованию.

Нетрудно заметить, что, в сущности, это всего лишь две задачи: а) восстановление прав лиц, пострадавших от преступлений; б) защита лица от незаконного и необоснованного обвинения.

Поскольку новым УПК РТ приоритеты изменены, то, стало быть, определяющими при характеристике направлений процессуальной деятельности должны быть именно те задачи, которые закреплены в ст. 2 УПК РТ. Именно эти задачи лежат в основе распределения уголовно-процессуальных функций.

В этой связи хотелось бы отметить, что при выделении уголовно-процессуальных функций в основе деления, скорее всего, не должна лежать цель деятельности или задачи каждого лица. Если существование уголовно-процессуальных функций будет зависеть от цели деятельности каждого участника судопроизводства, то вполне возможна ситуация, когда каждому участнику будет «выделена» только ему свойственная функция. При этом, количество процессуальных функций будет устремлено к количеству участников уголовного процесса.

Такое положение подтверждается, если проанализировать взгляды ученых, которые объясняют наличие уголовно-процессуальных функций через роль конкретных участников уголовного процесса [9, с.15]. Именно им свойственно количественное увеличение уголовно-процессуальных функций. Например, В.Н. Шпилев так обосновывал необходимость количественного увеличения уголовно-процессуальных функций: «Поскольку теория трех основных процессуальных функций не в полной мере отражает содержание уголовно-процессуальной деятельности, где каждый участник процесса выполняет определенную функцию и действует в определенном направлении, предусмотренном законом, ...предприняты попытки сконструировать более широкую систему процессуальных функций» [10, с.15]. Как видим, здесь на первое место выходит стремление автора в обязательном порядке закрепить за каждым участником осуществление конкретной и только ему свойственной уголовно-процессуальной функции.

Следуя подобным рассуждениям, некоторые процессуалисты к трем основным функциям присоединяют еще расследование дела,

поддержание гражданского иска и защиту от гражданского иска [11, с.13].

Кроме того, обосновывается наличие в уголовном процессе семи процессуальных функций: 1) установление и проверка данных относительно преступлений, их расследование; 2) обвинение; 3) прокурорский надзор за исполнением законности; 4) защита от предъявленного обвинения; 5) судебное рассмотрение и разрешение уголовного дела; 6) вспомогательная функция, включающая в себя действия свидетелей, экспертов, других лиц, так или иначе содействующих осуществлению следственных и судебных действий; 7) побочная функция, находящая свое выражение в деятельности гражданского истца и гражданского ответчика [12, с.57].

В свое время В.Г. Даев также предложил классификацию функций, вытекающую из наличия интересов лиц, участвующих в уголовном процессе. Он выделял: 1) расследование уголовного дела; 2) прокурорский надзор за соблюдением законности в ходе уголовного судопроизводства; 3) защита личных процессуальных интересов; 4) оказание содействия в ходе уголовного судопроизводства [13]. В.С. Зеленецкий предлагал делить процессуальные функции на общие и частные, то есть на функции, реализующиеся на всем протяжении уголовного процесса, и функции, осуществляющиеся в одной или нескольких стадиях процесса. Вероятно, автор здесь допустил смешение понятий «задачи» и «функции» [14, с.60]. Громов Н.А обосновывает мнение о различии основных и дополнительных уголовно-процессуальных функций [15, с.72].

Думается, стремление определить уголовно-процессуальные функции через роль участников процесса должно быть ограничено анализом роли и интереса некой совокупности участников, распределенных в отдельные группы.

Уголовно-процессуальная функция должна представлять собой направление деятельности группы участников. Иное приведет к неоправданному расширению перечня уголовно-процессуальных функций. Косвенным подтверждением нашей мысли является мнение А.М. Ларина, который считал, что «если исходить только из наличия процессуально-правовой цели, то можно насчитать столько функций, сколько существует процессуальных актов» [16, с.57]. Действительно, совершая любое действие или вынося любое решение, участник преследует какую-либо конкретную цель. Поэтому А.М. Ларин делает вывод: «Функция - это не отдельное действие, а деятельность, т.е. совокупность действий и решений, объединенных единством цели» [17; 18; 19; 20]. При этом, дискуссионными остаются некоторые вопросы. В скольких

действиях лица должен прослеживаться единый интерес, чтобы мы могли говорить о наличии самостоятельной уголовно-процессуальной функции? Насколько едина должна быть цель для различных участников?

Несомненно, различные участники уголовного судопроизводства преследуют различные цели и у них различные интересы. Однако, наверное, это не может служить основанием для классификации уголовно-процессуальных функций. С точки зрения логики, не совсем правильно, взяв за основу интерес участников, классифицировать что-то иное кроме самих участников. Классифицировать уголовно-процессуальные функции в зависимости от присутствующих у участников уголовного судопроизводства интересов, значит, совершить логическую ошибку.

В зависимости от присутствующего у участников интереса, возможно только разделить участников на некие не схожие между собой группы. Эти группы и принято называть сторонами. В итоге получается, что деление на группы происходит в зависимости от присутствующего у участников процесса.

Так в п. 21 ст. 6 УПК РТ стороны определяются как - участники уголовного судопроизводства, выполняющие на основе состязательности функцию обвинения (уголовного преследования) или защиты от обвинения; пункт 20 ст. 6 УПК РТ к стороне защиты относит - обвиняемого, а также его законного представителя, защитника, гражданского ответчика, его законного представителя и представителя; а пункт 19 ст. 6 УПК РТ представляет сторону обвинения в качестве прокурора, следователя, начальника следственного отдела, дознавателя, частного обвинителя, потерпевшего, его законного представителя и представителя, гражданского истца и его представителя. При этом, каждая из этих обособленных групп осуществляет отдельную, только ей свойственную уголовно-процессуальную функцию.

Таким образом, расширение состязательных начал в уголовном судопроизводстве, укрепление диспозитивности, уважение чести и достоинства личности, в связи с принятием нового УПК РТ, заставляют нас по-новому взглянуть на процесс реформирования уголовно-процессуального законодательства. Поэтому любая демократическая правовая реформа лишь в том случае будет иметь смысл и положительный результат, если предварительно суть предмета реформирования подвергнуть теоретическому осмыслению, изучить и оценить практику пребывания его в дореформенном состоянии, наметить возможные пути преобразование и выбрать из них единственный, в наибольшей

степени соответствующий социальным потребностям современному состоянию общественных отношений и перспективам их развития.

Кроме того, особое место занимает сегодня институт частного обвинения, который в УПК РФ и УПК РТ принудительно ограничивается рамками производства по делам частного обвинения, что не может быть признано оправданным, если учесть происходящие демократические преобразования в стране. Вполне закономерно напрашивается необходимость расширения института частного обвинения и распространение его на производство по многим категориям уголовных дел. Законом должна быть предусмотрена возможность для отстаивания потерпевшим своей позиции, если даже эта позиция чем-то отличается от позиции прокурора.

Естественно, что не все потерпевшие пожелают возложить на себе бремя частного обвинителя, но лицам, желающим действовать в уголовном процессе активно, подобная возможность должна быть все-таки предоставлена. Чем более открытым будет наше общество, чем больше его членов будут проявлять активность и инициативу, тем в большем противоречии будут находиться желания потерпевших и объем свободы, предоставленный им действующим законодательством. Сегодня мы имеем реальную возможность оказать содействие развитию частной инициативы. И очень важно не упустить этот момент.

Изучение характера взаимосвязи процессуальных функций и их носителей должно базироваться на применении метода структурно-функционального анализа. Он предполагает появление и существование элемента системы в свете выполняемой им функции. Из этого следует, что функции первичны по отношению к элементам, которые эти функции реализуют. Поэтому процессуальная функция не определяется ролью и назначением соответствующего участника уголовного процесса. Напротив, наличие функции обусловливает необходимость появления того или иного участника процесса.

Вывод

Процессуальные функции и их субъекты — носители этих функций — являются структурными элементами уголовно-процессуальной деятельности как системы, находящимися во взаимосвязи, взаимообусловленности и взаимодействии. Следовательно, природа и характер процессуальных функций определяются содержанием уголовно-процессуальной деятельности, которое отличается неоднородностью.

References:

1. Kurbonov, R.Z. (2010). *Judicial form of protection of the rights and freedoms of citizens in the criminal process of the Republic of Tajikistan.* (p.25). Khujand.

2. Kholikov, A.G. (2005). *On westernization and continuity in lawmaking. Report at a seminar at the Academy of the Ministry of Internal Affairs of the Republic of Tajikistan.* (pp.41-42). Dushanbe.

3. (2004). *Commentary on the Code of Criminal Procedure of the Russian Federation*: edited by D.N. Kozak, E.B. Mizulina. The 2nd edition. Revised and enlarged. (p.32). Moscow: Jurist.

4. (2010). Code of Criminal Procedure of the Republic of Tajikistan dated December 03, 2009. (Entered into force on April 01, 2010). *Bulletin of the Majlisi Oli RT.* Dushanbe. №15.

5. (1996). *Model Code of Criminal Procedure for the CIS member states.* (p.6). Moscow: Yurayt.

6. Zinatullin, 3.3., & Zinatullin, T.Z. (2002). *Criminal procedural functions.* (p.11). Izhevsk.

7. Nazhimov, V.P. (1973). On the criminal procedural functions. *Jurisprudence*, # 5, pp.73-78.

8. Yakub, M.L. (1973). On the concept of a procedural function in Soviet criminal justice. *Jurisprudence*, #5, pp. 85-90.

9. Motovilovker, Ya.O. (1976). *Basic criminal procedural functions.* (pp.5-23). Yaroslavl.

10. Strogovich, M.S. (1951). *Criminal prosecution in the Soviet criminal process.* (p.15). Moscow: Gos.izdat.

11. Kakhorov, N.M. (2019). *Competitiveness in criminal proceedings of the Republic of Tajikistan: legal aspect.* (pp.13-14). Khujand: Khuroson.

12. Shpilev, V.N. (1974). *The content and forms of criminal proceedings.* (p.57). Minsk.

13. Rakhunov, R.D. (1961). *Participants in criminal procedure activities under Soviet law*. (pp.47-48). Moscow.

14. Elkind, P.S. (1963). *The essence of Soviet criminal procedure law*. (pp. 59-69). Leningrad.

15. Daev, V.G. (1974). Procedural functions and the principle of competitiveness in criminal proceedings. *Jurisprudence*, #1, pp. 72-78.

16. Zelenetsky, V.S. (1979). *Initiation of public prosecution in the Soviet criminal process*. (p.57). Kharkov: Higher school.

17. Gromov, N.A. (1998). *Criminal trial in Russia*. (p.13). Moscow: Jurist.

18. Larin, A.M. (1986). *Criminal investigation: procedural functions*. (p.5). Moscow: Juridical literature.

19. Rashidova, D.A., & Ashrapov, B.P. (2022). The Leader of the Nation Emomali Rahmon`s Contribution into Enactment of Programme of Foreign Languages. *Herald of the Pedagogical University*, No. 3(98), pp.85-88.

20. Ashrapov, B.P., & Dodokhojaeva P.I. (2021). On the issue concerned with communicative competence of students of foreign languages faculties. *Obrazovanie ot "A" do "Ja"*, # 3, pp. 5-6.

Clarivate Analytics indexed

Issue   **Article**

Denis Chemezov
Vladimir Industrial College
M.Sc.Eng., Academician of International Academy of Theoretical and Applied Sciences,
Lecturer, Russian Federation
https://orcid.org/0000-0002-2747-552X
vic-science@yandex.ru

Egor Prozorov
Vladimir Industrial College
Student, Russian Federation

Andrey Volvyankin
Vladimir Industrial College
Student, Russian Federation

Denis Korkunov
Vladimir Industrial College
Student, Russian Federation

Semyon Galaktionov
Vladimir Industrial College
Student, Russian Federation

Danil Sukhorukov
Vladimir Industrial College
Student, Russian Federation

Dmitriy Sevrikov
Vladimir Industrial College
Student, Russian Federation

REFERENCE DATA OF PRESSURE DISTRIBUTION ON THE SURFACES OF AIRFOILS HAVING THE NAMES BEGINNING WITH THE LETTER T

Abstract: The results of the computer calculation of air flow around the airfoils having the names beginning with the letter T are presented in the article. The contours of pressure distribution on the surfaces of the airfoils at angles of attack of 0, 15 and -15 degrees in conditions of the subsonic airplane flight speed were obtained.
Key words: airfoil, angle of attack, pressure, surface.
Language: English
Citation: Chemezov, D., et al. (2023). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter T. ISJ Theoretical & Applied Science, 06 (122), 28-34.
Soi: http://s-o-i.org/1.1/TAS-06-122-5   Doi: ✝crossref https://dx.doi.org/10.15863/TAS.2023.06.122.5
Scopus ASCC: 1507.

Clarivate Analytics **indexed**

Introduction

Creating reference materials that determine the most accurate pressure distribution on the airfoil surfaces is an actual task of the airplane aerodynamics.

Materials and methods

The study of air flow around the airfoils was carried out in a two-dimensional formulation by means of the computer calculation in the *Comsol Multiphysics* program. The airfoils in the cross section were taken as objects of research [1-36]. In this work, the airfoils having the names beginning with the letter *T* were adopted. Air flow around the airfoils was carried out at angles of attack (α) of 0, 15 and -15 degrees. Flight speed of the airplane in each case was subsonic. The airplane flight in the atmosphere was carried out under normal weather conditions. The geometric characteristics of the studied airfoils are presented in the Table 1. The geometric shapes of the airfoils in the cross section are presented in the Table 2.

Table 1. The geometric characteristics of the airfoils.

Airfoil name	Max. thickness	Max. camber	Leading edge radius	Trailing edge thickness
TH 25816 HALE	25.72% at 47.0% of the chord	3.99% at 51.9% of the chord	2.0512%	0.0%
TRAINER60	18.31% at 27.1% of the chord	0.21% at 1.3% of the chord	3.3993%	0.6684%
TRAINER60~1	18.31% at 27.1% of the chord	0.21% at 1.3% of the chord	3.3993%	0.6684%
TSAGI 12%	11.9% at 30.0% of the chord	1.99% at 30.0% of the chord	0.963%	0.0%
TSAGI 8%	7.95% at 30.0% of the chord	1.34% at 30.0% of the chord	0.6883%	0.0%

Table 2. The geometric shapes of the airfoils in the cross section.
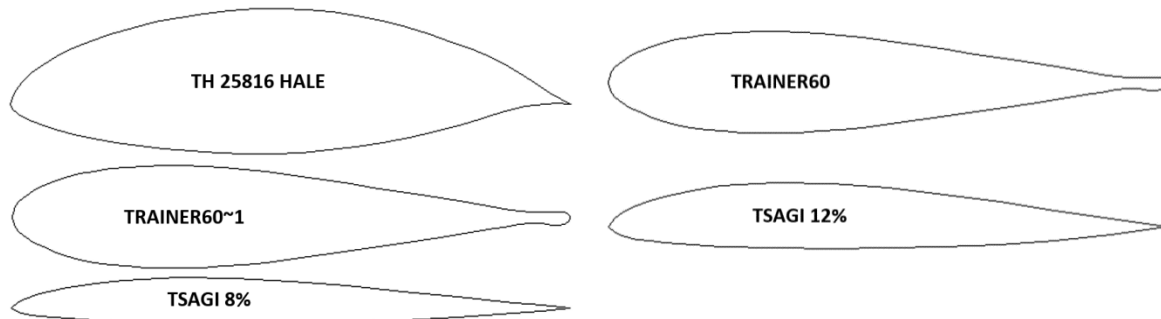
Results and discussion

The calculated pressure contours on the surfaces of the airfoils at different angles of attack are presented in the Figs. 1-5. The calculated values on the scale can be represented as the basic values when comparing the pressure drop under conditions of changing the angle of attack of the airfoils.

5 airfoils of the TH, TRAINER and TSAGI types were considered in this paper. All airfoils are asymmetrical. The largest and smallest thicknesses of the studied airfoils are 25.72% and 7.95% for TH 25816 HALE and TSAGI 8%, respectively. The largest and smallest cambers are 3.99% and 0.21% for TH 25816 HALE and TRAINER60 (TRAINER60~1), respectively. The largest and smallest leading edge radii are 3.3993% and 0.6883% for TRAINER60 (TRAINER60~1) and TSAGI 8%, respectively. The largest and smallest trailing edge thicknesses are 0.6684% and 0.0% for TRAINER60 (TRAINER60~1) and other airfoils, respectively.

The analysis of the aerodynamic characteristics of the airfoils was carried out according to the calculated values of pressures arising on the model surfaces at different angles of attack.

It is determined that the greatest and least drag acts on the leading edge of the TH 25816 HALE and TRAINER60 and TSAGI 8% airfoils during the horizontal flight of the airplane. Pressure changes for the studied airfoils are insignificant and amount to less than 1%. At the same time, the value of negative pressure decreases with a decrease in the thickness of the airfoil.

The airplane climb is characterized by an increase in positive pressure on the leading edge of all airfoils. However, the TSAGI 12% airfoil is subjected to the greatest negative pressure. It can be seen from the calculated pressure values that the thickness of the airfoils affects the value of negative pressure on the leading edge, i.e. pressure decreases with increasing thickness.
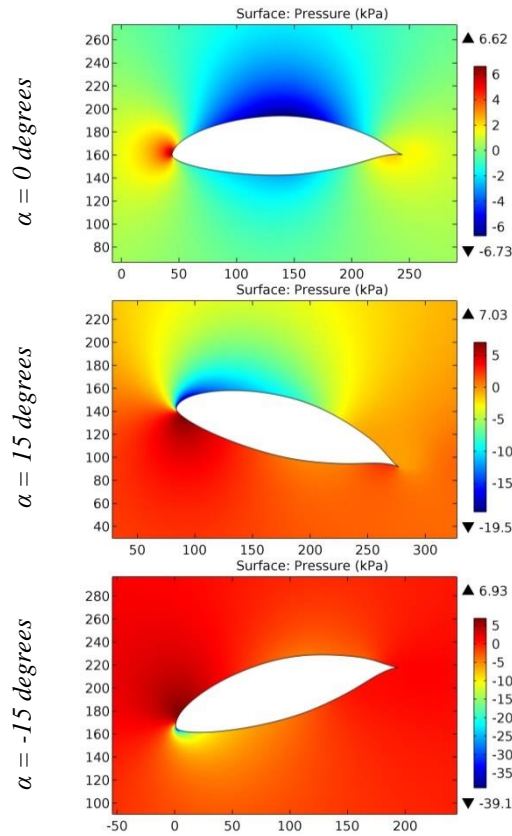
Figure 1. The pressure contours on the surfaces of the TH 25816 HALE airfoil.
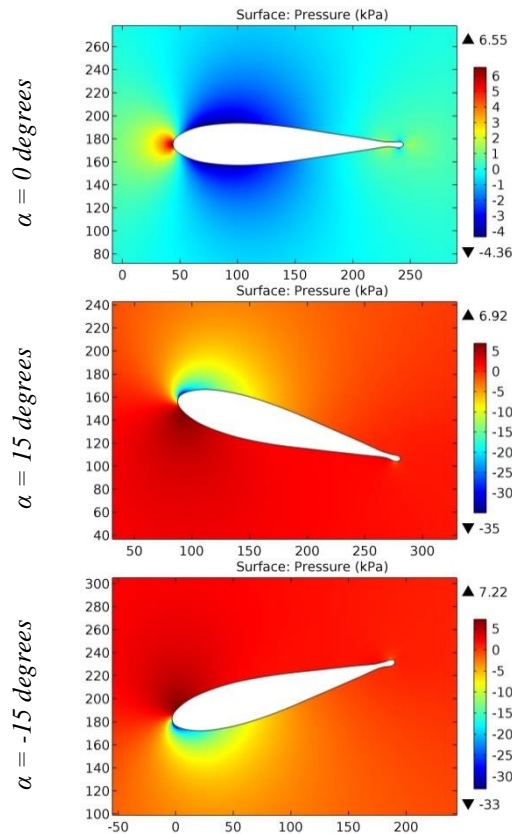
Figure 2. The pressure contours on the surfaces of the TRAINER60 airfoil.

Clarivate
Analytics **indexed**
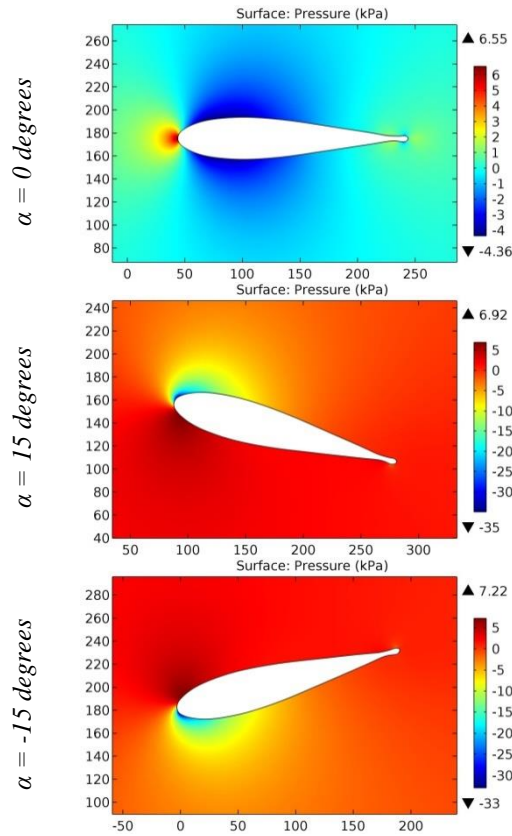
Figure 3. The pressure contours on the surfaces of the TRAINER60~1 airfoil.
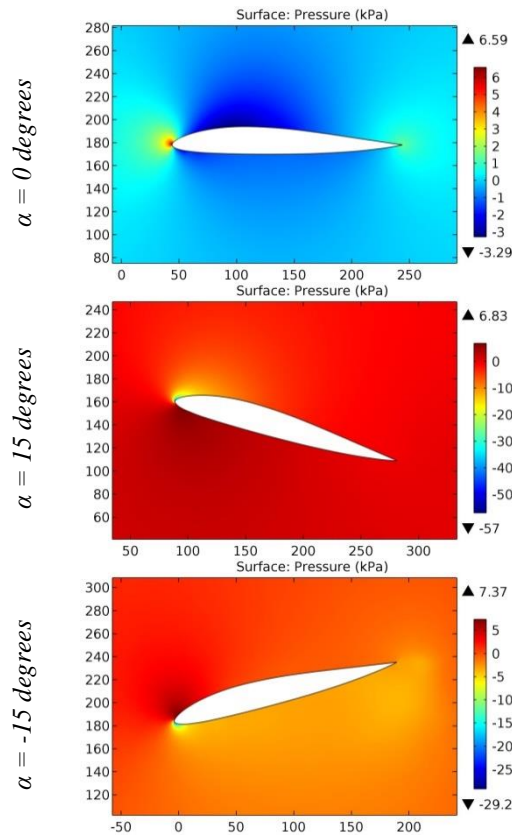
Figure 4. The pressure contours on the surfaces of the TSAGI 12% airfoil.

Clarivate
Analytics indexed
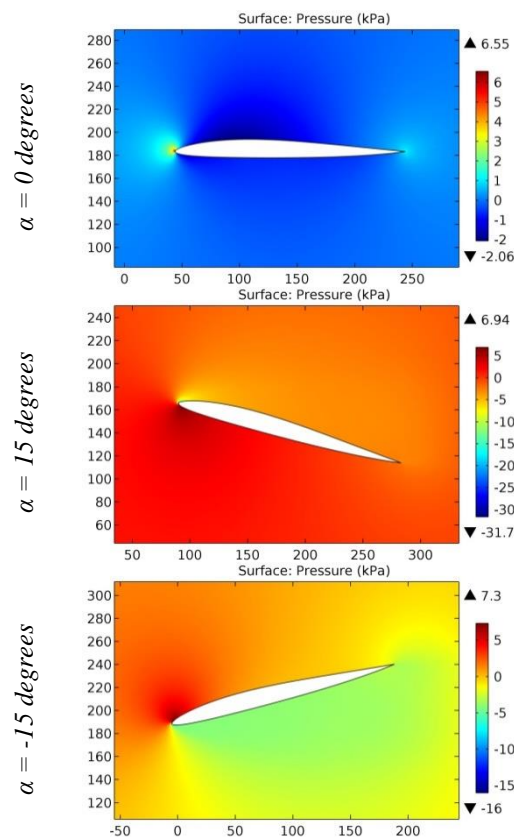
Figure 5. The pressure contours on the surfaces of the TSAGI 8% airfoil.

The airplane descent is characterized by a subsequent increase in positive pressure on the leading edge, compared with the horizontal flight and the climb maneuver. The exception is the TH 25816 HALE airfoil, which is subjected to less positive pressure at a negative angle of attack than at a positive angle of attack. It is also noted that the negative pressure during the climb is higher than during the descent. The TH 25816 HALE airfoil is also an exception in these conditions.

Conclusion

Thus, these configurations of the airfoils do not lead to the formation of high pressures on the surfaces of the airplane wings in the range of selected angles of attack. In conditions of the horizontal flight of the airplane, the radius size of the leading edge has a greater effect on the pressure distribution area, and to a lesser effect on the change in the pressure value. At the same time, during the airplane climb, positive pressure on the leading edge of the airfoils is less in the value than during the airplane descent. However, negative pressure is greater during the climb maneuver of the airplane than during the descent maneuver. The exception is the TH 25816 HALE airfoil.

References:

1. Anderson, J. D. (2010). *Fundamentals of Aerodynamics*. McGraw-Hill, Fifth edition.
2. Shevell, R. S. (1989). *Fundamentals of Flight*. Prentice Hall, Second edition.
3. Houghton, E. L., & Carpenter, P. W. (2003). *Aerodynamics for Engineering Students.* Fifth edition, Elsevier.
4. Lan, E. C. T., & Roskam, J. (2003). *Airplane Aerodynamics and Performance.* DAR Corp.

Clarivate Analytics *indexed*

5. Sadraey, M. (2009). *Aircraft Performance Analysis.* VDM Verlag Dr. Müller.

6. Anderson, J. D. (1999). *Aircraft Performance and Design.* McGraw-Hill.

7. Roskam, J. (2007). *Airplane Flight Dynamics and Automatic Flight Control, Part I.* DAR Corp.

8. Etkin, B., & Reid, L. D. (1996). *Dynamics of Flight, Stability and Control.* Third Edition, Wiley.

9. Stevens, B. L., & Lewis, F. L. (2003). *Aircraft Control and Simulation.* Second Edition, Wiley.

10. Chemezov, D., et al. (2021). Pressure distribution on the surfaces of the NACA 0012 airfoil under conditions of changing the angle of attack. *ISJ Theoretical & Applied Science, 09 (101)*, 601-606.

11. Chemezov, D., et al. (2021). Stressed state of surfaces of the NACA 0012 airfoil at high angles of attack. *ISJ Theoretical & Applied Science, 10 (102)*, 601-604.

12. Chemezov, D., et al. (2021). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter A (the first part). *ISJ Theoretical & Applied Science, 10 (102)*, 943-958.

13. Chemezov, D., et al. (2021). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter A (the second part). *ISJ Theoretical & Applied Science, 11 (103)*, 656-675.

14. Chemezov, D., et al. (2021). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter B. *ISJ Theoretical & Applied Science, 11 (103)*, 1001-1076.

15. Chemezov, D., et al. (2021). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter C. *ISJ Theoretical & Applied Science, 12 (104)*, 814-844.

16. Chemezov, D., et al. (2021). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter D. *ISJ Theoretical & Applied Science, 12 (104)*, 1244-1274.

17. Chemezov, D., et al. (2022). Reference data of pressure distribution on the surfaces of airfoils (hydrofoils) having the names beginning with the letter E (the first part). *ISJ Theoretical & Applied Science, 01 (105)*, 501-569.

18. Chemezov, D., et al. (2022). Reference data of pressure distribution on the surfaces of airfoils (hydrofoils) having the names beginning with the letter E (the second part). *ISJ Theoretical & Applied Science, 01 (105)*, 601-671.

19. Chemezov, D., et al. (2022). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter F. *ISJ Theoretical & Applied Science, 02 (106)*, 101-135.

20. Chemezov, D., et al. (2022). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter G (the first part). *ISJ Theoretical & Applied Science, 03 (107)*, 701-784.

21. Chemezov, D., et al. (2022). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter G (the second part). *ISJ Theoretical & Applied Science, 03 (107)*, 901-984.

22. Chemezov, D., et al. (2022). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter G (the third part). *ISJ Theoretical & Applied Science, 04 (108)*, 401-484.

23. Chemezov, D., et al. (2022). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter H (the first part). *ISJ Theoretical & Applied Science, 05 (109)*, 201-258.

24. Chemezov, D., et al. (2022). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter H (the second part). *ISJ Theoretical & Applied Science, 05 (109)*, 529-586.

25. Chemezov, D., et al. (2022). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter I. *ISJ Theoretical & Applied Science, 06 (110)*, 1-7.

26. Chemezov, D., et al. (2022). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter J. *ISJ Theoretical & Applied Science, 06 (110)*, 18-25.

27. Chemezov, D., et al. (2022). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter K. *ISJ Theoretical & Applied Science, 07 (111)*, 1-10.

28. Chemezov, D., et al. (2022). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter L. *ISJ Theoretical & Applied Science, 07 (111)*, 101-118.

29. Chemezov, D., et al. (2022). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter M. *ISJ Theoretical & Applied Science, 10 (114)*, 307-392.

30. Chemezov, D., et al. (2022). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter N (the first part). *ISJ Theoretical & Applied Science, 12 (116)*, 801-892.

31. Chemezov, D., et al. (2022). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter N (the second part). *ISJ Theoretical & Applied Science, 12 (116)*, 901-990.

32. Chemezov, D., et al. (2023). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter O. *ISJ Theoretical & Applied Science, 01 (117),* 624-635.

33. Chemezov, D., et al. (2023). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter P. *ISJ Theoretical & Applied Science, 02 (118)*, 48-61.

34. Chemezov, D., et al. (2023). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter R. *ISJ Theoretical & Applied Science, 03 (119)*, 104-165.

35. Chemezov, D., et al. (2023). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter S (the first part). *ISJ Theoretical & Applied Science, 05 (121)*, 331-383.

36. Chemezov, D., et al. (2023). Reference data of pressure distribution on the surfaces of airfoils having the names beginning with the letter S (the second part). *ISJ Theoretical & Applied Science, 05 (121)*, 532-584.

Axmad Sabijonovich Baisov
Chirchik State Pedagogical University
Teacher, the Interfaculty Department of Foreign Languages
a.baisov@cspi.uz

THE SIGNIFICAMCE OF EXTRACURRICULAR EXERCISES IN CREATING DIALECT ABILITIES OF ESP LEARNERS

Abstract: This article emphasizes the centrality of extracurricular exercises, and centers on their part in encouraging English dialect learning handle within the scholarly accomplishment of ESP learners.
Key words: Extracurricular movement, beneficial abilities, instructing strategy, language-oriented, inspiration.
Language: English
Citation: Baisov, A. S. (2023). The significamce of extracurricular exercises in creating dialect abilities of ESP learners. ISJ Theoretical & Applied Science, 06 (122), 35-37.
Soi: http://s-o-i.org/1.1/TAS-06-122-6   Doi: crossref https://dx.doi.org/10.15863/TAS.2023.06.122.6
Scopus ASCC: 3304.

Introduction

Nowadays learning English encompasses a vital significance for individuals, since it is vital to have closer communication with the rest of the world. This civilized world has chosen English as a implies of communication. As a matter of truth, individuals need to talk English and learning English well is of pivotal significance. On December 10, 2012 the 1st President of the Republic of Uzbekistan marked a declare "On measures to advance make strides outside dialect learning system". Our Instruction framework instructs English to learners in an efficient manner in arrange to attain impressive results, but it must be supported by English dialect educating ESP experts, who look for out better approaches to move forward English language teaching and learning. Extracurricular exercises may well be one of the foremost compelling ways to back learners through their considers.

Based on most instructors perception and involvement, it is claimed don't fulfill their given homework totally or they duplicate their classmates work at school in ponder period. This common problem causes delays in understudies learning pace hugely. The major issues that ESP understudies come over when learning a outside dialect is within the field of profitable, basically composing and talking, aptitudes. Understudies accomplishment in entrance exams to the colleges, requires a repetition memorization and it could be a genuine deterrent in

learning a dialect. In arrange to unravel this issue in a more fast and effective way understudy ought to utilize the dialect for out – of – lesson purposes. In this way able to actualize extracurricular exercises for students' scholarly accomplishment.

Extracurricular exercises are exceptionally imperative and play awesome part in instruction "Holland & Andre, 1987" Eccles, Hair stylist, Stone & Chase "2003 state that extracurricular exercises "Hence ECAs" are understudy encounters that are not included within the instructive educational programs. It has been demonstrated that extracurricular exercises are us necessary us customary classes for advancement of aptitudes. Extracurricular exercises are critical within the ESP setting in Uzbekistan. Besides, Tenhouse "2003 includes that extracurricular exercises are great openings for understudies to realize their curricular objectives. Understudies find and create their abilities through these exercises for accomplishment. Extracurricular exercises are non-academic exercises. Understudies communicative competence and recognition of life can be gotten from learning handle and exercises when learners are selected in.

Numerous inquires about have been held (Millard, 1930; Posner & Vandell, 1999; McNeal Jr, 1998; Mahoney, Larson, Eccles & Master, 2005) and articles have been composed almost the impact of extracurricular exercises in understudies scholastic

accomplishment from distinctive focuses of see, such as the impact of craftsmanship, sports or music exercises. But ECAs are not completely explored from the language-oriented application viewpoint, to move forward dialect learners scholastic accomplishment. Subsequently, language-oriented extracurricular exercises may be an expansion as the reiteration of formal education in a warm and open environment among peers and instructors. Understudies may confront unused dialect learning approaches amid the exercises. Within the execution of the language-oriented extracurricular exercises, numerous language teaching strategies such as Audio-Lingual Strategy, Add up to Physical Reaction, the Quiet Way, Suggestopedia and Common Approach may be used. For occurrence, Coordinate Strategy is utilized to induce understudies included I the target dialect application. ECAs which are conducted in English dialect empower understudies to realize in dialect learning, and communicative dialect educating is to upgrade understudies communicative competence. Understudies attempt to reach it with the assistance of games, melodies and part plays. Tell Your Amusing Joke Action, Testing and Analyzing Movement, Giving Introductions almost Unit Questions, Fun Perusing and Retelling Movement and Paper Composing Movement are the most exercises to utilize, in arrange to persuade understudies to memorize English way better in a constrained time with great learning results. In the event that we see at the specialists investigates, ready to see the encouraging part of language-oriented extracurricular exercises in creating dialect abilities through applying certain sorts of exercises, to characterize the concept of extracurricular exercises accurately, to shoe the part of extracurricular exercises in spurring understudies, to think about the relationship between ECAs and student academic execution, to characterize what sort of ECAs can be most compelling to hone perusing, composing, tuning in and talking dialect aptitudes, which perspectives of dialect learning ought to be concentrated on, through which exercises to consider the issues and spread data to a broader insightful society, colleagues and understudies in arrange to progress ESP.

Existing information around language-oriented extracurricular exercises within the distributed articles is rather scarce. There may well be a awesome number of exercises to execute in preliminary school dialect

program. There are various types of exercises given in a few sources and they really work well to assist understudies make strides their dialect abilities our understudies within the instructive center (Get club inventive school) got truly astounding comes about when the ECAs utilized as a educating strategy. Dialect instructors ought to create their possess extracurricular exercises, based on their commonsense utilize, and progress them. With extracurricular activities learning period will be warm and inviting environment and they will be useful for both understudies and instructors within the field of inspiration. There are numerous methods which we utilize in dialect teaching. Students can learn with errands that they do independently, in sets or in bunch work. By extracurricular exercises increment learners inspiration and energy to memorize.

Most understudies spend much time on learning language structure and lexicon. But when it comes to talking actually, they discover it exceptionally troublesome. As a result most learners will be disappointed and they may have a need of certainty towards themselves. The investigates claim that, rather than giving much homework to be satisfied, it is superior to draw understudies consideration to English dialect based extracurricular exercises to get dialect competency. In this way, understudies will fell the language much more than within the classroom environment and get their heads to memorize English in characteristic environment, having fun.

To conclude, executing language-oriented extracurricular exercises are crucial in teaching/learning a remote dialect. Cutting edge requests require that unused strategies or procedures ought to be taken after to create understudies learn English in a brief time. On the other hand, instructing English as a supplementary strategy with language-oriented extracurricular exercises needs a well-organized educational modules and it must be arranged some time recently the scholarly year begins and exercises and course syllabuses must be well synchronized.

Joining in extracurricular exercises spurs understudies to memorize more, understudies learn English dialect superior taking an interest in dialect extracurricular exercises and understudies hone in English in extracurricular exercises gives a part of openings for normal dialect utilize.

References:

1. Tosun, M., &Yildiz, Y. (2015). *Extracurricular activities as warm-ups in language teaching*.

2. (n.d.). *International Journal of Social Sciences & Educational Students.*

3. (n.d.). *Foreign Language Student Satisfaction*. ICELT 5th International Research Conference (p.478-482). Tbilisi: International Black Sea University.

4. (2004). *Eccles-Journal of Adolescence 2004*.

5. Yunus, Y. (2016). *The Role of extracurricular activities in the academic achievement of EFL students in Iraqi Universities*. Tibilisi.

6. Adewusi, C. O. (2012). *Designing an English for Specific Purpose syllabus framework for engineering and technology students in polytechnics in south-western Nigeria*. (Doctoral dissertation). University of Ilorin.

7. Adzmi, N. A., Bidin, S., Ibrahim, S., & Jusoff, K. (2009). The academic English language needs of industrial design students in UiTM Kedah, Malaysia. *English Language Teaching*, 2(4), 171-178.

8. Bransford, J.D., Brown, A.L, & Cocking, R.R (Eds). (2000). *How people learn: Brain, mind, experience, and school*. Commission behavioral and Social Sciences and Education.

9. (2022). *The Role and Ways to Develop Vocabulary in English for Specific Purposes A.S Baisov* - Ta'lim tizimida innovasion faoliyatni rivojlantirishda ….

10. (2021). *ESP o'rganuvchilariga xorijiy tilni o'qitish metod va innovatsion texnologiyalari AS Baisov* - Academic research in educational sciences.

Nargiza Xalbayevna Babadjanova
Chirchik State Pedagogical University
Teacher, the Interfaculty Department of Foreign Languages
n.babadjanova@cspi.uz

IMPLEMENTATION OF PROJECT-BASED LEARNING FOR TEACHING ENGLISH

Abstract: It is obviously clear that, modern educators are utilizing various approaches, methods and models to teach foreign languages innovatively and interestingly. In particular, Project-based leaning model is recommended by scholars and instructors as trendy. The purpose of this paper is to explore benefits and its peculiarities in modern curriculum. The research study was conducted according to the research question "To what extend do teachers use project-based learning (PBL) activities to develop students' skills in higher education?". The research study was conducted among teachers in Uzbekistan.

Key words: project based learning, PBL, teacher, students, English, activity, questionnaire.
Language: English
Citation: Babadjanova, N. X. (2023). Implementation of project-based learning for teaching English. ISJ Theoretical & Applied Science, 06 (122), 38-40.
Soi: http://s-o-i.org/1.1/TAS-06-122-7   Doi: crossref https://dx.doi.org/10.15863/TAS.2023.06.122.7
Scopus ASCC: 3304.

Introduction

It is important to note that, whether, students are prepared for working career or academic knowledge development, they are required to perform oral and written competences in foreign languages such as English. Therefore, teachers are suggested different and innovative teaching approaches and models to achieve both teachers' and students' goal. One of them is Project based learning model. Project-Based Learning (PBL) was born out of the work of John Dewey (1897) and his pedagogy is evident in cycles of progressive education through the 20th century. Over the last 30 years, PBL has gained momentum with the creation of the Buck Institute of Education, creators of PBL instructional practices for thousands of educators (Buck Institute of Education, 2013). (PBL). As stated by Thomas (2000): "Project-Based Learning utilizes complex task, based on challenging question or problems that involve students in design, problem-solving, decision making, or investigate activities, give students the opportunity to work relatively autonomously over extended periods of time, and culminate in realistic products or presentations." (Ani Marisah; Rr. Hasti Robiasih 2017) Particularly, the scholars emphasized that, PBL

is really helpful to interact students collaboratively and integrate students with real life situations.

In project-based learning, students are typically given a broad question to address, a specific issue to investigate, or a challenge to solve. Then, teachers may encourage students to select particular subjects that excite or motivate them, such as assignments centered around their personal passions or aspirations for the future. For instance, a typical project would start with the following open-ended topic, which educators frequently refer to as a "essential question": How is the principle of buoyancy significant in the design and building of a boat? What kind of PSA will be most successful in motivating our community to practice water conservation? How can our school provide lunches that are healthier? In these situations, students might be given the chance to respond to the query by putting forth a project that shows their interests. For instance, a student with an interest in farming might consider developing a school garden that provides produce and serves as a teaching tool for students, while another student might decide to conduct research on potential health risks associated with particular foods served in the cafeteria and then

produce posters or a video to raise awareness among fellow students and school personnel.

METHODS

In order to prove effectiveness of PBL authors conducted Action research which was about collaborative project work in vocational school with 32 students. The task was role – play activity. According to the results of project, students felt more confident because of their out of class project and collaborative working helped student develop their ideas that they want to convey. Additionally, their grammar and pronunciation were corrected with peer correction autonomously during the preparation of the project.

What is more, author Woro Sumarni claimed that, project-based learning model assists to cultivate the sense of creativity in the classroom and out of the class and it was investigated in the research project "Designing some posters to show the danger of pollution" conducted by Walaa M. El-Henawy. Students created posters about air pollution and its danger, gathered information, processed and categorized it. Students discussed issues related with cooperation among group members, problems of personal relations and possible changes in group composition. According to the results students utilized their creativity to demonstrate their knowledge as well.

This research was conducted by the author using classroom action research. The sample of this research was 50 English teachers of Uzbekistan. The research was conducted in three cycles. The instruments used by the researcher was questionnaire. The designed questionnaire consisted of 3 parts and included a special question: "To what extend do teachers use project-based learning (PBL) activities to develop students' skills in higher education?"

Table 1.

Questionnaire

This questionnaire aims to find out possible answer to this research question :

To what extend do teachers use project-based learning (PBL) activities to develop students' skills in higher education?

1.what is PBL ?

_____
_____
_____

2. what is the teacher's role in doing projects by students?

_____
_____

3. underline the activity which are commonly used in your classroom to develop students' speaking skills

1. One-to-One Computing Projects

2. Collaborative Classroom Projects

3. Research Projects

4. STEM projects

5. Arts Projects

6. Community Service Projects.

7. Technology Projects

8. Field Trips

9. Internships

10. Mock Trials

---

11. Student-led Conferences

12. Class Debates

RESULTS AND DISCUSSION

Participated teachers demonstrated their treatment and views by filling questionnaire. According to their answers it was concluded that: "when they are teaching in a group and they communicate with students when they were explained the project, it is easier for them to explain the work based on their own creativity. All students became active learning because they were all have the same time to speak, having good self- confidence, become an active and have sense of critical thinking. Based on the data of the third question in the questionnaire 76 percent of teachers prefer to use "Class debates" are highly effective among other activities , it showed how big the PBL effect toward the students' speaking skill.It included that PBL has positive effect toward the students' speaking skill. PBL can improve the students' speaking skill and it can solve all those problems that is mentioned in the background above.

CONCLUSION

By the way of conclusion, in 21st century project based learning is trendy and wide spread model in modern pedagogy, it has great significance to develop collaboration and creativity of learners in the classroom and out of the class.

From the data calculated above, it showed that students improvement is very significant before and after they were taught using this technique. It can be seen from the data. From the questionnaire which was conducted among teachers, the students can enhance their communicative competence and it gives a chance more practice orally. From the data mentioned above, the researcher concluded that Project Based Learning can improve the students' speaking skill and it is one of an affective teaching technique that may be used by teacher who want to increase their students' speaking skill.

References:

1. (2014). *Introduction to project based learning. Buck Institute for Education (BIE).* Retrieved from http://bie.org/images/uploads/general/20fa7d42c216e2ec171a212e97fd4a9e.pdf
2. (n.d.). *The Implementation Of Project-Based Learning To Improve Vocational Students' Speaking Skills ,Ani Marisah; Rr. Hasti Robiasih,* annimarisa14@Gmail.Com; Hasti@Ustjogja.Ac.Id.
3. (n.d.). *Using Project-Based Learning For Developing English Oral Performance: A Learner-Friendly Model, Walaa M. El-Henawy, Mohamed El Sayed Ali,* The 2nd International Conference, Faculty Of Education, Port Said University.
4. (2015). *(18-19), April, 2015 "Towards A Child-Friendly School ".*
5. (2013). The Strengths And Weaknesses Of The Implementation Of Project Based Learning: A Review. Woro Sumarni, *International Journal Of Science And Research (Ijsr)* Issn (Online): 2319-7064 Index Copernicus Value (2013): 6.14 | Impact Factor (2013): 4.438.
6. (n.d.). Incorporating Project Based Learning In English As A Foreign Language (Efl) Classes, Elina Tovmasyan, *Online Scientific-Methodological Journal.* Www.Fledu.Uz
7. Hutchinson, T., & Waters, A. (1987). *English for Specific Purposes: A Learning- centered Approach,* CUP, Cambridge.
8. Brown, J. D. (n.d.). *Introducing Needs Analysis and English for Specific Purposes*. Routledge, Oxon.
9. Hutchinson, T., & Waters, A. (2006). *English for Specific Purposes.* (pp.9-15). Cambridge University Press.
10. (2020). *Modern technologies in teaching foreign languages*. D Khoshimova, D Otajonova, G Khaldarchayeva - Academic Research in Educational Sciences.
11. Baisov, A.S. (2021). Defining the role of tandem method in teaching foreign language. - *Theoretical & Applied Science*, 2021.
12. Adewusi, C. O. (2012). *Designing an English for Specific Purpose syllabus framework for engineering and technology students in polytechnics in south-western Nigeria*. (Doctoral dissertation), University of Ilorin.

Azimjon Sharipovich Gafurov
Center for Islamic Civilization in Uzbekistan
senior researcher
Phone: +99893-809-59-08
Orchid. ID 0009-0007-0604-3094
abdazim@umail.uz

THE SOCIAL IMPORTANCE OF THE DOCTRINE OF MOTURIDIA

Abstract: *The article talks about the priority of religious and human faith in the spiritual and educational maturity of young people and the important aspects of the Motrudia doctrine in achieving it, which is a very necessary factor in the implementation of the tasks envisaged in the development strategy of today's New Uzbekistan.*

Key words: *Maturidyya doctrine, knowledge of God, proof of prophethood, science of belief, faith, word, jurisprudence, mysticism, narrative evidence, mental activity.*

Language: *English*

Citation: Gafurov, A. Sh. (2023). The social importance of the doctrine of Moturidia. *ISJ Theoretical & Applied Science, 06 (122),* 41-43.

Soi: http://s-o-i.org/1.1/TAS-06-122-8   *Doi*: crossref https://dx.doi.org/10.15863/TAS.2023.06.122.8
Scopus ASCC: 3300.

Introduction

All religious issues of the Muslims of our country are regulated and organized by the Office of Muslims of Uzbekistan. The role and importance of prayer in the way of life of Muslims is important. The teaching of Imam Moturidi serves as a program in the practice of religious relations between Muslims in our country. Sharia relations in our society mean the birth of children, marriage and marriage, the organization of prayers, the organization of Eid al-Fitr and Eid al-Adha, the organization of Umrah-Hajj journeys, sacrifices, aqeeqah, blessing, godly donations, etc.

Sharia and jurisprudence questions related to women, the implementation and educational importance of Muslim beliefs in children's education, in order to avoid polytheism in the organization of all events, and not to get involved in innovation and superstition, follow the jurisprudential and doctrinal path of Imam Abu Hanifa, may God bless him and grant him peace, and Imam Moturidi. Besides, books on religious topics are published and presented to our people by the Office of Muslims of Uzbekistan. The methodological basis of such works is the sharia instructions of the Hanafi school and the teachings of Imam Motrudi in matters of belief.

It is an important task to systematically and methodically research the books related to Sharia, such as Muslim philosophy, knowledge of the word and aqeedah, especially the information, works and treatises related to the teaching of Moturidia, which clarified the religious methods of the "Ahlus sunna wal community".

Abu Mansur al-Motrudi was the first among the Muslim scholars of "Ahlus sunna wal jamaa" to conduct scientific research on the epistemological knowledge method of "Asbobul ilm" and wrote the works "Kitabut Tawhid" and "Ta'vilatul Qur'an" in this regard.

Imam Moturidi's book "Kitabut tawhid" was translated into Turkish by prof. Translated by Dr. Bekir Topal's son. From the book of Abu Mansur Al-Motrudi: "People's religious knowledge is realized through two main means: 1. Narration. 2. Mind.

People learn stories from their grandfathers and fathers and others by hearing.

Through the mind, he realizes that there is wisdom in the creation of the world he sees. He understands that there is a murshid in the society of people who lived in the world he sees. Messengers perform the task of warning, informing, and guiding people to the right path. The Creator gives people proofs and proofs to prove His Messengers and Messengers." [9, p.32]

Imam Moturidi states that the process of human knowledge is carried out in three different ways. These are: a) perception; b) messages; c) see (look). It is noted that Imam Motrudi quoted 450 verses from the Holy Qur'an as proof of these views, which formed the core of his teaching" [9, p.35].

Imam Moturidi emphasized that the prophethood sent by Allah to the Messenger of Allah, may God bless him and grant him peace, is proven by the miracles given to the Messenger of Allah, and that they have three aspects: Emotional, Mental and Spiritual. Alloma's views also served as an example and example for later scientists.

When talking about worlds in the work, the term "small world" refers to the understanding of man. Since there are various psychological differences in the nature of people, it is said that "there are also differences in their honor, aspiration to rule, and talents" [9, p.41].

There is an inner meaning in the work being called Tawheed, and it is to prove the oneness of God, that He has no partner, no wife, and no children. "When the Christians called Jesus (peace be upon him) the son of God, they did something against monotheism and polluted the doctrine of monotheism" [9, p.40] Imam Moturidi assessed such statements as slandering God and refuted them. Moturidi refuted Jabariyya and Mu'taziliyya on issues such as human will, freedom, and qaza.

In "Kitabut Tawheed" it is also mentioned that neither humans nor jinn can create the Holy Qur'an. Allama emphasizes that interpretations of the meanings of the holy verses of the Qur'an help in understanding the message and guidance of Allah. "It should be said that a person who denies reasoning has no other evidence to reject it than reason" [9, p.50].

Imam Moturidi's teaching of this Moturidiyya was the methodological basis for the works of many scholars. For example, Abul Muin al-Nasafi's work "Tabsirat al-adilla fi usul ad-din" not only reflects the teaching of Moturidia, but can also be recognized as an important source with many valuable information about the scientific heritage of Hanafi scholars from Mowarounnahr. This is evidenced by the fact that well-known encyclopedic scholars such as Qurashi, Haji Khalifa, Toshkoprizoda took specific information about the lives of Hanafi scholars in their works from Tabsira. Also, the works of Ibn Zakariyya Yahya ibn Ishaq "Sharh jumal usul ad-din li Abi Salama al-Samarkandi" and "Al-Havi fil fatawa" of Muhammad ibn Ibrahim al-Hasiri are important sources for illuminating the life and scientific heritage of the representatives of the Moturidiya doctrine. , p.212].

Hakim Samarkandi (Abu-l-Qasim Ishaq ibn Muhammad ibn Ismail ibn Ibrahim ibn Zayd al-Samarkandi) together with his contemporary Abu Mansur Moturidi, led the madrasa in Samarkand and fought against the corrupt ideologies that were spreading.

Al-Hakim al-Samarkandi's most important work is "al-Sawadul a'zam fil kalam" ("The greatest knowledge in the knowledge of the word"), which reflects the views of the Hanafis of Movarounnahr in the adjacent period of the 9th-10th centuries on theological issues. This book is also called "as-Suol al-azam" (The Great Question). In the work, special attention is paid to God and his attributes, the power of the creator of the Qur'an, piety and asceticism, respect for prophets and saints, socio-political relations between communities, and specific problems of jurisprudence[1, p.4].

"Matla'un nujum wa majma'ul ulum" (The rising place of the stars and the collection of knowledge), "Kitab al-qand fi zikri ulamai Samarkand" (The sugar-like book dedicated to the scholars of Samarkand), "Kitab al-Ansab" (The Book of Genealogies) by Abu Sa'id Sam'ani (d. 1167), Abdul Qadir Qurashi's (696/1297-775/1373) "Jawahir al-Muziya fi tabaqat al-Hanafiya" (Illuminating Jewels of the Hanafi sects), Qasim ibn Qutlubga (802/1399-879/1474) "Tajut tarajim fi tabaqat al-Hanafiya" "(Collection of Biographies of Hanafi Tabaqats), "Tabaqat al-Mufassirin" (The Tabaqat of Commentators) by Jalaluddin Suyuti (849/1445-911/1505), "Kashf az-Zunun" (Discovering Suspects) by Haji Khalifa (1017/1609-1068/1657). kashfi, the works of Abdulhay Laknavi (d. 1304/1886) such as "al-Fawoid al-bahiya fi tabaqot alhanafiya" (The wonderful benefits of the Hanafi sect) are among the works created on the basis of the teachings of Moturidism.

The article aims to achieve the following results:

1. "The genesis, emergence and development of the teaching of Moturidia are closely related to the activities of the following three great scholars: 1. Imam Azam Abu Hanifa Nu'man ibn Thabit. 2. Abu Mansur al-Maturidi. 3. Abul Muin an-Nasafi"[4, p.213].

2. Abu Mansur al-Motrudi's work "Kitabut Tawheed" is a foundation of great importance in the formation of Moturidia doctrine.

3. In this work, Imam al-Moturidi reached a new theoretical doctrine, that is, to prove the naqli irshads with mental evidence.

4. Imam al-Moturidi created these views as a logical continuation of the views of Imam Hanifa and did not deviate from the Hanafi sect in his views.

5. He objected to religious groups and currents that rely only on narration or only on reason, and succeeded in showing the dangerous aspects of their thoughts through scientific foundations.

6. Imam al-Maturidi in his work "Kitabut Tawheed" expressed his views on the proof of prophethood, which help to strengthen the faith of a Muslim person in God. He attacked the doubts of some groups about the fact that Allah Almighty is All-Mighty, All-Mighty and All-Mighty.

7. The dogmatic scientific views of Imam al-Moturidi became the basis of the school of Moturidi and served as an example and model for his followers who continued this teaching.

Conclusion

In conclusion, the task of clarifying and organizing the religious aspect of "Ahlus sunna wa al-jamaa" in terms of Islamic theology, methods of religion, knowledge of theology, and the science of aqeed was assigned to Abu Mansur al-Moturidi, a scholar of the word and aqeedah from Samarkand. Imam Motrudi's work on the science of aqeedah made a great contribution to the development of the aqeedic aspect of the Hanafi sect founded by Abu Hanifa.

In the history of Islam, there have been disagreements between the views of Muslim teachings in answering questions related to jurisprudence and belief in religion.

Moturudi expressed his views on the issue of the separation of state politics and religious affairs. However, the teaching of Moturidia is not against the wisdom of "loving the country is from faith". Although the opinions that politics should be conducted by the state and religious matters by sheikhs were expressed in their time in order to establish peace, but it is precisely in the matter of loving the motherland that state policy merges with religious beliefs. In the state policy, the defense of the country is put in the first place. For a Muslim, it is also a duty to love the homeland, to fight for the integrity and freedom of its territories.

We always remember our ancestors who fought for the freedom of our country with pride, we mention their names with honor, the figures of those patriotic people are of great importance in raising young generations in the spirit of strong and healthy faith and patriotism.

References:

1. Abdukhamidov, M.A. (n.d.). *Life and scientific activity of Hakim Samarkandi.*
2. Alimov, U. (2014). *The blessed testaments of the Prophet (peace be upon him).* (p.404). Tashkent: "Movarounnahr".
3. Alloqulov, A. (n.d.). *Analysis of Abu Hafs Nasafi's work "Aqeed" and its commentaries.*
4. Akilov, S. (2012). *The history of the formation of the doctrine of moturidia in Movarounnahr.* Monograph, T: Movarounnahr.
5. (2017). Address of the President of the Republic of Uzbekistan Shavkat Mirziyoyev to the Oliy Majlis. *Xalq sozi*, December 23, 2017.
6. (2017). Speech of the President of the Republic of Uzbekistan Shavkat Mirziyoyev at the 72nd session of the United Nations General Assembly. *Xalq sozi*, September 20, 2017.
7. Grünebaum, G. E. (2001). *background. Stanovlenie i osobennosti islamskoi tsivilizatsii. Sravnitelnoe izuchenie tsivilizatsii.* Khrestomatiya / sost. B. S. Erasov. (p.338). Moscow.
8. Bekmirzaev, I.I. (n.d.). *Let's fight against ignorance with enlightenment* (akadmvd.uz).
9. (n.d.). *Topal's son Bekir. "The Book of Tawheed". Maktabatul Irshad.* Istanbul.
10. Muhammadaminov, S. (2012). *Abu Hafs al-Nasafi's work "Matla' an-Nujum wa majma' al-ulum" and its role in the development of Central Asian Islamic sciences* (end of XI century - middle of XII century): translation. name. . dis. autoref, T. Own FA ShI, 193 p.

Hasamuddin Hamdard
Alisher Navo'i Tashkent State University of Uzbek Language and Literature
researcher
hasamuddin.hamdard@yahoo.com

Abdullatif Khalidbek
Takhar University
researcher
latifkhaleedbek@gmail.com

YULDUZ NEWSPAPER LIKE AS FIRST PRESS OF UZBEK LANGUAGE IN AFGHANISTAN AT THE CONTEMPORARY PERIOD

Abstract: Uzbek constitue one of the oldest communities in todays Afghanistan.Todays Afghanistan, has been established in 1747. Uzbek who have lived here since that time were unable to benefit from government authority on protecting their heritage and literature; on the contrary, dominating authorities have put various pressures and obstructions on them. Individual and collective objections growing among the Uzbek after 1960s, have started to bear fruit specially with the pre-existing conditions' becoming partially appropriate. A new progress started in 1978, even though limited, with really short radio broadcasts and few poems in periodicals published mainly in Dari language. "Yulduz" newspaper which has begun to be published in this period, has been the only recognized periodical published by Afghanistan Uzbek for 12 years. In this respect, "Yulduz" undertook an important mission. As a natural result of this, the newspaper has found its place in hearts and works of Uzbek nation.

Key words: Yulduz newspaper, Afghanistan, Uzbek language, Uzbek Press, linguistic awareness.
Language: English

Citation: Hamdard, H., & Khalidbek, A. (2023). Yulduz newspaper like as first press of Uzbek language in Afghanistan at the contemporary period. ISJ Theoretical & Applied Science, 06 (122), 44-47.
Soi: http://s-o-i.org/1.1/TAS-06-122-9   Doi: crossref https://dx.doi.org/10.15863/TAS.2023.06.122.9
Scopus ASCC: 1200.

Introduction
Uzbek and publication controversy in Afghanistan

Until 1747, the onset of the establishment of today's Afghanistan, in this area, we see the strong presence of Uzbek and Uzbek language and literature. From the 18th century, political domination began to show a stance against the Uzbek and the Uzbek language. The policies that Afghan governments have implemented on culture and language, especially in the production of written literary products and reaching large masses, have been negative. There has been some effort to keep the language and culture alive by reading and teaching anthologies such as Tohfa al-Abidin, poems such as Navai and Hoyda, and works of verse and prose by the name of Adham SAHABE, in which the battles of Hazrat Ali (AS) are

narated. In addition, religious and literary poems and stories were also recited in local mosques. However, when one came from rural areas to cities and from the countryside to the center, speaking Uzbek was considered shameful and discouraged. As a result, we remember some of the writers and poets in the 20th century, who did not produce works in Uzbek, although their mother tongue was Turkish (Öztürk 2014: 16).

It is clear from the following excerpt from Kıyameddin Barlas' memoir that the pressure of the system forced him to write in Dari:

"In 1963, when I was a senior student at the faculty of language and literature in university of Kabul in Afghanistan, I found the opportunity to obtain and examine the works of the poet (Abdul Qayyum Sheikh from Tashqurgan), which had not

been shown to anyone for fear of losing his works. As a result, I prepared a 150-page work on the life, works and style of the poet and sent it to a competition organized by the then Ministry of Culture. After underlining examples of Turkish poetry in the work, the jury found it worthy of receiving the award (Barlas 1992: 747).

It seems that, with the arrival of the printing press in Afghanistan, manuscripts and communications were gradually entering the printing process. Although the history of printing in Afghanistan officially began with the publication of a newspaper called Shams-ul- Nahar during the reign of Amir Shir Ali Khan (1878-1863). But until the beginning of the 20th century, aside from works such as Siraj-ul-Akhbar (1911) and Aman Afghan (1919), this was limited merely to Kabul. With Nader Khan coming to power in 1929, the official press began to operate in some centers outside of Kabul. During the reign of Zahir Shah (1973-1933), new opportunities were created for the development and expansion of public communication tools. However, during this period, the press was considered the only means of transmitting government policy and served the interests of the ruling system. Although the official government organization was entirely Pashto, Dari had a unique position as an official language in the printing press alongside Pashto. During these periods, government authorities spent a lot of money to make Pashto the official language in the educational, administrative and legal organization of Afghanistan, in order to develop and empower it (Amini, 2009, Khayri, 2013).

In the third clause of the 1965 constitutional law of Afghanistan, it is stated that "Pashto and Dari have been accepted as official languages Afghanistan . Although the Uzbek in this country were under various political, social and cultural pressures, they could use their mother tongue in daily life, but they could not use it in the educational, artistic and cultural system (Heiri 2014).

In 1965, as the first step to implement the provisions contained in the declaration of the Democratic People's Association of Afghanistan with the efforts of Tahir Badakhshi, Shahrullah Shahpar and Sharai Jozjani under the title "Yingi Yil"(new year) and "Yangi Zaman Taranasi"(new time melody), two poems were published by Shari Jozjani in the 3rd and 4th issues of Khalq weekly. And also, a poem by Turkmen poet, Horoz Andkhoyi, was published. These were Uzbek poems that were published in Afghan press for the first time.

In addition, the articles in Dari language by Shari Jozjani in defense of the civil and cultural rights of Uzbeks and Turkmens in the seventh, eighth and ninth issues of Parcham weekly in 1965 were also the first political protest articles published on the aforementioned topic (Tashqin 2013).

Such efforts and ensuing struggles continued day by day and its positive results revealed gradually. However, these were largely unofficial efforts and lacked government support.

For example, we can mention Divan-e- Sultan Hossein Bayqra and Amir Ali Shir Nawayi, which were published in 1968 with the personal efforts of Dr. Vahedi (Yarqin 2010). In addition to these, the publications in uzbek language in official and unofficial press, schools, higher education, institutions and scientific centers were not allowed and appropriate space for publication was not given.

Even the rare Uzbek manuscripts, stone inscriptions and historical cultural heritage started to be destroyed as a result of Zahir Shah's cruel policy. This situation should be examined from various dimensions in the introductory of some works wich published today:

Our country is now called Afghanistan as a heritage from our ancestors. Recently, as a result of unjust, heavy policies, and oppression based on injustice, it has turned into a battlefield and heavy and disastrous fights. Therefore, people living in Afghanistan remained unaware of their identity (background?) and started to forget their mother tongue under the influence of other cultures. (Labib: 2006).

During the reign of Zahir Shah (1973-1933) and after that, during the reign of Dawood Khan, which lasted until 1978, efforts have been made to preserve their cultural identity against the ignorance and oppressive acts of the regime; sometimes to the extent that the system allowed. Sometimes, in sytem to preserve the cultural heritage, it was compulsory to use the press and written and oral publications.

In 1971, the representatives of Uzbek descent demanded to broadcast radio programs in the languages of the ethnicities living in this country. After that, since June , 1971, every day from 18:00 to 18:45, joint broadcasting in Turkmen and Uzbek Uzbek became avaiable. But this broadcasting was stopped after two years in 1973 under the pretext of coinciding with Iftar (RAMADHAN) time (Toran 1378: 187).

After toppling Dawood Khan's government in 1978, and the coming to power of the government with the support of the Soviet Union, the ethnic groups living in the country were promised to enjoy education and broadcasting in their own language. In this context, radio broadcasting, which was canceled during Dawood Khan's time, was reactivated and in the areas where Uzbeks lived, primary school books in Uzbek, Uzbek and Turkmen languages were prepared and published for political purposes (Barlas 1992: 747).

First Official Periodical in Uzbek: Yulduz

This relative freedom has led to some sporadic movements in the country's press. Yulduz newspaper, which started publishing in 1987, as the first and only

active newspaper for a long time, is one of the most prominent newspapers. Yulduz newspaper, which was launched in 1987,   was the only official newspaper published in the Uzbek language for twelve years (1978-1990). Halim Yarqin expresses his feelings about the publication of Yulduz newspaper as follows:

In 1978, Yulduz newspaper was a good chance for the people of Uzbek descent, which glittered in the horizon of our country's press. It is not an exaggeration to say that "Yulduz" magazine was a great civic opportunity for the growth and elevation of Afghan Uzbek language and literature, especially for shaping the literary language of that time(Yarqin: 2010).

Symbolically the Yulduz and related metaphors, we seen across many writers and poets who directly express their sincere feelings about the newspaper. We saw Yarqin's statements above; we might similarly consider Tashqin's words:

After a long time, unexpectedly in 1978, Yulduz newspaper sparked a light in the sky of Afghan Uzbeks. "Yolduz" newspaper was the result of efforts that had started in 1965 (Tashkin 2013).

The weekly issues of this newspaper, which initially included articles in Turkmen and Uzbek languages, were eagerly awaited by Uzbeks and Turkmens, and were supported both financially and spiritually. At first, the newspaper was generally four pages, but sometimes six or eight pages were published due to the large number of articles. Many writers and poets of that period published their first works or some of their works in this newspaper.

The newspaper faced many problems during its publication. These problems were solved with the help of citizens who volunteered to do whatever in their power to eradicated them. For instance, some dedicated their personal cars to the newspaper office to distribute and publish the newspaper. In addition to such problems, the number of writers publishing articles in this newspaper was very small. It was also very difficult to find qualified people for typesetting and proofreading manuscripts and achieving the standard of literary language.

One of the most influential people in the publication of that day's was Shari Jozjani and especially Mohammad Amin Ochqun, who was its first managing editor, took on many tasks, including newspaper layout, reviewing articles and adapting them, as well as standardizing and translating news. In this way, Ochqun dedicated more than two years of his life to Yulduz newspaper.

After Ochqun, Aykhan Bayani took over the responsibility of the newspaper under the same difficult conditions. The administration failed to get the necessary support from government agencies. And due to the army's attacks on the printing press, he could not publish the newspaper regularly. Sometimes two consecutive issues of the newspaper were published simultaneously.

In addition to these problems, in 1984 the central office of the newspaper was exiled to Mazar-e-Sharif. The reason behind that was the Tajik advisers who served as advisore to the Soviet authorities, did not like this publication in Uzbek. In this abnormal situation, Abdullah Roueen was appointed as the responsible manager in 1984.

Regardless of the imposed restrictions, Abdullah Ruyin cooperated with Uzbek intellectuals and writers and managed to remove the obstacles and publish the newspaper without interruption, increase its circulation and reach the readers. During his time, in addition to Yulduz newspaper, sixteen works of Ali Shir Nawai were also published.

During the administration of Nurullah Altai, who became the responsible director after Abdullah Roin, new problems arose due to the political and social conditions and the war atmosphere. The burning of the printing machines and the scattering of the workers brought the problems of the newspaper with manual machines. During this challenging activity that lasted for about five years, the newspaper was published in the form of a 30-36 page booklet. Since 1995, this newspaper has not been published due to the emergence of the Taliban (Tashqin 2013).

An example of poems written to Yulduz

In 1995, Noorullah Altai criticized the continued publication of the newspaper and published a critique entitled "Bu Milletning Igesi Barmi?" Does this nation have a padrone? (Altai: 1995).

Kobra Kivan's poem under the title "Yulduz Nuri"(shining of Yulduz) (Abdullahyev 2003: 101-100) and Taj Mohammad Mustayid's poem under the title "Yulduzum Bahari" (spring of our Yulduz) on the occasion of the eighth anniversary of the publication of the newspaper (Öztürk 2014: 48-480). It is enough for effect of the hearts of Afghan writers. Kazem Amini completes his poem again under the title of "Haqiqat koychisi" (The truth saying), which he wrote on the occasion of the 12th anniversary of Yulduz newspaper in Maymene in 1991, with this quatrain:

O'n ikki yoshing tabriklab bugun
Congratulations your twelfth birthday today
Shoningga yozdim, chakomani
I wrote to you, peom(ode)
So'vg'am qabul et, holimga qadar
Accept my gift, according to my situation.
Jo'shqin mihr ila, surdim xomani (Emini 2013:p, 74-76).
I took the pen with full love and wrote.

Here, in order not to extend the examples unneccesarily, we will limit ourselves to the poems that, which was sent by Abdul Rashid Makhdoom Chishti from Saudi Arabia on the occasion of the publication of Yulduz newspaper, and it was published in Yulduz newspaper(Öztürk 2014: 64-65)

"Cho'lpon Yulduz"ing
The CHOLPAN YULDUZ
Ey aziz yurtim muborak chiqti toli "yulduz"ing

Oh, my dear country, blessed is your bright "Yulduz".

Tun qoro qoygusin yoritgay imdi her on "yulduz"ing

Now the darkness brightens the nights "Yulduz".

Ruxoring ustida nuri saodat tovlanur

The light of happiness shines on your soul

Dilbaring rumoli uzra koʻp yarashgan "yulduz"ing

You are that "Yulduz" who has given a lot of beauty on a scarf.

Koʻp kulkilar qilurlor ir hayotiga asir Yulduz 1980, S 7.

Many laughs are captured in a man's life

Result

From the second half of the 18th century to the second half of the 20th century, the Uzbek language, literature and culture in Afghanistan were exposed to various pressures, restrictions and assimilation policies. Although the Uzbek of the region resisted these political actions with all their might, they faced many problems while preserving the cultural works, civilization, language and literature used to transmit them. From the second half of the 20th century, individual and social struggles and efforts came to fruition. The fact that they united and became a power has opened the way for their official presence.

One of the first ways to do this was Yulduz newspaper. During 12 years, Yulduz newspaper had officially assumed the task of a guide, a clear reflection of their language and culture, and a valuable communication tool in general for Afghan Uzbeks, especially Uzbeks. Yulduz newspaper continues its publishing life in Afghanistan today. But it did not have the anticipated impact between 1978-1990. Its reflection can be easily seen in the Turkish-Uzbek literature of Afghanistan, because Yulduz newspaper has a historical and symbolic value in the way that it has acquired many existing rules today.

References:

1. Abdullayev, A.S. (2003). *20th Century Afghanistan Literature*. Tashkent.
2. Altay, N. (1995). *"Does this people have the owner?"* Retrieved 14.05.2015 from http://www.babur.org/babur/index.php?option=com_content&view=article&id=570:2013-07-26-21-13-43&catid=36:2010-10-02-14-21-58&Itemid=55
3. Amini, M.K. (2010). *"The short history of AfganistanTurkic press"*. Retrieved 14.05.2015 from http://www.babur.org/babur/index.php?option=com_content&view=article&id=503:2013-04-11-17-1232&catid=36:2010-10-02-14-21-58&Itemid=55
4. Amini, M. K. (2013). *A collection of poems the voice of exile*, DOSTAN, press Mazar-e- Sharif.
5. Barlas, Qiyamuddin (1992). "Afghanistan Turkic Literature", *Turkish World Handbook,* v 3, 2. press, (pp.745-755). Ankara, Turkish Culture Research Institute Publications.
6. Khayri, A. (2013). *"Language Policies in Afghanistan"*. Retrieved 16.01.2014 from https://guneyturkistan.wordpress.com/2013/0726/Language_Policies_in_Afghanistan/
7. Labib, M. A. (2006). *My feelings, my worries, collection of peoms*, Mazar-e-Sharif, Bakhtiyar civilaztion and pulishing Assiciation.
8. Öztürk, R. (2014). *Current Uzbek poets of Afghanistan*, Konya, PALAT Publication
9. Tashqin, A. (2013). *"Yulduz as a first newspaper in the history of Uzbek language of Afghanistan when and how created?"*, Retrieved 14.05.2015 from http://www.babur.org/babur/index.php?option=com_content&view=article&id=570:2013-07-26-21-13-43&catid=36:2010-10-02-14-21-58&Itemid=55
10. Turan, A. (1999). *The sound of hearts,* vulume I, Pishawar, Assosiation, Makhdumqulı Firaqi publication.
11. Yarqin, H. (2010). *"Kronology of Afganistan rhetoric prose"*. Retrieved from https://cenubiturkistan.wordpress.com/2010/05/11/4.05.2015
12. (1980). *YULDUZ Newspaper*, vulume 7, Kabul.

Ahliddin Habibulloyevich Raxmanov
Tashkent State Agrarian University
researcher
a.raxmonov@tdau.uz

MOONG CROP INSECT PEST CONTROL

Abstract: *Moong crop is a prominent legume crop grown in India, China, and Southeast Asia. It is susceptible to a variety of insect pests, which can result in severe productivity losses and quality deterioration. Farmers must utilize an integrated pest management (IPM) method to control insect pests. Aphids are small, soft-bodied insects that feed on plant sap, stunting growth, distorting leaves and stems, and withering them. To manage aphids, farmers should use resistant types, monitor their crops regularly, use targeted sprays of water or insecticidal soap, and use biological control. Pod borers are caterpillar-like insects that bore into pods and feed on maturing seeds, resulting in severe yield losses. Farmers can use pheromone traps, plant-based solutions, biological control, and chemical control to reduce their population. Whiteflies are tiny flying insects that feed on plant sap, causing leaves to yellow, wilt, and distort. Farmers can use physical control, natural enemies, and chemical control to manage them. An integrated pest management method is necessary to grow healthy and profitable moong harvests indefinitely.*

Key words: *mong, pests, insect, control, crop, biological control, aphids.*
Language: *English*
Citation: Raxmanov, A. H. (2023). Moong crop insect pest control. *ISJ Theoretical & Applied Science, 06 (122),* 48-50.
Soi: http://s-o-i.org/1.1/TAS-06-122-10   *Doi*: crossref https://dx.doi.org/10.15863/TAS.2023.06.122.10
Scopus ASCC: 1100.

Introduction

Moong crop, also known as mung bean, is a prominent tropical and subtropical legume crop grown in India, China, and Southeast Asia. It is regarded for its excellent nutritional content, low input prices, and income creation possibilities. However, moong, like any crop, is susceptible to a variety of insect pests, which can result in severe productivity losses and quality deterioration. Farmers must utilize an integrated pest management (IPM) method to control insect pests in moong crops, which incorporates numerous tactics to target the pest while minimizing the use of chemical pesticides. Here are some of the most common insect pests of moong, as well as recommended control methods.

Aphids are small, soft-bodied insects that feed on plant sap, stunting growth, distorting leaves and stems, and withering them. They also expel honeydew, which promotes the formation of fungal diseases. Farmers can employ the following strategies to manage aphids in moong crops. Use resistant types: Some moong varieties have been cultivated or chosen for aphid resistance. Farmers can select these cultivars to reduce the likelihood of aphid infestations.

Pic.1. Aphid's moong

Farmers should monitor their crops on a frequent basis for the presence of aphids, particularly on fragile shoot tips and growth points. Early discovery can aid in the prevention of the infestation's progress.

Farmers might employ targeted sprays of water or insecticidal soap to wash away or kill aphids. To keep aphids away from the plants, they can employ sticky traps or reflecting mulch. Use biological control: Aphid natural enemies such as ladybirds, lacewings, and parasitic wasps can help lower aphid populations. Farmers can boost the presence of these beneficial insects in their fields by planting nectar-rich blooms or releasing them.

Pod borers are caterpillar-like insects that bore into pods and feed on maturing seeds, resulting in severe yield losses. Farmers can employ the following strategies to control pod borers in moong crops.

Use pheromone traps: Farmers can use traps that produce sex pheromones to attract male pod borers, reducing their mating and egg-laying activities.

Plant-based solutions, such as neem oil, garlic extract, or chilli powder, can be used by farmers to deter or kill pod borers. Spray these items on the leaves and pods. Biological control: Pod borers' natural enemies, like as parasitic wasps, can help lower their population. Farmers can boost the presence of these useful insects by planting nectar-rich blooms.

Pic.2 Pod borers moong

Whiteflies are tiny flying insects that feed on plant sap, causing leaves to yellow, wilt, and distort. They also expel honeydew, which attracts sooty mold and inhibits photosynthesis. Farmers can use the following strategies to manage whiteflies in moong crops:

Make use of physical control: Whiteflies, like aphids, can be washed away or killed with insecticidal soap or water. Farmers can also repel them using sticky traps or reflecting mulch.

Natural enemies of whiteflies, such as parasitic wasps, predatory bugs, and fungal pathogens, can help

control their population; farmers can release these beneficial organisms or encourage their presence by avoiding broad-spectrum pesticides. Use chemical control as a last resort: If other methods fail or the infestation is severe, farmers can use selective insecticides that target whiteflies, such as neonicotinoids or insect growth regulators.

Finally, insect pest control in the moong crop necessitates a combination of techniques aimed at preventing, monitoring, and suppressing pest populations while limiting the impact on the environment, human health, and beneficial creatures. Farmers may grow healthy and profitable moong harvests indefinitely by using an integrated pest management method.

References:

1. Yadav, D. K., & Singh, S. K. (2006). Forecast model of major insect pests of mung bean. *Annals of Plant Protection Sciences,* 14(2), 323-328.
2. Litsinger, J. A., & Moody, K. (1976). Integrated pest management in multiple cropping systems. *Multiple cropping*, 27, 293-316.
3. Kathiresan, R. M. (2007). Integration of elements of a farming system for sustainable weed and pest management in the tropics. *Crop protection*, 26(3), 424-429.
4. Mallick, M. T., Biswas, S., Das, A. K., Saha, H. N., Chakrabarti, A., & Deb, N. (2023). Deep learning based automated disease detection and pest classification in Indian mung bean. *Multimedia Tools and Applications*, 82(8), 12017-12041.
5. Hagstrum, D. W., & Athanassiou, C. G. (2019). Improving stored product insect pest management: from theory to practice. *Insects*, 10(10), 332.
6. Kaur, N., & Singla, N. (2021). *Comparison of efficacy of ready to use and cereal based formulations of Bromadiolone for rodent pest management in summer moong crop.*
7. Sharma, D. K., Shashi, P., & Thapar, V. K. (2008). Bulk storage of moong using biogas as a fumigant. *Environment and Ecology*, 26(1), 81-85.
8. Chauhan, N. P. S., & Singh, R. (1990). *Crop damage by overabundant populations of nilgai and blackbuck in Haryana (India) and its management.*
9. Veer, R., Chandra, U., Gautam, C. P. N., Yadav, S. K., Sharma, S., Kumar, S., & Kumar, A. (2021). Study on incidence of insect pests in chickpea. *Journal of Entomology and Zoology Studies*, 9(1), 146-150.
10. Tamang, S., Das, U., Debbarma, T., & Mandal, S. (2018). Evaluation of Mungbean Genotype for Resistance against Black Aphid (Apis craccivora Koch.) under Terai Agro Ecological System of West Bengal. Int. *J. Curr. Microbiol. App. Sci*, 7(9), 1783-1785.

Nurali Holmatovich Bekmurodov
Tashkent State University of Economics
PhD., Associate Professor
Uzbekistan

STRUCTURAL FORMATION OF PRODUCTION INFRASTRUCTURE AND NECESSITY OF ITS INNOVATIVE DEVELOPMENT

Abstract: *In the article the need for structural formation of production, infrastructure and its innovative development several problematic and complex topics were touched upon and solutions were found for several of them. Taking the example of foreign innovations, scientists continue their scientific research on the development of production infrastructure in our country. The article focuses mainly on the concept of infrastructure. The scientists of the world and our country who contributed to its development are cited. In addition, attention is paid to the institutional concept of infrastructure.*

Key words: *infrastructure, wealth of nations, ecology, credit-finance, price, science and technology, intensification, modern market, economic sectors, innovation.*

Language: *English*

Citation: Bekmurodov, N. H. (2023). Structural formation of production infrastructure and necessity of its innovative development. *ISJ Theoretical & Applied Science, 06 (122),* 51-56.

Soi: http://s-o-i.org/1.1/TAS-06-122-11   *Doi*: crossref https://dx.doi.org/10.15863/TAS.2023.06.122.11

Scopus ASCC: 2000.

Introduction

Currently, the development of economic sectors in developed countries is carried out by introducing innovative processes. In Uzbekistan, it would be appropriate to provide all conditions for the activation of these processes in all areas of the economy, including production. Innovative development makes it possible to solve existing problems in product production, at the same time to radically change its image, to move to a new stage of development of product production and infrastructure networks serving it. In fact, it is necessary to provide services to product manufacturers at the level of demand and fully satisfy their needs by improving the foundations of innovative development of the infrastructure serving product production in the modernization, structural change, and technical renewal of the economic sectors of our country.

The emergence of the term infrastructure and its formation as a network and the stages of its development are directly related to the development of these objects and the development of economic theory.

Economists who studied infrastructure as a separate object of research, studied it as a whole network that provides conditions for the development of market relations. Later, it was approached in a differential way as a complex serving a separate industry, region, and type of production. This can be observed in the research works of a number of foreign and CIS scientists.

At the initial stage, the concept of infrastructure was not considered as a separate economic category, and the approach to the analysis of this problem was formed. A. Smith, speaking about the tasks of the state in the work "The Wealth of Nations", included "... the organization and maintenance of certain social buildings and institutions that cannot be useful only to certain individuals or small groups", that is, building roads, bridges, referring to the youth education system, the judiciary and the church[1].

Proponents of classical political economy believed that the activity of certain production objects was unprofitable for some individuals, but they emphasized that they are important for the whole community. The characteristic of the initial stage is that infrastructure objects are mute character and

completely dependent on the needs and growth of the main production enterprises.

The stage of formation of the infrastructure category began in the 40s of the 20th century. The term "infrastructure" was used in economic literature at this stage and began to be studied as an important factor of production. It should be noted that at this stage, the infrastructure as a category had its own characteristics[2], that is, the level of development of production in the conditions of advanced capitalism and socialism, as well as the influence of various external factors.

The reason why infrastructure is analyzed as a separate independent element in the economic system of developed capitalism is, on the one hand, the deepening of the processes of division of labor in society, and on the other hand, there is no possibility of full development of infrastructure only through the market mechanism. The impossibility of building roads, bridges, canals, and dams necessary for the country only at the expense of private capital led to the active intervention of the state in the development of infrastructure sectors. As a result, the infrastructure sector was formed as an independent sector.

The stage of formation of the infrastructure as a system began in the 80s of the 20th century. Since this period, infrastructure has been studied as an integrated system and a factor that increases competitiveness and determines the formation of the national economy.

In the economic literature, the term infrastructure is interpreted in different ways. According to the dictionary meaning, infrastructure (Latin infra - lower, structure - location, structure) means "base", "foundation", "located".

In the world experience, the concept of infrastructure was introduced for the first time at the beginning of the 20th century as a set of objects and facilities necessary for the full functioning of the military armed forces. By the 1940s of the stage of development of Western countries, infrastructure was understood as a whole structure of networks and institutions that create the necessary conditions for the activity of the spheres of material production. In the 1970s and 1980s, in the economic literature of the former Union republics, usually infrastructure was seen as a set of engineering and technical buildings and structures.

Some economists define that "infrastructure is a complex that provides normative conditions for social and economic production", while other literature defines it as[3] "a set of unique labor processes in the creation of goods and services that ensure the exchange of activities in the process of human life and social production". According to American scientists K.R. McConnell, S.L. Brewer: infrastructure at the level of the national economy is defined as "capital facilities that are usually provided by the state (roads, urban transport systems, water treatment facilities, municipal water supply systems, airports) and their use by citizens and firms" ", as well as "infrastructure is the services and devices necessary for the production of products for the company (water supply, electricity, removal of production waste, transportation of goods, scientific research and design-construction works, financial and banking services)"[4]. They stated that it is expensive to establish them with their own funds, so they are provided by the state and other companies.

The problems of the interaction of the production sector with the enterprises providing its services arose before the appearance of the term "infrastructure", which can be observed in the works of R. Nurke[5], P. Rosenstein-Rodan[6], A. Hirshman[7], A. Youngson[8].

In the research conducted by the American economist P. Rosenstein-Rodan, he defined the infrastructure as "a set of general conditions that satisfy the needs of all the population and ensure the development of private entrepreneurship in the main sectors of the economy, or the main sectors..[9].". R. Iokhemsen in his work "Theory der infrastructure" interpreted the infrastructure as a set of material, personal and institutional activities and their organizations that help to organize an integrated economy in the regions[10].

The English economist A. Youngson is the first discoverer of this term, and indicates that the words "overhead capital" - infrastructure, which he used in his work in the early 40s, refer to H. Zinger. Ch. Muradov also stated in his research that R. Jochemsen's definition of infrastructure is deep and comprehensive and that he summarizes the opinions of many foreign scientists in this regard. is distinguished by [11].

According to A.I. Kuznetsova, "infrastructure as a research object is a set of general conditions in production and life activity of the population arising in the social division of labor."[12]

L.V. Goryainova considered the infrastructure as an object of public-private cooperation and believes that "separating the infrastructure network into production and social infrastructure is a typical approach for Russian economic literature[13]."

Infrastructure has been defined differently by Uzbek scientists. In some literature, "infrastructure is a set of production and non-production that provides conditions for reproduction. They believe that the main production infrastructure is the energy supply, transport and communication chain[14].

In this place B.B. According to the definition proposed by Berkinov and R.Kh. Tashmatov, infrastructure is the areas that create general conditions for running the national economy. The result of their activity is not products in kind, but services. In this case, they believe that it is necessary to take into account the "net services" after deducting

the cost of resources (fuel, chemicals, seeds, drugs, etc.), and logically we think that this is correct. In this case, it will be possible to determine the share of the infrastructure network, which is included in the cost of manufactured products.

According to Ch. Muradov, "infrastructure covers the production, social and intangible processes of society, includes various financial, social, legal, informational, ecological, management and other types of service activities and has a direct impact on the final result of the production process. shows" [15].

In our opinion, on the one hand, if we study the infrastructure as a system that represents economic opportunity, that is, as a system that provides the conditions for market relations, on the other hand, it should be studied separately as economic relations aimed at forming commodity-money relations between market subjects.

Therefore, in close interaction with the system of economic relations in the reproduction process, the infrastructure network provides conditions for the development and progress of all economic operators in the area.

- When defining the infrastructure sector, it is necessary to pay attention to several aspects of it:
- forms a system of economic relations in the service provision system;
- the development and progress of the infrastructure in many cases depends on the level of development of the sector it serves and vice versa;
- the types of infrastructure depend on the sector served;
- with the development and progress of the society, the service types of the infrastructure network expand.

In general, the infrastructure complex is a special branch of the economy and a special form of economic activity, which is carried out on the basis of social-private cooperation and with the support of the state, and is aimed at creating and improving conditions for socio-economic and technological development at the global, national-regional and enterprise levels. will be Socio-economic development means not only the growth of GDP, but also, first of all, the satisfaction of the material and social-innovative needs of all layers of society.

The infrastructure complex is a dynamic system, because its structure and types are changing as a result of the deepening of the social division of labor and changes in the economic management system, and will change in the future due to the emergence of new industries and types of activity.

Currently, as a result of scientific research, a number of theoretical concepts of infrastructure have been formed:[16]

The concept of overhead costs. The first ideas related to this concept came from the Swedish economist K. According to Viksel, while analyzing the place of production in the economic system, he divided the costs necessary for the development of the sector serving production processes into proper production and social surplus costs. This idea was later considered by J. Clark in his research work and divided overheads into micro and macro levels.

Distributive concept of infrastructure. According to this concept, the infrastructure consists of a system of product distribution channels in the field of circulation[17]. The foundations of the formation of this concept can be observed in the work of the economist A. Shaw. While researching market allocation problems, "market distribution" means between production and consumption

Defined as the area of circulation or trade-distribution system that provides communication.

Logistics concept of infrastructure. This concept explores infrastructure as a system of facilities, transport and technical means that ensure the movement of products. The problem of product distribution and movement was first discussed by A. Shaw, then by R. Denenholtz, E. Smike, F. Researched in Mossman and R. Snyder works[18].

Infrastructure marketing concept. The uniqueness of the concept lies in the fact that the infrastructure network is studied as a type of activity that helps to generate demand for products, goods and services. The foundations of this concept were studied in the studies of the American economist A. Shaw.

Institutional concept of infrastructure. According to this concept, the market infrastructure is a system of interacting entities in this field of transactions, manifested in various organizational and economic forms, and provides trade-economic connection between production and consumption. R. Westerfield, who was the first to propose an institutional approach to the analysis of market processes, studied this subject as an economic tool for the development of the English economy.[19]

In order to understand the nature and content of the infrastructure network more deeply, it is necessary to study its classification forms, that is, its structure and types. The need to classify the infrastructure network is determined by:

firstly, on the basis of grouping of types of infrastructure, determining the place of not only individual types, but also its networks in the system of social reproduction; secondly, to study inter-sectoral relations and, on the basis of this, to establish an optimal balance between the main production and the organizations and enterprises providing services to it;

thirdly, it allows to gradually improve the management of the set of interrelated networks that provide the final result.

Since the infrastructure network is a dynamic system, as we mentioned above, its types are classified differently by experts. For example,

according to A. Tursunov, infrastructure is production, social, market and institutional to the infrastructure divided[20] In addition, infrastructure networks are classified according to the level of influence on the production process, regional characteristics, industry, sectors, farms, and aspects of use.[21]

Economist-scientist Ch. Murodov, taking into account the types of infrastructure network, notes that "... it develops in the directions of production, personal, ecological and market infrastructure[22]" and explains in detail the classification of all types. Innovative infrastructure remains the leading mechanism of economic modernization and diversification, technical and technological upgrading, and the development of the national economy in almost all countries in the conditions of recovery from the global financial and economic crisis.

In recent years, the infrastructure in our country has been developing rapidly. This can be explained by a number of factors. In particular, the rate of growth of production is ahead of the development of infrastructures, and this also affects the development of the economy. In the Western economic literature, this process is called "servicing of the economy" (English "servise" - service). The following factors also have an impact on the servicing of production: the deepening of the social division of labor, the growth of the population's income, the expansion of the demand for credit resources, the growth of the pace of scientific and technical development, the separation and diversification of production, the development of production based on saving resources, etc. The final results of production depend not only directly on the farm's own capabilities, but also on the level of development of infrastructure networks serving it.

From the point of view of the agricultural sector, the overall goal of the infrastructure sector is to create favorable conditions for the development of the population and commodity producers. Communication and communication, transport and road service, production, social, innovative, ecological, institutional and market infrastructure, which are part of the infrastructure sector, have their own tasks to provide adequate conditions to the population and product producers, based on the function and specific nature of the infrastructure.

- The infrastructure serving the production network is divided into different groups. Depending on the division of these groups, it is possible to determine for what purposes they should be used:

- determining and evaluating the place of infrastructure services in the process of product production;

- pre-planning of the scope of work between product production and the infrastructure serving it, their completion dates, and their material and technical condition; coordination of management of production and service sectors, determination of the final result.

- However, due to the multifaceted nature of the tasks performed by the infrastructure serving the production of products, the fact that they cannot be performed simultaneously, the variety of service technology, it is impossible to group infrastructure enterprises using one or two types of indicators.

- Production service infrastructure - consists of a set of services that directly and indirectly provide conditions for product manufacturers in the process of product production and delivery to consumers (processing enterprises, population).

In order to fully reflect the function of the infrastructure serving production and to determine the role and importance of the infrastructure in the activities of product manufacturers, it is appropriate to divide it into the types of infrastructure of material supply, financial supply, information supply and advertising, special service, transportation and storage, and innovative supply.

Research shows that the classification of the infrastructure serving the production of products in this order will allow to develop a scientific proposal and practical recommendations for expanding the types of services provided to manufacturers in the future.

According to the conducted researches, currently, the types of material and technical services, financial services, special services, transportation and storage services that serve the production of products are constantly used by product manufacturers.

Innovative services are provided by scientific research institutes, scientific centers, and laboratories.

With the increase in the volume of exports of manufactured products, the demand for logistics services is also increasing. At the same time, it will be appropriate to expand the types of innovative services in the future in the innovative development of product production.

According to the conducted studies, the lack of own funds, limited funding from the budget and the difficulty of obtaining loans for innovative projects in many producers and farms do not allow the adoption of new technologies.

- Taking into account all the factors affecting the economic efficiency of innovative processes and the specific features of the industry, it consists of the following:

- natural-biological factors: improvement of soil and climate conditions with the help of chemistry, land reclamation, irrigation and other means, selection, genetics and other means and factors in the fields of livestock and agriculture;

- social factors: factors related to the identification and development of human abilities -

physical, psychological, intellectual, factors related to the development of positive attitudes to work and its results and the exclusion of negative situations;

- organizational and economic factors: organization of production, its specialization, concentration, application of best practices, character and level of management system and methods;

- material and technical factors: level and quality of production mechanization, electrification, automation, level of applied technologies, development of science;

- economic factors: production planning and prospecting, demand, supply, pricing, credit-finance, economic analysis, accounting and control, normalization of labor, tariffication of works.

These factors are to a certain extent connected with the set of production relations specific to this stage of production development.

Solving the problems of innovative provision of goods allows researchers to actively and qualitatively implement innovative projects, and to create mutually beneficial conditions for consumers of these projects to quickly adopt them. Timely adoption of innovative projects increases the economic efficiency of production entities and ensures their development to a higher level.

In the conditions of modernization and diversification of our country's economy, it is necessary to provide services to the population and product manufacturers at the level of demand and fully satisfy their needs by improving the organizational and economic mechanisms of innovative development of the infrastructure serving production.

This problem is explained by the following number of cases. First of all, it is possible to successfully implement innovation policy only when appropriate conditions are created, to develop specific organizational and economic mechanisms of innovative development, which includes the implementation of systematic measures to accelerate the production of high-quality products and to

activate innovative processes in all areas of production.

Secondly, the material and technical supply system, scientific and technical development and intensive technologies are the decisive factors in increasing the economic efficiency of production, and the intensification of production requires the improvement of production tools, the development of service sectors and their effective use in exchange for reducing the contribution of live labor.

It is known that the development of infrastructure and the expansion of its types are directly related to the introduction of science and technology development into economic sectors and the acceleration of innovative activities.

Thirdly, in the context of the country's modernization, the innovative development of infrastructure serving production requires a complex approach. In this case, the methods and mechanisms of innovative infrastructure development should not only meet the modern market principles of the national economy, but should also take into account the specific characteristics of each region.

According to the above mentioned cases, it is becoming an objective necessity to comprehensively study innovative activities and processes in the field of production infrastructure, to review the situation created in practice from a critical point of view, and to improve the organizational and economic foundations of innovative development of infrastructure serving production.

In general, infrastructure is directly related to scientific and technical progress, the development of innovative activities in economic sectors, including the production sector, not only expands the types of infrastructure, but also increases the quality of its service. In turn, as a result of the innovative development of the infrastructure serving the production, it will be possible to move to a new stage of development of the product production and improve the quality of the population's living standard.

References:

1. Aschauer, D.A. (1989). Is Public Expenditure Productive?. *Journal of Monetary Economics*, No. 23, pp. 177-200.
2. Kuznetsova, A.I. (2013). *Infrastructure. Geoeconomic pod1khod*. Izd. 3-e. (p.456). Moscow: KomKniga.
3. Buhr, W. (2003). What is Infrastructure? Department of Economics, School of Economic

Disciplines, University of Siegen. *Siegen Discussion Paper* no. 107- 03, 2003.
4. Jochimsen, R. (1966). *Thtory der infrastmctur* - Tübingen: Mohr.
5. Simonis, U. (1972). *Infrastructure, Theory und Praxis*, Kiel, p.23.
6. Smith, A. (1992). *Issledovanie o prirode i prichinax richatka narodov*. V 2-x t. (p.13). Moscow: Nauka. T.1.

7. Salimov, B.T., et al. (2004). *Peasant and farm economy*. (p.10). Tashkent: Literary Fund of Writers' Union of Uzbekistan.

8. McConnell, C.R., & Brew, S.L. (1992). *Economics: Principles, problems and politics*. V 2-x t. (p.388). Moscow: Respublika.

9. Nurkse, R. (1955). *Problems of capital formation in underdeveloped countries*. Oxf.

10. Hirschman, A.O. (1958). *The strategy of economic development*. New Haven.

11. Youngson, A.J. (1967). *Overhead capital*. Edinb.

12. Jochimsen, R. (1966). *Theory der infrastructure*. Tubingen.

13. Kuznetsova, A.I. (2013). *Infrastructure. Geoeconomic podkhod*. Izd. 3-e. (p.456). Moscow: KomKniga.

14. Goryainova, L.V. (2012). Infrastructure kak obekt gosudarstvenno-chastnogo partnership. Economics, statistics and informatics. *Vestnik UMO MESI*, No. 6, pp. 31-37.

15. Berkinov, B.B., & Tashmatov, R.Kh. (2007). *Development directions of infrastructure serving farms in Uzbekistan*. (p.23). Tashkent: TSUE.

16. Stukach, V.F., & Pomogaev, E.M. (2007). *Innovative infrastructure of regional APK:* monograph. (pp.10-12). Omsk: "Sphere".

17. Show, A. (1912). Some Problems in Market Distribution. *Quarterly Journal of Economics*, XXVI August 1912, pp. 703-765.

18. Novoselov, A.S. (1996). *Rynochnaya infrastructure in the region: problemy formation and development*. (p.288). Novosibirsk: EKOR.

19. Wethersfield, R. (1915). *Middlemen in English Business*. Transactions of the Connecticut Academy of Arts and Sciences, XIX New Haven.

20. Tursunov, A.G. (1998). *Organization and development of production infrastructure in the conditions of multi-system economy*. Diss. dok, (pp. 20-21). Tashkent.

21. Plashchinsky, P.A. (1985). *Infrastructure and effectiveness of public production*. (pp.12-19). Mn.: Belarus.

22. Zokirov, O., & Pardaev, A. (2003). *Agricultural economics* (textbook). (pp.262-265). Tashkent: "UAJBNT" Center.

23. Salimov, B.T., & Orakov, N. (2004). *Economics of agricultural infrastructure* (study guide). (pp.22-23). Tashkent: TSUE.

Gulrukhsor Sobirjonovna Zakiriyayeva
Navoi State Mining and Technological University
Master student of the Department of Mechanical Engineering Technology, Navoi, Uzbekistan

Rashid Olimovich Muminov
Navoi State Mining and Technological University
Docent of the department Mechanical Engineering, Navoi, Uzbekistan
rashid_81@mail.ru

RESEARCH METHODS OF EFFICIENCY OF REPAIR AND OPERATION OF SCREW-CUTTING MACHINE

Abstract: The article considers the analysis and proposes methods for the effectiveness of the use of screw-cutting lathes. And also, the research of screw-cutting lathes was carried out on the basis of an analysis of operation. Existing methods for evaluating the effectiveness of the use of metal-cutting machines are considered, methods for calculating the return on assets, as the most important indicator, are analyzed.

Key words: efficiency, organizational and technical indicator, load factor, equipment productivity, cutting forces, cutting speed, cutting coefficient, tensile strength, tension, area, cross section, cut layer.

Language: English

Citation: Zakiriyayeva, G. S., & Muminov, R. O. (2023). Research methods of efficiency of repair and operation of screw-cutting machine. ISJ Theoretical & Applied Science, 06 (122), 57-63.

Soi: http://s-o-i.org/1.1/TAS-06-122-12   Doi: crossref https://dx.doi.org/10.15863/TAS.2023.06.122.12
Scopus ASCC: 2200.

Introduction

Efficiency measurement is based on a comparison of costs (time, money) and results. At present, following the established tradition, the effectiveness of the use of screw-cutting lathes is evaluated by well-known indicators, such as reducing the cost of products, payback period, and others, they also use an organizational and technical indicator - the equipment load factor. But the assessment of efficiency is not reliable, since there is no accounting for the use of the technological capabilities of a screw-cutting lathe. With a high load factor of a screw-cutting lathe, there are no guarantees about the efficiency of using the machine, since this may be the result of a high-speed machine operated at low cutting conditions, limited by the durability of the tool available at the enterprise. As a result, screw-cutting lathes, which allow the manufacture of very complex parts, are often used to process fairly simple parts. Return on assets is one of the performance indicators, which can be assessed using the complexity theory [2,5].

Complexity theory Sharina Yu.S. offers a formula for evaluating the effectiveness of use - the formula

$$T = \frac{C}{B \cdot \alpha}.$$

Formula for finding the complexity of a part - formula

$$C = 0.02_n \cdot К_Р \cdot К_М \cdot К_{исп} \cdot К_т \cdot К_В$$

According to Yu.S. Sharin, α can only be equal to 0 (when the part is erroneously correlated with the machine) or 1 (when the processing method and the machine correspond to each other). It should be taken into account that the coefficient α can also be in the interval between them, while it can be defined in more detail than originally, namely, as the coefficient of realization of the technological capabilities of the machine [3,8].

Technological capabilities B is the performance of the equipment for a given quality of product processing, expressed in units of complexity per minute. More productive equipment has a value of B higher than less productive. In this case, the technological possibilities, i.e. performance, act as the

most important qualimetric characteristics of CNC machines [4,10].

The value of B according to the presented formula by Yu.S. Sharin is an integral indicator that can characterize the machine, taking into account its various technical characteristics. Consider obtaining an estimate of the magnitude of complexity, using the same method we will try to determine the productivity of the machine according to Yu.S. Sharin [6,11].

Let's start from the Granovsky criterion - the formula $V = v \cdot s \cdot t \frac{mm^3}{min}$ parameter B can be estimated as the maximum volume of metal cut on the machine per unit time - the formula

$$B = v_{max} \cdot S_{max} \cdot t_{max}, \qquad (1):$$

where v_{max} is the maximum cutting speed for this machine, m/min;

S_{max} is the maximum feed value for this machine, mm/rev;

t_{max} is the maximum depth of cut for this machine, mm.

As you know, cutting power is formula (2):

$$N_{cut} = \frac{P_z \cdot v}{1020 \cdot 60} \qquad (2)$$

where N_{cut} is the tangential component of the cutting force P, N; $(Pz = (0.96 \div 0.99)P)$;

v – cutting speed, m/min.

In turn, according to - formula (3):

$$Pz = k \cdot \sigma \cdot f, \qquad (3)$$

where k is the cutting factor, depending on the structural state and other properties of the metal being processed;

σ is the tensile strength of the treated metal, Mpa;

f is the cross-sectional area of the cut layer, m:

$$f = s \cdot t, \qquad (4)$$

where s is the feed, mm/rev;

t is the depth of cut, mm.

Based on formulas (1) - (4) we can deduce:

$$N = \frac{k \cdot \sigma \cdot s \cdot t \cdot v}{1020 \cdot 60} \qquad (5)$$

$$t = \frac{1020 \cdot 60 \cdot N}{k \cdot \sigma \cdot s \cdot t} \qquad (6)$$

Since the maximum cutting power Nmax is – formula (7):

$$Nmax = Nst \cdot \eta, \qquad (7)$$

where Nst – power, W;

η – efficiency of the main drive of the machine.

Then – formula (8):

$$t_{max} = \frac{1020 \cdot 60 \cdot N_{ст} \cdot \eta}{k \cdot \sigma \cdot s^{\rho}_{min} \cdot v^{\rho}_{min}} \sim \frac{N_{ст}}{s^{\rho}_{min} \cdot v^{\rho}_{min}} \qquad (9)$$

where – s^{ρ}_{min} the smallest calculated feed rate, mm/min;

v^{ρ}_{min} – the lowest calculated value of cutting speed, m/min.

But it is necessary to take into account formulas (10) and (11), that:

$$v^{\rho}_{min} = \frac{\pi \cdot D_{min} \cdot n^{\rho}_{min}}{1000} \qquad (10)$$

$$v_{max} = \frac{\pi \cdot D_{max} \cdot n_{max}}{1000} \qquad 11)$$

where D_{min} is the smallest diameter of parts processed on the machine, mm;

D_{max} – the largest diameter of parts processed on the machine, mm;

n^{ρ}_{min} – the lowest calculated speed of the machine spindle, rpm;

n_{max} – the highest passport speed of the machine spindle, rpm. Formula (11) follows from the above:

$$B = \frac{D_{max} \cdot n_{max} \cdot s_{max} \cdot N_{ст}}{D_{min} \cdot n_{min} \cdot s_{min}} \qquad (11)$$

Based on it can be assumed that formulas (12) and (13):

$$n^{\rho}_{min} = n_{min} \sqrt[4]{\frac{n_{max}}{n_{min}}} \qquad (12)$$

$$s^{\rho}_{min} = s_{min} \sqrt[4]{\frac{s_{max}}{s_{min}}} \qquad (13)$$

where n_{min} – the lowest spindle speed indicated in the machine passport, rpm;

s_{min} – the smallest feed indicated in the passport of the machine, mm / min.

In accordance with formula (14):

$$\frac{D_{max}}{D_{min}} \approx 8.5 \qquad (14)$$

Considering the latter, we can summarize – formula (15)

$$B \sim 8.5 \frac{n_{max} \cdot s_{max} \cdot N_{ст}}{n^{\rho}_{min} \cdot s^{\rho}_{min}} \qquad (15)$$

The technological capabilities of the machine are also affected by the type of CNC system, the dimensions of the machine, the presence of a monitoring and diagnostic system, automatic changeover systems for the lathe chuck and other devices available on the machine, the ability to carry out roughing and finishing on the machine, the number of tools simultaneously installed on the machine, the availability driven tools. Therefore, it is necessary to supplement the obtained formula (15) with coefficients that take into account the influence of these factors. Formula (16) [1,2,3,4,5,7,12]:

$$B = M \frac{n_{max} \cdot s_{max} \cdot N_{ст}}{n^{\rho}_{min} \cdot s^{\rho}_{min}} \cdot К_{СУ} \cdot К_{ИН} \cdot К_{АК} \cdot К_{РС} \cdot К_{ВС} \cdot$$
$$К_{ПИ} \cdot К_{ПП} \qquad (16)$$

where M – proportionality factor;

$К_{СУ}$ – coefficient characterizing the type of machine control system;

$К_{ин}$ – coefficient linking the technological capabilities of the machine. B with the number of tools z installed on the machine at the same time;

$К_{АК}$ – coefficient characterizing the presence on the machine of a system of automatic control of the dimensions of parts and diagnostics of the state of the tool;

$К_{РС}$ – coefficient characterizing the dimensions of the machine;

$К_{ВС}$ – coefficient characterizing the type of processing;

$К_{ПИ}$ – coefficient characterizing the presence of driven tools;

$К_{ПП}$ – coefficient characterizing the availability

of means for automatic changeover of the cartridge and other devices.

For coefficients $K_{СУ}$, $K_{АК}$, $К_{ПИ}$, $К_{ПП}$ using calculations, the data given below in table 1 were obtained.

When finding the coefficients K_{PC} and K_{BC} an analogy was made with the coefficients K_P and K_B in the formula for determining the complexity, then we get the formula (17)

$$K_{PC} = \frac{D_{max} + L_{max}}{1200} \qquad (17)$$

where D_{max} – maximum diameter of the part processed on the machine, mm:

L_{max} – the greatest length of the detail processed on the machine, mm.

Table 1 – Dependence of the coefficient on the conditions that determine the value

Condition that determines the value of the coefficient				The numerical value of the coefficient
$К_{СУ}$	$К_{АК}$	$К_{ПИ}$	$К_{ПП}$	
The machine is equipped with a contour control system	Availability of automatic control and diagnostics system	Availability of driven tools on the machine	Availability of automatic changeover devices	1,3
The machine is equipped with a positioning system	Lack of automatic control and diagnostics system	Lack of driven tools on the machine	Lack of automatic changeover devices	1

For coefficient K_{BC} the condition:

• $K_{BC} = 0,6$, if the machine is designed for roughing only;

• $K_{BC} = 0,4$, if the machine is intended for finishing only;

• $K_{BC} = 1$, if the machine is designed for roughing and finishing.

To calculate the oil recovery factor in the course of the work carried out, the formula was derived (18):

$$К_{ИН} = 2,43 - \frac{1,944}{z - 264}$$

Thus, in the formula for finding the technological capabilities of the machine, one unknown remains – M. The search for the indicator M was carried out together with the study of the parameter α. Studies have been carried out on a number of NMMC plants that have many years of positive experience in operating CNC machines. During the survey, an analysis was made of the processing of parts of two hundred names on machines of twenty models. For each machine and the part processed on it, the program time Ti was measured, the complexity was calculated using the formula and

$$C = 0,02n \cdot Kp \cdot K_м \cdot K_{исп} \cdot K_т \cdot K_в$$

Formula

$$B = M \frac{n_{max} \cdot s_{max} \cdot N_{ст}}{n_{min}^\rho \cdot s_{min}^\rho} \cdot K_{CY} \cdot K_{ИН} \cdot K_{АК} \cdot K_{PC} \cdot$$

$K_{BC} \cdot K_{ПИ} \cdot K_{ПП}$ magnitude B ′ - formula (19):

$$B' = \frac{B}{M} \qquad (19)$$

After according to the formula (20):

$$T = \frac{C}{\alpha \cdot M \cdot B'} \qquad (20)$$

and the same parts processed on different machines were considered as different. As we considered above, the value of the parameter α can be from 0 to 1, it was assumed that in the largest α M the factor α is equal to 1. Then the product α · M can be considered equal to M . Thus, M = 1.895 · 10−8 was obtained. Dividing all values of α · M by M, we get all the values of α.

When testing statistical hypotheses about the law of the probability distribution of the values of the parameter α, it showed that the specified distribution obeys the Rayleigh law with a confidence of 0.95 – the formula (21):

$$\varphi(\alpha) = \frac{\alpha}{0.0736} \exp\left(-\frac{\alpha^2}{0.1472}\right) \qquad (21)$$

The most probable value α = 0.26, and the arithmetic mean α = 0.34. These values correspond to the implementation of the technological capabilities of machine tools in enterprises, that is, they are most often implemented by 26%, and on average by 34%. It should be noted and taken into account that the data were obtained at factories with extensive experience in operating CNC machines, which means that they are able to use them more rationally than new enterprises.

Using Internet resources, a sample of 15 was made to calculate and analyze indicators of technological capabilities and return on assets.

Let's consider their technical characteristics below – table 2, after each table, the calculation of technological capabilities – parameter B will be made.

Table 2 – Technical characteristics of the screw-cutting lathe

Screw-cutting lathe	
Parameter	Parameter
1	2
Machine price	
Machine type	cartridge center
Max RPM, n_{max}	2500 rpm
Minimum speed, n_{min}	20 rpm
Maximum feed, s_{max}	5000 mm/min
Minimum feed, s_{min}	0,04 mm/rev 0.8 mm/min

We find the lowest calculated frequency by the formula (22):

$$n_{min}^p = 20\sqrt[4]{\frac{2500}{20}} = 66{,}874\,\frac{\text{об}}{\text{мин}} \qquad (22)$$

We find the smallest calculated feed using the formula (23):

$$s_{min}^p = 0{,}8\sqrt[4]{\frac{5000}{0{,}8}} = 7{,}113\,\frac{\text{об}}{\text{мин}} \qquad (23)$$

We will find the coefficient of the control system according to table 1: $K_{СУ} = 1{,}3$ – contour control system.

The coefficient of the simultaneously installed tool $K_{ИН}$ is found by the formula (24):

$$К_{ИН} = 2{,}43 - \frac{1{,}944}{z-2{,}64} \qquad (24)$$

We find the coefficient of availability of automatic control according to table 1: $K_{АК} = 1{,}3$ – availability of an automatic control system.

Coefficient of machined dimensions on the machine K_{PC} find by formula (17):

$$К_{PC} = \frac{1000 + 360}{1200} = 1{,}133.$$

The coefficient of the type of processing on the machine $K_{BC} = 1$ – for roughing and finishing. The coefficient of the presence of driven tools can be found from table 1: $К_{ПИ} = 1$ – lack of driven tools on the machine.

We find the coefficient of availability of automatic changeover of the cartridge according to table 1: $K_{ПП} = 1{,}3$ – the presence of automatic readjustment of devices. Calculate the value of B by the formula (19): The coefficient of the type of processing on the machine $K_{BC} = 1$ – for roughing and finishing. The coefficient of the presence of driven tools can be found from table 1: $К_{ПИ} = 1$ – lack of driven tools on the machine [5,6,7,8,9,10,11,12].

We find the coefficient of availability of automatic changeover of the cartridge according to table 1: $K_{ПП} = 1{,}3$ – the presence of automatic readjustment of devices.

We calculate the value of B by the formula (16):

B = $1{,}895 \cdot 10^{-8} \cdot \frac{2500 \cdot 5000 \cdot 5{,}5}{66{,}874 \cdot 7{,}113} \cdot 1{,}3 \cdot 1{,}851 \cdot 1{,}3 \cdot 0{,}667 \cdot 1 \cdot 1 \cdot 1{,}3 = 1261{,}934 \cdot 10^{-5}$ units sl/min

Table 3 - Technical characteristics of turning. Similarly to the previous calculations, we find by the formulas (12) - n_{min}^p and (13) s_{min}^p:

$$n_{min}^p = 40\sqrt[4]{\frac{2200}{40}} = 108{,}93\,\frac{\text{об}}{\text{мин}};$$

$$s_{min}^p = 1{,}6\sqrt[4]{\frac{11000}{1{,}6}} = 14{,}569\,\frac{\text{об}}{\text{мин}};$$

Coefficient of the control system according to table 1: $K_{СУ} = 1{,}3$ – contour control system. Coefficient of the simultaneously installed tool $К_{ин}$ – formula (24):

$$К_{ин} = 2{,}43 - \frac{1{,}944}{4 - 2{,}64} = 1.$$

Coefficient of availability of automatic control according to table 1: $K_{АК} = 1{,}3$ – availability of an automatic control system.

Coefficient of machined dimensions on the machine K_{PC} – formula (23):

The coefficient of the type of processing on the machine $K_{BC} = 1$ – for roughing and finishing. Coefficient of the presence of driven tools according to table 1: $К_{ПИ} = 1$ – lack of driven tools on the machine.

Coefficient of availability of automatic changeover of the cartridge according to the table 1: $K_{ПП} = 1{,}3$ – the presence of automatic readjustment of devices;

Let us calculate the value of B by formula (22):

B = $1{,}895 \cdot 10^{-8} \cdot \frac{2200 \cdot 11000 \cdot 11}{108{,}93 \cdot 14{,}569} \cdot 1{,}3 \cdot 1 \cdot 1{,}3 \cdot 3{,}167 \cdot 1 \cdot 1 \cdot 1{,}3 = 2211{,}7 \cdot 10^{-5}$ units sl/min

Table 3 - Technical characteristics of the machine NT-250

Screw-cutting lathe NT-250	
Parameter	Meaning
Цена станка	Sum
Machine type	cartridge center

Max RPM, n_{max}	2000 rpm
Minimum speed, n_{min}	20 rpm
Maximum feed, s_{max}	12 mm/rev 24000 mm/min
Minimum feed, s_{min}	0.039 mm/rev = 0.78 mm/min
Power, $N_{ст}$	7,5 kW
Max Machinable Length, L_{max}	1500 mm
Maximum machined diameter, D_{max}	500 mm
Number of simultaneously installed tools, z	4
Control System Coefficient, K_{CY}	1.3
Tool ratio, $K_{ин}$	1
Coefficient of availability of automatic control, K_{AK}	1.3
Coefficient of machined dimensions on the machine, K_{PC}	1.667
Processing type factor, K_{BC}	1
Driven Tool Availability Factor, $K_{ПИ}$	1
The coefficient of availability of automatic changeover of the cartridge, $K_{ПП}$	1.3

Similarly to the previous calculations, we find by the formulas (12) - n_{min}^{p} and (13) - s_{min}^{p}:

$$n_{min}^{p} = 20 \sqrt[4]{\frac{2000}{20}} = 63,246 rpm;$$

$$s_{min}^{p} = 0,78 \sqrt[4]{\frac{24000}{0,78}} = 10,331 rpm;$$

Table Control Coefficient 1: $K_{CY} = 1,3$ – contour control system. Coefficient of the simultaneously installed tool $K_{ин}$ – formula (24):

$$K_{ин} = 2,43 - \frac{1,944}{4 - 2,64} = 1.$$

The coefficient of the presence of automatic control according to Table 1: $K_{AK} = 1,3$ – the presence of an automatic control system.

The coefficient of processed dimensions on the machine – K_{PC} formula (23):

$$K_{PC} = \frac{3000 + 800}{1200} = 3,167.$$

The coefficient of the type of processing on the machine $K_{BC} = 1$ – for roughing and finishing. Factor of availability of driven tools according to table 1: $K_{ПИ} = 1$ – lack of driven tools on the machine.

Coefficient of availability of automatic changeover of the cartridge according to the table 1: $K_{ПП} = 1,3$ – the presence of automatic readjustment of devices;

Let us calculate the value of B by formula (22):

B = $1,895 \cdot 10^{-8} \cdot \frac{2000 \cdot 24000 \cdot 11}{63,246 \cdot 10,331} \cdot 1,3 \cdot 1 \cdot 1,3 \cdot 1,667 \cdot 1 \cdot 1 \cdot 1,3 = 2941,431 \cdot 10^{-5}$ units sl/min

Let's turn to our sample of machines that we will use to calculate and analyze the indicator of technological capabilities and the indicator of capital productivity

According to the analysis and calculation in the course of the research work, we see that the price of the machine is not directly proportional to its technological capabilities - Table 5, in contrast to a direct relationship.

Table 4 - Calculation of technological capabilities for a sample of machines

Machine brand	$B \cdot 105$	$Ц_с$
Screw-cutting lathe	1261,93	176413055.76
Screw-cutting lathe 16K20	2211,66	453629135,16
Screw-cutting lathe NT-250	2941,43	189436311,36

Therefore, we cannot calculate the pricing coefficient and we will carry out the calculation without deducting depreciation charges, that is, using the original price.

Conclusions.

In the article, an analysis was carried out and methods for the effectiveness of the use of screw-cutting lathes were proposed. The study of screw-cutting lathes was carried out on the basis of an analysis of operation over the past 17 years. Existing methods for evaluating the effectiveness of the use of metal-cutting machines are considered, methods for calculating the return on assets, as the most important indicator, are analyzed. In turn, productivity is a factor that determines the value of capital productivity. Efficiency indicators for the use of machine tools were developed based on the theory of Yu.S. Sharina. The

Clarivate Analytics *indexed*

assessment takes place according to the indicator of the technological capabilities of the machine - the value of v, which characterizes the machine, taking into account its various technical parameters.

According to the studies, it was revealed that the implementation of the technological capabilities of machine tools at enterprises is carried out on average by 34%.

References:

1. Muminov, R.O., & Boynazarov, G. G. (2020). Analysis of dynamic and hardness parameters rotation and feeding systems of the drilling rig. SOI: 1.1/TAS DOI: 10.15863/TAS *International Scientific Journal Theoretical & Applied Science* p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online) Year: 2020 Issue: 11 Volume: 91 Published: 05.11.2020 http://T-Science.org

2. Kantovich, L.I., Kozlov, S.V., & Muminov, R.O. (2011). Substantiation and selection of parameters of the rotary - feeding mechanism of a quarry drilling rig. *GIAB*, No. 5, Moscow: publishing house "Gornaya kniga", pp. 225 - 229.

3. Muminov, R.O. (2012). *Justification and selection of dynamic parameters of the rotary-falling mechanism of the open-pit drilling rig.* Ph.D. thesis tech. nauk. (p.115). Moscow.

4. Kantovich, L.I., Kozlov, S.V., & Muminov R.O. (2011). Substantiation and selection of parameters of the rotary - feeding mechanism of a quarry drilling rig. *GIAB*, No. 5, Moscow: publishing house "Gornaya kniga", 2011, pp. 225 - 229.

5. Kantovich, L.I., Poderny, R. Yu., & Muminov, R.O. (2010). The influence of the parameters of the rotary - feeding mechanism of the drilling rig on its productivity. *GIAB*, No. 11, Moscow: publishing house "Gornaya kniga", pp. 396 - 399.

6. Kuziev, D.A., Zotov, V.V., Sazankovaa, E.S., & Muminov, R.O. (2022). Performability of electro-hydro-mechanical rotary head of drill rig in open pit mining: A case-study. *Eurasian Mining,* 2022, 37(1), pp. 76-80. DOI: 10.17580/em.2022.01.16.

7. Sherov, K.T., Mardonov, B.T., Zharkevich, O.M., Mirgorodskiy, S., Gabdyssalyk, R., Tussupova, S.O., Smakova, N., Akhmedov, Kh.I., & Imanbaev, Y.B. (2020). Studying the process of tooling cylindrical gears. *Journal of Applied Engineering (JAES) Science*, Vol. 18 No. 3 (2020), pp. 327-332. DOI: https://doi.org/10.5937/jaes18-23794

8. Goltsev, A.G., Kurmangaliyev, T.B., Sherov, K.T., Sikhimbayev, M.R., Absadykov, B.N., Mardonov, B.T., & Yessirkepova, A.B. (2020). Aligning method of structures during installation in vertical plane / *News of the National Academy of Sciences of the Republic of Kazakhstan. Series of geology and technical sciences*. 2020. Volume 5, Number 443 (2020), pp. 63 - 70. https://doi.org/10.32014/2020.2518-170X.105

9. Muminov, R.O., Rajhanova, G.E., & Kuziev, D.A. (2021). Povyshenie nadezhnosti i dolgovechnosti burovyh stankov za schet ponizhenija dinamicheskih nagruzok. *Ugol`*. 2021. № 5, pp. 32-36. DOI: 10.18796/0041-5790-2021- 5-32-36.

10. Sherov, K.T., Mardonov, B.T., Kurmangaliyev, T.B., Elemes, D.E., Tusupova, S.O., Izotova, A.S., Smakova, N.S., Gabdysalik, R., & Buzauova, T.M. (2020). The research of micro-hardness of side surfaces of teeth cylindrical wheels processed by "shaver-rolling device". *Journal of Theoretical and Applied Mechanics,* Sofia, Vol. 50 No.1 (2020), pp.50-56.

11. Yusupbekov, N.R., Mukhitdinov, D.P., Kadyrov, Yo.B., Sattarov, O.U., & Samadov, A.R. (2023). *Modern systems of control of complex dynamic technological processes (by the example of nitric acid production).* AIP Conference Proceedings, 2023, 2612, 050008.

12. Yusupbekov, N.R., Mukhitdinov, D.P., & Sattarov, O.U. (2021). *Neural Network Model for Adaptive Control of Nonlinear Dynamic Object Advances in Intelligent Systems and Computing,* 2021, 1323 AISC, pp. 229-236.

13. Egamberdiev, I. P., et al. (2020). Research of vibration processes of bearing units of mining equipment. *International Journal of Advanced Trends in Computer Science and Engineering*, 2020, T. 9, №. 5, pp. 7789-7793.

14. Karimov, N. K., et al. (2020). *Povyshenie udarnoj vjazkosti konstrukcionnyh stalej termociklicheskoj obrabotkoj.* Estestvennye i tehnicheskie nauki: problemy transdisciplinarnogo sinteza, pp. 40-43.

15. Ibragimov, A. A., et al. (2017). Interval`no-analiticheskie metody reshenija polnoj i chastichnoj problemy sobstvennyh znachenij. *Sovremennye tehnologii: aktual`nye voprosy, dostizhenija i innovacii*, 2017, pp. 16-22.

16. Jegamberdiev, I. P., Jahshiev, Sh. N., & Mamadijarov, A. Zh. (2021). *Prognozirovanie tehnicheskogo sostojanija podshipnikovyh opor metallorezhushhih stankov po spektral`nym harakteristikam.* Sostav redakcionnoj kollegii i organizacionnogo komiteta.

17. Yaxshiyev, S. N., Kh, K. A., & Mamadiyarov, A.J. (n.d.). Dynamics of Spindle Assembly of Metal-Cutting Machine. *International Journal of Engineering and Advanced Technology (IJEAT)*, pp. 2249-8958.

18. Jahshiev, Sh. N., et al. (2021). Formirovanie vibroakusticheskogo signala v podshipnikovyh oporah metallorezhushhih stankov. *European science forum*, 2021, pp. 19-23.

19. Ashurov, K., et al. (2020). Applications metallographic and X-ray structural analysis. *Studencheskij vestnik*, №. 20-14, pp. 19-21.

Gulrukhsor Sobirjonovna Zakiriyayeva
Navoi State Mining and Technological University
Master student of the Department of Mechanical Engineering Technology, Navoi, Uzbekistan

Rashid Olimovich Muminov
Navoi State Mining and Technological University
Docent of the department Mechanical Engineering, Navoi, Uzbekistan
rashid_81@mail.ru

RESEARCH AND SELECTION OF THE PARAMETERS OF THE ROTARY-FEEDING MECHANISM OF A QUARRY DRILLING MACHINE

Abstract: The article analyzes the design, kinematic and power parameters of the rotational-feeding mechanism of the drilling rig.
Key words: Drilling rig, rotary feed mechanism, design, kinematic and power parameters.
Language: English
Citation: Zakiriyayeva, G. S., & Muminov, R. O. (2023). Research and selection of the parameters of the rotary-feeding mechanism of a quarry drilling machine. *ISJ Theoretical & Applied Science, 06 (122),* 64-68.
Soi: http://s-o-i.org/1.1/TAS-06-122-13   *Doi*: crossref https://dx.doi.org/10.15863/TAS.2023.06.122.13
Scopus ASCC: 2200.

Introduction

Roller drilling machines are the most common in the preparation of rock mass for excavation in open-cast mining, due to their versatility, which ensures efficient drilling of wells in a wide variety of mining and geological conditions.

Currently, the most popular machines operating at mining enterprises are machines 2SBSH - 200, 2SBSH - 200N (see Fig. 1), SBSH - 250MN. When drilling blastholes in complex structural rock masses, one of the main drawbacks inherent in the cone drilling method is the increased vibration of the drilling string, which forces the machinists to operate the machines at modes that are underestimated compared to rational ones.

Vibration causes the formation of fatigue cracks and breakage of structural elements, leads to failure of the equipment installed on the frame of the machine, has a harmful effect on maintenance personnel and

increases the cost of maintaining the machines. With an increase in the power-to-weight ratio and dynamic loading of the drive, energy losses also increase. For example, according to the authors of [1], with strong vibrations of a drilling rig, the share of energy expended to create a useful torque is 30-50%. As a result, a significant part of the installed drive power of the machine remains underused.

One of the main reserves for increasing the efficiency of drilling cone rigs is the intensification of drilling modes, which is significantly hindered by vibration and dynamic loads that occur during drilling. There are various devices for reducing vibrations and dynamic loads in the elements of drilling rigs of both spindle and cartridge schemes: an automatic control system for drilling modes according to the level of vibrations, over chisel and over rod shock absorbers, drill string stabilizers.

Figure 1. Quarry drilling rig 4SBSH - 200 - 40 with cartridge-type VPM.

The use of these devices helps to reduce vibrations and loads in the elements of the drilling rig, however, these devices have not found wide application due to low efficiency and reliability. Their use is mainly aimed at reducing the level of vibration in the vertical plane and there are practically no devices that reduce the horizontal vibrations of the machine.

A further increase in the efficiency of the extraction of mineral raw materials is possible on the basis of the technical re-equipment of the extractive industries of the national economy. Increasing the productivity and reliability of mining machines, in particular drilling rigs, has determined the need to increase their power-to-weight ratio and improve technical and economic indicators.

The tasks set can be solved primarily on the basis of improving the drive of machines, and in some cases by creating fundamentally new designs of drives [3].

As a result of the research conducted in it was found that the best performance has a volumetric hydraulic drive with high-torque hydraulic motors. The wide hydrofication of drilling rigs opens up the possibility of a qualitative improvement in their dynamic and energy characteristics. An important property of a volumetric hydraulic drive is the possibility of using elastic-damping devices in its hydraulic system, mainly pneumohydraulic accumulators, which can significantly change (correct) the dynamic characteristics of the entire drilling rig. Such a correction of its properties is possible not only during the design process, but also during the adjustment or operation of the machine in various modes of drilling blast holes.

Based on the analysis of the results of work in the field of studying the dynamics of drives, a fundamentally new design of the hydromechanical transmission of the drive of the executive bodies of mining machines is presented, including a differential mechanism with a volumetric hydraulic brake [3].

The proposed design (with a power of 50 kW) passed bench tests, as a result of which it was found that it most fully satisfies modern requirements for transmissions of mining machines and at the same time allows you to save the advantages characteristic of a volumetric hydraulic drive, which is based on double energy conversion - mechanical into hydraulic (pump - hydraulic motor), as well as to get new advantages over the traditional hydraulic drive, namely:

- no double conversion of energy;
- direct savings in terms of the installed capacity of hydraulic machines (~ twice);
- a sharp increase in the resource of the hydraulic machine (to order) due to its operation in the braking mode. [7].

The hydraulic machine of the hydromechanical rotator performs the functions of a hydraulic, and in the case of the use of pneumohydraulic accumulators, a pneumohydraulic spring with stiffness and damping adjustable over a fairly wide range. In a volumetric hydraulic drive, with double conversion of energy in the pump and motor and its transmission through pipelines, irreparable losses for leakage and friction are formed, reaching up to 40% (Fig. 2,.a). In the proposed design of the hydromechanical rotator of the executive body of the drilling rig 2SBSH-200MN, of all the above power losses, there are only losses

associated with leaks determined by gaps in the brake hydraulic machine and operating pressure. Friction power losses in braking mode, determined by relative

slip, are negligible, and friction losses in the pipeline in operating mode are completely absent (Fig. 2b).
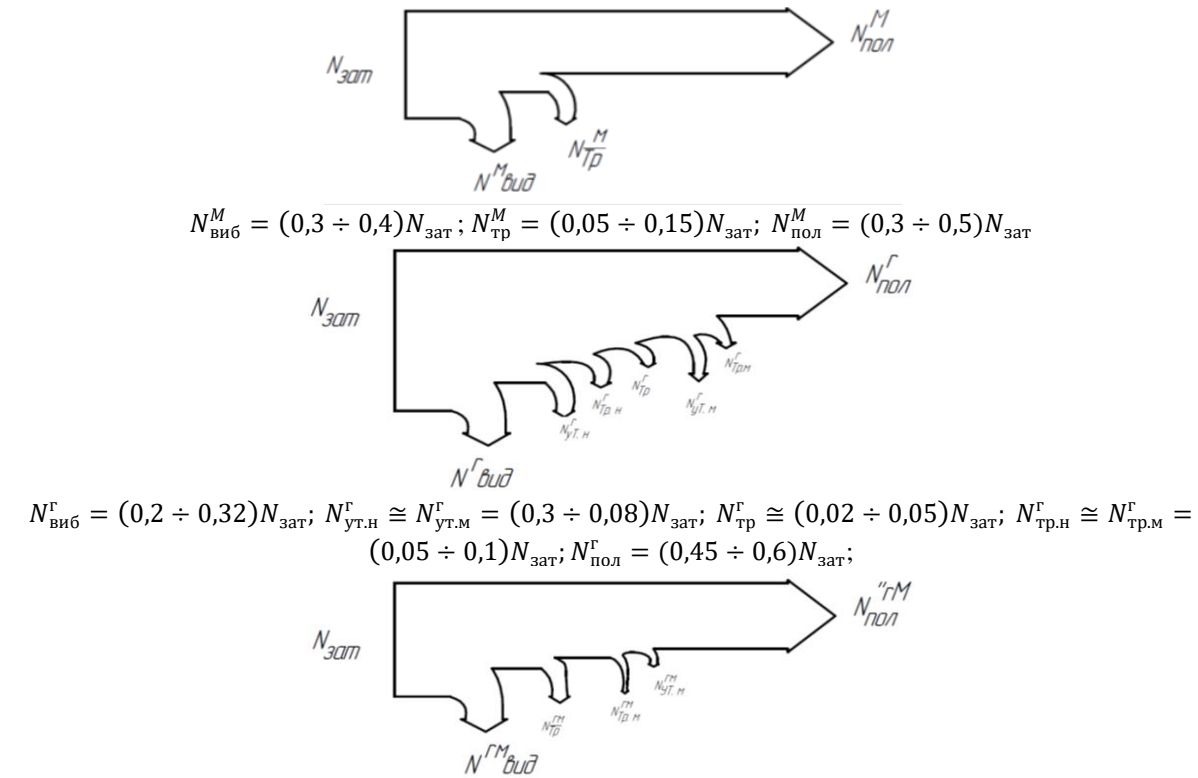

$$N^M_{\text{виб}} = (0{,}3 \div 0{,}4)N_{\text{зат}}; N^M_{\text{тр}} = (0{,}05 \div 0{,}15)N_{\text{зат}}; N^M_{\text{пол}} = (0{,}3 \div 0{,}5)N_{\text{зат}}$$

$$N^\Gamma_{\text{виб}} = (0{,}2 \div 0{,}32)N_{\text{зат}}; N^\Gamma_{\text{ут.н}} \cong N^\Gamma_{\text{ут.м}} = (0{,}3 \div 0{,}08)N_{\text{зат}}; N^\Gamma_{\text{тр}} \cong (0{,}02 \div 0{,}05)N_{\text{зат}}; N^\Gamma_{\text{тр.н}} \cong N^\Gamma_{\text{тр.м}} =$$
$$(0{,}05 \div 0{,}1)N_{\text{зат}}; N^\Gamma_{\text{пол}} = (0{,}45 \div 0{,}6)N_{\text{зат}};$$

Figure 2. Power balance of the rotator drive during the working process a) electromechanical drive, b) electrohydraulic drive, c) electrohydromechanical drive.

$$N^{\Gamma M}_{\text{виб}} = N^\Gamma_{\text{виб}} = (0{,}2 \div 0{,}32)N_{\text{зат}}; N^{\Gamma M}_{\text{тр}} = N^M_{\text{тр}}(0{,}05 \div 0{,}15)N_{\text{зат}}; N^{\Gamma M}_{\text{трм}} < 0{,}005N_{\text{зат}}; N^{\Gamma M}_{\text{утм}}(0{,}03 \div 0{,}08)N_{\text{зат}}; N^{\Gamma M}_{\text{пол}} = (0{,}45 \div 0{,}715)N_{\text{зат}}.$$

The similarity of the dynamic characteristics of a hydromechanical transmission and a volumetric hydraulic drive is achieved, for example, by the identity of the volumes of fluid under operating pressure.

The design of the IMP2.5 hydraulic motor, which is one of the basic models of the size range developed at the Federal State Unitary Enterprise NNTsGP "IGD im. A.A. Skochinsky" [1, 2] provides for a radial arrangement of piston groups, each of which consists of two pistons, in the transverse holes of which the ends of the traverse are inserted. Rollers are installed on the traverse, on which clips are put on. The traverse is made of equal strength, has smooth transitions, due to which stress concentrators are eliminated in the areas of its greatest loading. [6]

The force from the pressure of the working fluid on the plunger is perceived by the traverse, and is transmitted through the rollers and clips to the profiled guide.

As a conjugation, limiting the resource of the radial-piston hydraulic machine IMP2.5, a plunger-cylinder friction pair is taken, as a result of which

wear, the efficiency of the entire hydraulic machine can sharply deteriorate [2].

The specific work in the friction pair [4] "plunger-cylinder" is:

$$A = NT, \text{ N/m} \tag{1}$$

where N is the specific friction power, N/ms; T - interface resource, s.

The maximum specific friction power in the interface of the resource-limiting hydraulic machine is determined by the formula:

$$N = V_{\max} f [\sigma_{см}], \text{ N/ms} \tag{2}$$

where: max $V_{\max}$ - average maximum sliding speed of the plunger relative to the cylinder, m/s; f is the coefficient of friction in the plunger-cylinder pair; $[\sigma_{см}]$ - allowable contact pressure in the hydraulic machine piston group, N/m^2.

For one design of a hydraulic machine capable of operating in various modes (pumping, motoring, braking, and others) up to the maximum allowable wear of the interface limiting the life of the machine, the following equality is true:

$$N_б T_б = NT \tag{3}$$

where: N_δ and T_δ - respectively, the specific friction power and the resource of the hydraulic machine during its operation in the base mode.

The "motor" mode is taken as the basic mode of operation of the IMP2.5 hydraulic machine.

According to the Federal State Unitary Enterprise NNTsGP "IGD im. A.A. Skochinsky" [2], the IP2.5 motor can develop power up to 60 kW at a nominal pressure of the working fluid (25 MPa) and a nominal speed (60 rpm); the time between failures to the limit state, characterized by a decrease in the total efficiency by 15%, is 5000 hours for it. (Time to first failure 3000 hours).

Taking into account (2) and after appropriate transformations (3) will take the form:

$$T = T_\delta \frac{V_\delta}{V} T, \text{ hour} \qquad (4)$$

For radial plunger hydraulic machines, the sliding speed of the plunger relative to the cylinder is:

$$V = \frac{d}{d\varphi} \rho(\varphi) \frac{d}{dt} \varphi(t), \text{ m/s} \qquad (5)$$

where $\rho(\varphi)$ - radius of curvature of the guide profile as a function of the angle of rotation of the hydraulic machine rotor; $\varphi(t)$ - angle of rotation of the hydraulic machine rotor as a function of time.

Thus, for the basic - motor operating mode IMP2,5 [5]:

$$\varphi_\delta(t) = \omega_\text{н} t, \qquad (6)$$

For braking operation IMP2,5:

$$\varphi(t) = \omega_\text{ут} t, \qquad (7)$$

Here:

$$\omega_\text{ут} = \frac{P}{P_\text{н}}(1 - \eta_\text{г})\omega_\text{н}, \text{ rad/s} \qquad (8)$$

Substituting (4.5), taking into account (4.6), (4.7), (4.8) and taking into account that $\rho_\delta(\varphi) = \rho(\varphi)$, we get:

$$T = T_\delta \frac{P_\text{нб}}{P_\text{н}} \frac{1}{(1 - \eta_\text{г})}, \text{ hour} \qquad (9)$$

where $P_\text{нб}$ - nominal working pressure in the basic - motor mode of operation IMP2.5, Pa; $P_\text{н}$ - design working pressure in braking mode IMP2.5, Pa; $\eta_\text{г}$ - volumetric efficiency of the brake hydraulic machine (assumed 0.92);

At $P_\text{нб} = P_\text{н} = 25$ MPa finally get:

$$T = T_\delta \frac{1}{(1 - \eta_\text{г})}, \text{ hour} \qquad (10)$$

The operating time to the first failure of the brake hydraulic machine will be:

$$T = 3000 \frac{1}{(1 - 0{,}92)} = 37500 \text{ hour.}$$

After conducting research and analyzing the selection of parameters for the rotary-feeding mechanism of a quarry drilling machine, several conclusions can be drawn:

Performance Requirements: The rotary-feeding mechanism plays a crucial role in the efficiency and productivity of a quarry drilling machine. It should be designed to meet the performance requirements of the drilling operation, such as rotational speed, torque, and feed rate. These parameters depend on factors like the type of rock, drill bit size, and desired drilling depth.

Power and Torque: The selection of an appropriate motor and power transmission system is vital to ensure sufficient power and torque for the rotary-feeding mechanism. The motor should be capable of delivering the required rotational speed and torque consistently to drive the drilling process effectively.

Gearbox Design: The gearbox used in the rotary-feeding mechanism should be designed to withstand the high torque and axial loads encountered during drilling operations. The selection of gear ratios and gear types should be optimized to provide the desired feed rate while maintaining reliability and durability.

Control System: An efficient control system is necessary to regulate the rotary-feeding mechanism accurately. It should enable precise control of the rotational speed, feed rate, and drilling depth. Advanced control algorithms and feedback mechanisms can enhance the overall performance of the drilling machine.

Material Selection: The selection of materials for the rotary-feeding mechanism components is crucial to ensure their strength, durability, and resistance to wear. Components such as gears, shafts, and bearings should be made from high-quality materials capable of withstanding the harsh operating conditions of a quarry drilling machine.

Safety Considerations: Safety should be a top priority when designing and selecting parameters for the rotary-feeding mechanism. Proper safeguards, emergency stop mechanisms, and overload protection systems should be incorporated to prevent accidents and protect both the machine operators and the equipment.

In conclusion, the research and selection of parameters for the rotary-feeding mechanism of a quarry drilling machine require careful consideration of performance requirements, power and torque, gearbox design, control systems, material selection, and safety. By optimizing these factors, it is possible to enhance the efficiency, reliability, and safety of the drilling machine, leading to improved productivity in quarry operations.

References:

1. Muminov, R.O., & Boynazarov, G. G. (2020). Analysis of dynamic and hardness parameters rotation and feeding systems of the drilling rig. SOI: 1.1/TAS DOI: 10.15863/TAS *International Scientific Journal Theoretical & Applied Science* p-ISSN: 2308-4944 (print) e-ISSN: 2409-0085 (online) Year: 2020 Issue: 11 Volume: 91 Published: 05.11.2020 http://T-Science.org

2. Kantovich, L.I., Kozlov, S.V., & Muminov, R.O. (2011). Substantiation and selection of parameters of the rotary - feeding mechanism of a quarry drilling rig. *GIAB*, No. 5, Moscow: publishing house "Gornaya kniga", pp. 225 - 229.

3. Muminov, R.O. (2012). *Justification and selection of dynamic parameters of the rotary-falling mechanism of the open-pit drilling rig.* Ph.D. thesis tech. nauk. (p.115). Moscow.

4. Kantovich, L.I., Kozlov, S.V., & Muminov R.O. (2011). Substantiation and selection of parameters of the rotary - feeding mechanism of a quarry drilling rig. *GIAB*, No. 5, Moscow: publishing house "Gornaya kniga", 2011, pp. 225 - 229.

5. Kantovich, L.I., Poderny, R. Yu., & Muminov, R.O. (2010). The influence of the parameters of the rotary - feeding mechanism of the drilling rig on its productivity. *GIAB*, No. 11, Moscow: publishing house "Gornaya kniga", pp. 396 - 399.

6. Kuziev, D.A., Zotov, V.V., Sazankovaa, E.S., & Muminov, R.O. (2022). Performability of electro-hydro-mechanical rotary head of drill rig in open pit mining: A case-study. *Eurasian Mining,* 2022, 37(1), pp. 76-80. DOI: 10.17580/em.2022.01.16.

7. Sherov, K.T., Mardonov, B.T., Zharkevich, O.M., Mirgorodskiy, S., Gabdyssalyk, R., Tussupova, S.O., Smakova, N., Akhmedov, Kh.I., & Imanbaev, Y.B. (2020). Studying the process of tooling cylindrical gears. *Journal of Applied Engineering (JAES) Science*, Vol. 18 No. 3 (2020), pp. 327-332. DOI: https://doi.org/10.5937/jaes18-23794

8. Goltsev, A.G., Kurmangaliyev, T.B., Sherov, K.T., Sikhimbayev, M.R., Absadykov, B.N., Mardonov, B.T., & Yessirkepova, A.B. (2020). Aligning method of structures during installation in vertical plane / *News of the National Academy of Sciences of the Republic of Kazakhstan. Series of geology and technical sciences*. 2020. Volume 5, Number 443 (2020), pp. 63 - 70. https://doi.org/10.32014/2020.2518-170X.105

9. Muminov, R.O., Rajhanova, G.E., & Kuziev, D.A. (2021). Povyshenie nadezhnosti i dolgovechnosti burovyh stankov za schet ponizhenija dinamicheskih nagruzok. *Ugol`*. 2021. № 5, pp. 32-36. DOI: 10.18796/0041-5790-2021- 5-32-36.

10. Sherov, K.T., Mardonov, B.T., Kurmangaliyev, T.B., Elemes, D.E., Tusupova, S.O., Izotova, A.S., Smakova, N.S., Gabdysalik, R., & Buzauova, T.M. (2020). The research of micro-hardness of side surfaces of teeth cylindrical wheels processed by "shaver-rolling device". *Journal of Theoretical and Applied Mechanics,* Sofia, Vol. 50 No.1 (2020), pp.50-56.

11. Yusupbekov, N.R., Mukhitdinov, D.P., Kadyrov, Yo.B., Sattarov, O.U., & Samadov, A.R. (2023). *Modern systems of control of complex dynamic technological processes (by the example of nitric acid production).* AIP Conference Proceedings, 2023, 2612, 050008.

12. Yusupbekov, N.R., Mukhitdinov, D.P., & Sattarov, O.U. (2021). *Neural Network Model for Adaptive Control of Nonlinear Dynamic Object Advances in Intelligent Systems and Computing,* 2021, 1323 AISC, pp. 229-236.

13. Egamberdiev, I. P., et al. (2020). Research of vibration processes of bearing units of mining equipment. *International Journal of Advanced Trends in Computer Science and Engineering*, 2020, T. 9, №. 5, pp. 7789-7793.

14. Karimov, N. K., et al. (2020). *Povyshenie udarnoj vjazkosti konstrukcionnyh stalej termociklicheskoj obrabotkoj.* Estestvennye i tehnicheskie nauki: problemy transdisciplinarnogo sinteza, pp. 40-43.

15. Ibragimov, A. A., et al. (2017). Interval`no-analiticheskie metody reshenija polnoj i chastichnoj problemy sobstvennyh znachenij. *Sovremennye tehnologii: aktual`nye voprosy, dostizhenija i innovacii*, 2017, pp. 16-22.

16. Jegamberdiev, I. P., Jahshiev, Sh. N., & Mamadijarov, A. Zh. (2021). *Prognozirovanie tehnicheskogo sostojanija podshipnikovyh opor metallorezhushhih stankov po spektral`nym harakteristikam.* Sostav redakcionnoj kollegii i organizacionnogo komiteta.

17. Yaxshiyev, S. N., Kh, K. A., & Mamadiyarov, A.J. (n.d.). Dynamics of Spindle Assembly of Metal-Cutting Machine. *International Journal of Engineering and Advanced Technology (IJEAT)*, pp. 2249-8958.

18. Jahshiev, Sh. N., et al. (2021). Formirovanie vibroakusticheskogo signala v podshipnikovyh oporah metallorezhushhih stankov. *European science forum*, 2021, pp. 19-23.

19. Ashurov, K., et al. (2020). Applications metallographic and X-ray structural analysis. *Studencheskij vestnik*, №. 20-14, pp. 19-21.

Jasur Kholmamatovich Beknazarov
Navoi State Mining and Technological University
Docent of the department Mechanical Engineering, Navoi, Uzbekistan

Shokhrukh Khurshid ugli Ashurov
Navoi State Mining and Technological University
Master student of the Department of Mechanical Engineering Technology, Navoi, Uzbekistan

Jakhongir Shavkat ugli Oblokulov
Navoi state mining and technological university
student of the department Mechanical engineering

CALCULATION OF TOOTHED BELT TRANSMISSIONS IN TECHNOLOGICAL MACHINES

Abstract: In recent years, toothed belt transmission has been increasingly used in light industry. Progress in the field of such machines and devices as embroidery and sewing machines, automated cutting systems, etc. not conceivable without a wide, scientifically substantiated use of a toothed belt drive.

Preliminary studies have shown that the use of a toothed belt drive leads to a change in the dynamic characteristics of technological equipment, which entails the appearance of factors that have a negative impact on the working conditions of working and maintenance personnel, as well as a violation of sanitary and technical standards established for the relevant types of equipment.

Key words: toothed belt transmission, rotary feed mechanism, design, kinematic and power parameters.
Language: English
Citation: Beknazarov, J. Kh., Ashurov, Sh. Kh., & Oblokulov, J. Sh. (2023). Calculation of toothed belt transmissions in technological machines. ISJ Theoretical & Applied Science, 06 (122), 69-74.
Soi: http://s-o-i.org/1.1/TAS-06-122-14   Doi: crossref https://dx.doi.org/10.15863/TAS.2023.06.122.14
Scopus ASCC: 2200.

Introduction

In order to determine these factors, a number of scientific studies were carried out, the results of which are the current standards. Calculation methods, rules for installation and operation of a toothed belt drive, regulated by these standards, are published in the work and represent the following provisions.

The main parameter of the toothed belt is the modulus m, the values of which are selected according to the standard depending on the transmitted power and the speed of the input shaft. For example, for 1022M class sewing machines, the maximum speed of the main shaft, which is 4500 rpm, the ratio of the toothed belt module and the power transmitted to it is as follows:

Table 1.

P, kW	0,05…0,18	0,27…1,5	2,2…5,5	7,0…17
m, mm	2;3	3;4	4;5	5;7

The main parameters of toothed belts are indicated in (Fig. 1) and are given in Table 1. The width of the toothed belt is also selected depending on the module, and the estimated length of the belt is determined by the ratio:

$$L = m \cdot z_p$$
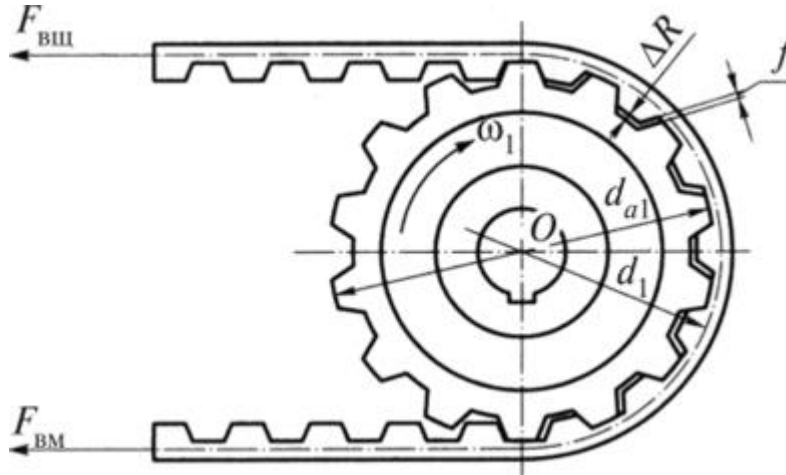
where: z_p - number of belt teeth.

Figure 1. Toothed belt drive.

Toothed pulleys are made from cast iron, steel, light alloys, plastics (depending on peripheral speed). To prevent the belt from running off, the smaller pulley is provided with two or one flanges. With a gear ratio i > 3, both pulleys are made with flanges. The dimensions of the pulley depend on the modulus and the number of teeth. The number of teeth of the smaller pulley is taken within 12 ... 28 depending on the speed and module, and the number of teeth of the larger pulley is determined by the expression:

$$z_2 = i \cdot z_1$$

Table 2. The main parameters of the toothed belt

Parameters	Belt module m, mm					
1	2	3	4	5	6	7
Belt pitch $p = \pi \cdot m$, mm	6.28	9.42	12.57	15.71	21.99	31.42
Total belt thickness H, mm	3.00	4.00	5.00	6.50	11.00	15.00
Tooth height h, mm	1,50	2.00	2.50	3.50	6.00	9.00
Smallest tooth thickness S	1.80	3.20	4.40	5.00	8.00	12.00
Tooth profile angle 2 γ grad	50	40	40	40	40	40
Rope diameter, mm	0.36	0.36	0.36	0.65	0.65	0.65
belt width	8;10;	12,5;	20;25	25;32	50;63	50;63
b, mm	12.5	16;20	32;40	40; 50	80	80
Distance from the cable axis to the belt cavity 8, mm	0.6	0.6	0.8	0.8	0.8	0.8

The diameters of the pitch circles and the outer diameters of the pulleys (Fig. 1) are found from the following relationships:

$$d_1 = m \cdot z_1$$
$$d_2 = m \cdot z_2$$

and the outer diameters of the pulleys are determined based on the expressions:

$$d_1 = m \cdot z_1 + 2 \cdot \delta$$
$$d_2 = m \cdot z_2 - 2 \cdot \delta$$

where δ = 0.6 mm with a cable diameter of 0.36 mm and δ = 1.3 at cable diameter 0.65 mm. The width of the toothed pulley is determined from the expression:

$$B = b + m$$

The depression angle is: (50 + 2) degrees, at m = 2 mm and (40 + 2) degrees, at m>2 mm. The pitch of the teeth on the outer diameter is found from the expression:

$$p = \pi \cdot \frac{d_a}{z}$$

Toothed belt drives fail due to wear and shearing of the belt teeth. Therefore, the strength reliability is evaluated in the form of limiting the specific (referred to the width of the belt) circumferential force p_t on the belt:

$$p_t \leq [p_t]$$

where p_t – permissible specific circumferential force.

The calculated value of the specific circumferential force, taking into account the forces of inertia:

$$p_t = \frac{F_t}{b} + q \cdot v^2$$

where q is the mass of 1 m of a belt 1 cm wide;

Table 3.

m, mm	2	3	4	5	7	10
$q \cdot 10^2 \; kg/(m \cdot sm)$	0.3	0.4	0.6	0.7	0.8	1.1

v ·- belt speed, m/s;
F_t - circumferential force transmitted by the belt,

$$F_t = C_p \frac{P}{v}$$

where P is the transmitted power, W;
P is the coefficient of dynamism (see Table 1.2.);
v·-belt speed, m/s;
For example, for sewing machines 1022M class, the coefficient $C_p = 1,1$.

Permissible specific circumferential force is determined by:

$$|P_t| = |P_0| \cdot C_i \cdot C_{\text{н}} \cdot C_{\text{т}}$$

where $|P_0|$ - permissible specific circumferential force (see table. 1.1.);
C_i - gear ratio, entered only for overdrive, with i>1 ratio $C_i = 1$

Table 4.

i	1...0.8	0.8...0.6	0.6...0.4	0.4...0.3	less 0.3
C_i	1	0.95	0.9	0.85	0.8

For 1022M class sewing machine coefficient $C_i = 1$.
$C_{\text{н}}$ - coefficient taking into account the use of a tension or guide roller,
$C_{\text{н}} = 0,9$ with one roller and $C_{\text{н}} = 0,8$ with two rollers;

$C_{\text{т}}$- coefficient taking into account the uneven distribution of the load between the coils of the cable.
Coefficient value $C_{\text{т}}$ accept depending on the width b of the belt:

Table 5.

b, mm	8	10	12.5	16	20	25	40	63	100
$C_{\text{т}}$	0.67	0.77	0.83	0.91	0.94	1	1.04	1.09	1.2

For 1022M class sewing machine coefficient $C_{\text{т}} = 0,91$.

Table 6. Dynamic factor

The nature of the load	Machine type	C_p
Calm. Starting, load up to 120% of normal	Electric generators, centrifugal pumps and compressors machines with intermittent cutting process fans; belt conveyors	1

Moderate load fluctuations. Starting load up to 150% of normal	Piston pumps and compressors with three or more cylinders; machine tools and automatic machines; plate conveyors	1.1
Significant load fluctuations. Starting load up to 200% of normal	Reversible drives; piston pumps and compressors with one and two cylinders; planing and slotting machines; screw and scraper conveyors; elevators; eccentric and screw presses with heavy flywheels	1.25
Uneven load. Starting load up to 300% of normal	excavators, dredges; eccentric and screw presses with light flywheels	1.5

To ensure the engagement of the belt with the pulley, a preload F_0 is assigned, which is taken depending on the belt module m and its width b:

Table 7.

m, mm	2	3	4	6	7	10
F_0/b, N/m	0.4	0.6	0.8	1.0	1.4	2.0

For 1022M class sewing machine initial tension $F_0 = 9,6\ H$. The forces acting on the transmission shafts are determined by the relation:

$$F_r = (1 \dots 1,2)F_t$$

In this work, it is noted that the pretension in such gears is created using spring-loaded rollers or due to the mobility of the support of one of the toothed pulleys. However, in sewing machines, the distance between the supports of the main and camshafts always remains unchanged, and the installation of a spring-loaded roller in the conditions of using synthetic toothed belts will accelerate the relaxation processes in them. In addition, the design features of sewing machines are such that the replacement of a worn toothed belt is associated with labor-intensive repair and restoration work, as a result of which there is a violation of the tolerances for the installation of individual machine mechanisms, which leads to an increase in its noise and vibration. toothed belt transmission, made in accordance with the instructions of the standard, in relation to sewing machines did not meet the requirements for them, and the use of known tension systems to stabilize the pretension of the toothed belt in sewing machines cannot be recommended. Therefore, additional studies were carried out on the toothed belt drive used in light industry sewing machines.

The paper presents the results of studies of the physical and mechanical characteristics of toothed belts, the geometry of the toothed-belt gear, provides a description of the most well-known methods for the production of toothed belts, and also carried out calculations to determine the natural vibration frequencies of toothed belts used in sewing machines of the 97th class. The main results of the work are the dependence of the magnitude of the longitudinal deformation of the toothed belt on the load when it is stretched, the optimal profile of the belt tooth, theoretical and experimental studies of the natural frequencies of the toothed belt as part of industrial sewing equipment.

In the process of research, a toothed belt branch was considered as a string with a uniformly distributed mass. Based on the application of the differential equation of free transverse vibrations of a string with a uniformly distributed mass, the author obtained expressions for the frequencies of natural vibrations of a toothed belt branch:

for the first tone $p_1 = \frac{\pi}{A}\sqrt{\frac{S_0}{\mu}}$

for the second tone $p_2 = \frac{2\pi}{A}\sqrt{\frac{S_0}{\mu}}$

for the third tone $p_3 = \frac{3\pi}{A}\sqrt{\frac{S_0}{\mu}}$

where A is the center-to-center distance;

S_0 - tension;

μ - mass per unit length of the belt.

For a branch of the drive belt of a 97-class sewing machine, the value of the center distance is A=22,4 cm, and the value of the mass of a unit length of the belt $\mu = 3,93\ 10^{-4}$ kg.

The values of the obtained frequencies of transverse oscillations of the belt branch, depending on the tension, are given in tab. 3.:

Table 3. Frequency of transverse oscillations of the toothed belt branch

S_0, N	5	8	15	24	30	50	70	100
p1, Hz	24.95	31.56	43.22	54.67	1.13	78.91	93.37	111.60
p2, Hz	49.9	63.12	86.94	109.3	122.3	157.8	186.7	223.20
P3, Hz	74.95	94.68	129.7	164.0	183.4	236.7	280.1	334.80

For the experimental determination of these frequencies, two types of sensors were used: a wire strain gauge glued to the belt, and an inductive sensor that recorded a change in the gap between the metal cord of the toothed belt and the sensor itself.

The inductive sensor is a horseshoe-shaped magnet with a winding. When the magnetic field of the sensor is crossed by the metal cables of the belt cord, EMF is induced in the windings, the value of which is determined by known dependencies. Both sensors were connected to a loop oscilloscope. According to the obtained oscillograms, one can judge the oscillation frequency, and the amplitude value on the oscillograms characterizes the amplitude of the belt oscillation speed, but not the amplitude of its movements.

An analysis of the oscillation frequencies obtained in the experiment allowed the author to establish that the sources of disturbances in the gear belt transmission of a 97 class sewing machine are:

1. The error introduced into the pitch of the toothed belt during its manufacture, and the collisions at the entrance to the meshing of the same tooth of the belt with the same tooth of the pulley.

2. Pulley eccentricity, mass imbalance and sewing machine body vibration.

3. Collisions between the teeth of the belt and the teeth of the pulley, when each successive tooth engages.

In this work, the issue of weakening the pre-tensioning of toothed belts during their operation was not considered.

However, observations of the operation of the toothed belt drive in sewing machines of equal classes showed that over time, the pretensioning of the toothed belts can decrease to values that are dangerous for the operation of the sewing machine, and it needs automatic stabilization of the belt tension during its operation. In addition, in this work, no studies were carried out for timing belts made on the basis of synthetic cord.

Therefore, the results obtained in this work cannot be directly used to develop a system for automatically stabilizing the tension of toothed belts during their operation as part of existing sewing machines.

In conclusion, the calculation of toothed belt transmissions plays a crucial role in the design and operation of technological machines. Toothed belt transmissions are widely used in various industries to transmit power and motion between different machine components.

The calculation process involves several important factors, including the selection of the appropriate belt type, determining the required belt length, calculating the speed ratio, and assessing the load capacity and torque requirements. These calculations are essential for ensuring the efficient and reliable operation of the toothed belt transmission system.

When selecting the belt type, factors such as the application requirements, environmental conditions, and the load to be transmitted must be considered. Different belt materials and designs have varying load capacities, flexibility, and resistance to wear and tear, so choosing the right belt is crucial.

The calculation of the belt length is based on the distance between the pulleys and the desired center distance. It is important to account for factors such as tensioning devices and the potential for belt elongation over time. Proper tensioning is essential for maintaining the desired power transmission efficiency and preventing belt slippage or premature wear.

The speed ratio calculation involves determining the required rotational speed of the driven pulley based on the input speed and the desired output speed. This calculation helps in selecting the appropriate pulley sizes to achieve the desired speed ratio and power transmission.

Load capacity calculations consider the maximum torque and load that the belt transmission system will experience. This involves assessing factors such as the weight of the transmitted load, shock loads, and the desired safety factor. It is important to ensure that the selected belt can handle the anticipated loads without exceeding its maximum load capacity.

In summary, the calculation of toothed belt transmissions in technological machines is a complex process that involves considering various factors such as belt selection, length calculation, speed ratio determination, and load capacity assessment. Proper calculations and considerations are essential for ensuring the efficient and reliable operation of the toothed belt transmission system, ultimately contributing to the overall performance and longevity of the technological machine.

References:

1. Egamberdiev, I. P., et al. (2020). Research of vibration processes of bearing units of mining equipment. *International Journal of Advanced Trends in Computer Science and Engineering*, 2020, T. 9, №. 5, pp. 7789-7793.

2. Akhmedov, K. I., et al. (2020). Influence of integrated machining on the cutting capacity of fast-cutting steel R6M5. *Theoretical & Applied Science*, 2020, №. 9, pp. 322-327.

3. Ahmedov, H. I., et al. (2017). Analiz drobil`nogo agregata kak linejnaja staticheskaja sistema. *Luchshaja studencheskaja stat`ja* 2017, pp. 73-75.

4. Yaxshiyev, S.N., Ashurov, Kh. K., & Mamadiyarov, A.J. (n.d.). Dynamics of Spindle Assembly of Metal-Cutting Machine. *International Journal of Engineering and Advanced Technology (IJEAT)*, pp. 2249-8958.

5. Karimov, N. K., et al. (2020). Povyshenie udarnoj vjazkosti konstrukcionnyh stalej termociklicheskoj obrabotkoj. *Estestvennye i tehnicheskie nauki: problemy transdisciplinarnogo sinteza,* 2020, pp. 40-43.

6. Ibragimov, A. A., et al. (2017). Interval`no-analiticheskie metody reshenija polnoj i chastichnoj problemy sobstvennyh znachenij. *Sovremennye tehnologii: aktual`nye voprosy, dostizhenija i innovacii*, 2017, pp. 16-22.

7. Jegamberdiev, I. P., Jahshiev, Sh. N., & Mamadijarov, A. Zh. (2021). *Prognozirovanie tehnicheskogo sostojanija podshipnikovyh opor metallorezhushhih stankov po spektral`nym harakteristikam.* Sostav redakcionnoj kollegii i organizacionnogo komiteta.

8. Egamberdiev, I., Sharafutdinov, U., & Ashurov, K. (2021). *Investigation of the possibility of increasing the durability of steel castings 110G13L.* Glavnyj redaktor: Ahmetov Sajranbek Mahsutovich, d-r tehn. nauk; Zamestitel` glavnogo redaktora: Ahmednabiev Rasul Magomedovich, kand. tehn. nauk; Chleny redakcionnoj kollegii, p.27.

9. Juraev, A. et al. (2021). *Modification of the structure of the Bitter separator machine.* Strategija sovremennogo nauchno-tehnologicheskogo razvitija rossii: problemy i perspektivy realizacii, 2021, pp. 12-16.

10. Kulmuratov, N. R., et al. (2020). Various issues in the field of setting nonstationary dynamic problems and analyzing the wave stress state of deformable media. *Theoretical & Applied Science,* 2020, №. 9, pp. 365-369.

11. Ashurov, K., et al. (2020). Applications metallographic and X-ray structural analysis. *Studencheskij vestnik,* 2020, №. 20-14, pp.19-21.

12. Jahshiev, Sh. N., et al. (2021). *Formirovanie vibroakusticheskogo signala v podshipnikovyh oporah metallorezhushhih stankov.* European science forum, 2021, pp. 19-23.

13. Ulug'ov, G. O., et al. (2021). Investigation of the possibility of increasing the durability of steel castings 110G13L. *Universum: tehnicheskie nauki,* 2021, №. 11-6 (92), pp. 27-34.

14. Jegamberdiev, I. P., et al. (2021). Ocenka vyhodnoj tochnosti shpindel`nogo uzla tokarnogo stanka NT-250 I. *Innovacionnyj diskurs razvitija sovremennoj nauki*, 2021, pp. 103-107.

Kairat Yernishev
Taraz Regional University named after Dulati
researcher

Ibrahim Imanov
Taraz Regional University named after Dulati
researcher

Bagdat K. Asilbekov
Taraz Regional University named after Dulati
researcher

ANALYSIS OF ANTI-CORRUPTION LEGISLATION AND PROSECUTOR'S SUPERVISION OVER THE IMPLEMENTATION OF ANTI-CORRUPTION LAWS IN RK: FAULTS AND SOLUTIONS

Abstract: *The article analyzes the anti-corruption legislation and certain legislative acts of the Republic of Kazakhstan on the issues of combating corruption and prosecutorial supervision over the implementation of anti-corruption laws. On the basis of the analysis carried out, proposals were formulated aimed at improving anti-corruption legislation and prosecutorial supervision over the implementation of anti-corruption laws.*

Key words: *Analysis, draft law, corruption, prosecution authorities, legislation, powers, supervision.*

Language: *Russian*

АНАЛИЗ АНТИКОРРУПЦИОННОГО ЗАКОНОДАТЕЛЬТСТВА И ПРОКУРОРСКОГО НАДЗОРА ЗА ИСПОЛНЕНИЕМ ЗАКОНОВ О ПРОТИВОДЕЙСТВИИ КОРРУПЦИИ В РК: НЕДОСТАТКИ И ПУТИ РЕШЕНИЯ

Аннотация: *В статье проведен анализ антикоррупционого законодательства и отдельных законодательных актов Республики Казахстан по вопросам противодействия коррупции и прокурорского надзора за исполнением законов о противодействии коррупции. На основе проведенного анализа сформулированы предложения, направленные на совершенствование антикоррупционного законодательства и прокурорского надзора за исполнением законов о противодействии коррупции.*

Ключевые слова: *Анализ, законопроект, коррупция, органы прокуратуры, законодательство, полномочия, надзор.*

Введение

В целом следует отметить, что начиная с периода независимости, Казахстан уверенно идет по пути усиления и повышения эффективности противодействия коррупции. Так, наша страна первой на постсоветском пространстве приняла антикоррупционный закон, ввела соответствующие изменения в сопутствующее законодательство. Более того, Республика Казахстан подтверждает свои антикоррупционные инициативы и на международном уровне.

При этом следует отметить, что, несмотря на достаточно совершенное законодательство и наличие политической воли руководства страны к противодействию коррупции, говорить о минимизации коррупции как негативного социально-политического явления еще рано. Примером этому могут служить коррупционные скандалы в административно-политической сфере, фигурантами которых выступают отдельные представители властных структур. Однако сам факт выявления и публичного расследования таких фактов говорит об открытости Казахстана к противодействию коррупции.

В данной статье мы намерены подробно проанализировать законодательные основы противодействия коррупции в Республике Казахстан донести до специалистов, занимающихся вопросами противодействия коррупции, свое виденье по определенным вопросам, которые, на наш взгляд, остались вне освещения в антикоррупционном законодательстве.

Основная часть.

Политические, экономические и социальные реформы, происходящие сегодня в Республике Казахстан, в значительной мере затрагивают вопросы о роли и месте органов прокуратуры в государственном механизме, их назначении и функционировании, координирующей роли в деятельности правоохранительных органов по борьбе с преступностью. Особую актуальность в последние годы приобретают вопросы надзора органов прокуратуры за исполнением законодательства в сфере противодействия коррупции. Это связано с тем непреложным фактом, что коррупция представляет собой сложное политико-правовое и социально-экономическое явление, существующее на всех этапах истории любого государства, в любых государственно-организованных обществах, отличаясь только масштабами и формами проявления, что не является исключением и для Республики Казахстан.

Одной из опаснейших форм коррупции, является системная коррупция. Системной коррупцией (или эндемической коррупцией) является коррупция, которая, в первую очередь, из-за слабой организации процесса государственного аппарата [1].

По мнению Лорены Алькасар и Раулья Андраде, факторы, которые побуждают системную коррупцию включают в себя взаимоисключающие стимулы, дискреционные полномочия, монопольные полномочия, отсутствие прозрачности, низкая оплата труда и культурой безнаказанности [2].

Типовыми коррупционными ситуациями являются:

-использование государственных средств в целях личного (группового) обогащения - коллективное либо индивидуальное извлечение выгоды из нарушения законов и иных норм;

- создание искусственных преград для решения проблемы заявителем с побуждением к даче взятки;

- принятие противоправного решения в пользу извлечения выгоды некоторой второй стороны, связанной с должностным лицом;

- принятие решения под давлением и в результате шантажа группы либо лица.

Конкретные акты коррупции включают в себя "взяточничество, вымогательство, хищение" в системе, где "коррупция становится скорее правилом, чем исключением" [3].

Так, по статистике прокуратуры, за первый квартал 2017 года зарегистрировано всего 1137 коррупционных уголовных правонарушений, из них небольшой тяжести 116 (11%), средней тяжести 375 (33%), тяжкие 612 (54%), особо тяжкие 34 (2).

За первый квартал 2017 года по оконченным расследованием коррупционным уголовным делам установленный размер материального вреда составляет 36552,984 тыс. тенге, изъято и добровольно погашено 25377,35 тыс. тенге.

По категорий небольшой тяжести уголовных правонарушений, установленный размер материального вреда составляет 2484,415 тыс. тенге, изъято и добровольно погашено 2484,415 тыс. тенге, по средней тяжести уголовных правонарушений установленный размер материального вреда составляет 3441 тыс. тенге, изъято и добровольно погашено 3441 тыс. тенге, по тяжким преступлениям установленный размер материального вреда составляет 30627,569 тыс. тенге, изъято и добровольно погашено 19451,93 тыс. тенге, по особо тяжким преступлениям наложен арест на имущество 56908 тыс. тенге.

На основании этих данных можно сделать вывод, что все причиненные материальные ущербы в основном были возмещены путем изъятия и наложения ареста на имущество в принудительном порядке органами правопорядка.

Количество уголовных правонарушений, по которым уголовные дела находились в производстве за первый квартал 2017 года составляет - 1137 коррупционных уголовных правонарушений. Из них:

- Присвоение или растрата вверенного чужого имущества (п.2) ч.3 ст.189 УК РК) – 111;

- Мошенничество (п.2) ч.3 ст.190 УК РК) – 115;

- Лжепредпринимательство (п.3) ч.2 ст.215 УК РК) – 3;

- Совершение действий по выписке счета-фактуры без фактического выполнения работ, оказания услуг, отгрузки товаров (п.4) ч.2 ст.216 УК РК) – 0;

- Создание и руководство финансовой (инвестиционной) пирамидой (п.3) ч.3 ст.217 УК РК) – 3;

- Легализация (отмывание) денег и (или)иного имущества, полученных преступным путем (п.1) ч.3 ст.218 УК РК) – 1;

- Экономическая контрабанда (п.1) ч.3 ст.234 УК РК) – 0;

- Рейдерство (п.2) ч.3 ст.249 УК РК) – 0;

- Организация незаконного игорного бизнеса (п.3) ч.3 ст.307 УК РК) – 0;

- Злоупотребление должностными полномочиями (ст.361 УК РК) – 328;

- Превышение власти или должностных полномочий (п.3) ч.4 ст.362 УК РК) – 31;

- Незаконное участие в предпринимательской деятельности (ст.364 УК РК) – 2;

- Воспрепятствование законной предпринимательской деятельности (ст.365 УК РК) – 1;

- Получение взятки (ст.366 УК РК) – 300;

- Дача взятки (ст.367 УК РК) – 90;

- Посредничество во взяточничестве (ст.368 УК РК) – 11;

- Служебный подлог (ст.369 УК РК) -94;

- Бездействие по службе (ст.370 УК РК) – 17;

- Злоупотребление властью (ст.450 УК РК) – 26;

- Превышение власти (п.2) ч.2 ст.451 УК РК) – 2;

- Бездействие власти (ст.452 УК РК) – 2.

Всего переквалифицированных в некоррупционные преступления - 76.

Количество зарегистрированных в первом квартале 2017 года в Едином реестре досудебных расследований Генеральной прокуратуры Республики Казахстан уголовных правонарушений как получение взятки, составляет 145 единиц. Из них окончены расследованием - 49 уголовных правонарушений, направлены в суд - 49 уголовных правонарушений, прекращены по пунктам 1), 2), 5), 6), 7), 8) части 1 статьи 35 УПК РК – 15 уголовных правонарушений, прерваны сроки досудебного расследования по пункту 1) части 7 статьи 45 УПК РК – 1 уголовное правонарушение, преступления прошлых лет по которым сроки досудебного производства прерваны по пункту 4) части 7 статьи 45 УПК РК – 1 уголовное правонарушение, уголовные дела по которым с момента регистрации прошло более 2-х месяцев, а информация о продлении срока не поступила – 2 преступления.

По этим преступлениям, по оконченным расследованием уголовным делам изъято и добровольно погашено 248,2 тыс. тенге в пользу государства.

В числе наиболее часто совершаемых коррупционных уголовных правонарушений, безусловно, присутствует «Злоупотребление должностными полномочиями».

Количество зарегистрированных в первом квартале 2017 года в Едином реестре досудебных расследований Генеральной прокуратуры Республики Казахстан уголовных правонарушений как «Злоупотребление должностными полномочиями», составляет 105 единиц. Из них окончены расследованием - 29 уголовных правонарушений, направлены в суд - 19 уголовных правонарушений, прекращены по пунктам 3), 4), 9), 10), 11), 12) части 1 статьи 35 и статьи 36 УПК РК – 10 уголовных правонарушений, прекращены по пунктам 1), 2), 5), 6), 7), 8) части 1 статьи 35 УПК РК – 35 уголовных правонарушений, прерваны сроки досудебного расследования по пункту 1) части 7 статьи 45 УПК РК – 5 уголовное правонарушение, преступления прошлых лет по которым сроки досудебного производства прерваны по пункту 4) части 7 статьи 45 УПК РК – 2 уголовное правонарушение, уголовные дела по которым с момента регистрации прошло более 2-х месяцев, а информация о продлении срока не поступила – 17 уголовных правонарушений.

По этим преступлениям, по оконченным расследованием уголовным делам изъято и добровольно погашено 5943,415 тыс. тенге в пользу государства.

Анализ этих цифр показывает, что, несмотря на действующее законодательство, применение уголовных правоохранительных мер является односторонним и не соответствует фактическим масштабам коррупции в стране[4].

Таким образом, в результате совершения коррупционных правонарушений катастрофически нарушается эффективная, соответствующая действующим нормативным правовым актам деятельность государственных и местных органов власти, подрывается авторитет и нарушаются интересы публичной власти, причиняется материальный ущерб государству и отдельным гражданам, ущемляются права и законные интересы физических и юридических лиц и в целом интересы всего общества и государства.

Недавнее исследование Всемирного банка показывает, что, кто принимает политические решения (политические должностные лица или чиновники) могут иметь решающее значение при определении уровня коррупции. Уровень коррупции в государственном секторе является одним из наиболее опасных форм коррупции [5].

Поэтому противодействию коррупции в Республике Казахстан уделяется значительное внимание и прилагаются значимые усилия политического руководства страны и всех государственных органов.

Казахстан является одной из первых стран СНГ, принявших антикоррупционное законодательство и государственную систему для противодействия этому явлению. 2014 года Президент страны указом утвердил Антикоррупционную стратегию Республики Казахстан на 2015-2025 годы, согласно которой ключевыми направлениями данной эффективизации являются: противодействие коррупции в сфере государственной службы; внедрение института общественного контроля; противодействие коррупции в квазигосударственном и частном секторах; предупреждение коррупции в судебных и правоохранительных органах и др.

Правительству Республики Казахстан, государственным органам, непосредственно подчиненным и подотчетным Президенту Республики Казахстан, акимам городов Астаны и Алматы, областей предписано руководствоваться стратегией в своей деятельности и принимать необходимые меры по ее реализации. В этих условиях на органы прокуратуры Республики Казахстан возлагается высокая и ответственная миссия надзора за законностью, ее соблюдением и беспрекословным обеспечением эффективности противодействия коррупции всего государственного аппарата. Насущная потребность изучения проблем совершенствования прокурорского надзора за исполнением законов о противодействии коррупции в Республике Казахстан обусловлена как чрезвычайно высокой степенью общественной опасности данного правонарушения, так и необходимостью системного улучшения организационно-правовых основ прокурорского надзора за исполнением законодательства о противодействии коррупции, ведь одним из значимых вопросов организации противодействия коррупции и мониторинга исполнения мер по ее устранению был и остается вопрос о роли и месте прокурорского надзора за исполнением законов о противодействии коррупционным деяниям.

Совершенствуется административное, уголовное законодательство, вводятся превентивно-репрессивные меры, направленные на предупреждение коррупционных правонарушений, повышается авторитет государственной службы.

На предыдущих этапах развития казахстанского государства были достигнуты общепризнанные результаты, наметились очевидные положительные тенденции в деле противодействия коррупции.

В Указе «О некоторых вопросах Агентства Республики Казахстан по делам государственной службы и противодействию коррупции и внесении изменений и дополнений в некоторые указы Президента Республики Казахстан» [6] была определена Антикоррупционная стратегия Республики Казахстан на 2015–2025 годы, которая определила основные направления антикоррупционной политики государства на предстоящие годы и содержит комплекс мер, которые будут способствовать устранению предпосылок для коррупции, искоренению причин и условий, ее порождающих, сокращению ее уровня.

Следует отметить, что ранее в содержании Закона «О борьбе с коррупцией» был предусмотрен перечень коррупционных правонарушений, где они подразделялись на правонарушения, создающие условия для коррупции. К ним относились: неправомерное вмешательство в деятельность других государственных органов или организаций, использование своих служебных полномочий при решении вопросов, связанных с удовлетворением материальных интересов указанных лиц либо их близких родственников и свойственников, предоставление не предусмотренных законом преимуществ (протекционизм, семейственность) при поступлении и продвижении по государственной службе и в государственных организациях, оказание неправомерного предпочтения при подготовке и принятии решений и прочие нарушения, связанные с использованием своих полномочий.

Противодействие коррупции является стратегическим приоритетом государственной политики. Интенсивная работа над проблемами коррупции и теневой экономики в последнее время привела большинство исследователей к мнению о том, что одни только «карательные операции», опирающиеся на суровые санкции уголовного закона, приводят лишь к обострению этого явления. Как показывает опыт борьбы с коррупцией и теневой экономикой, даже четко разработанной системы превентивных мер подчас бывает недостаточно.

Для максимального снижения уровня коррупции и теневой экономики необходимо использовать комплексный подход. Борьба на государственном уровне подразумевает принятие соответствующих законов, введение дополнительных карательных инструментов, использование административного ресурса, объединение усилий в области международного сотрудничества в сфере борьбы с коррупцией, теневой экономикой и терроризмом, целенаправленную работу по взаимодействию органов государственной власти с

общественностью и средствами массовой информации.

Реформирование сферы услуг, расширение прозрачности государственной деятельности следует признать наиболее очевидными целями борьбы с коррупцией и теневой экономикой. Низкий уровень заработной платы чиновников, закрытость или даже секретность финансирования являются далеко не самыми существенными условиями коррупции. Гораздо существеннее, когда коррупция основана на законе, когда сам закон способствует ее возникновению.

Таким образом, решить проблему коррупции и теневой экономики можно только в результате комплексной политико-правовой реформы, направленной на дебюрократизацию общества, переход от разрешительного порядка реализации гражданских прав к заявительному. При отсутствии такой реформы любой, даже самый совершенный с юридической точки зрения закон, претендуя на универсальное средство борьбы с коррупцией, будет лучшим подарком для коррупционеров всех мастей и бюрократии в целом.

«Реализация последовательной и скоординированной политики противодействия коррупции – одна из насущнейших задач государственного строительства» – справедливо замечает О.С. Капинус [13].

Круг фундаментальных законодательных актов, регламентирующих противодействие коррупции в Республике Казахстан, включает в себя [14]:

- Конституцию РК (принята на республиканском референдуме 30 августа 1995 года) (с изменениями и дополнениями по состоянию на 02.02.2011 г.);

- Уголовный кодекс РК от 3 июля 2014 года № 226-V (с изменениями и дополнениями от 11.10.2016 г.);

- Кодекс об административных правонарушениях РК от 5 июля 2014 года № 235-V (с изменениями и дополнениями по состоянию на 11.10.2016 г.);

- Закон Республики Казахстан от 18 ноября 2015 года № 410-V «О противодействии коррупции» (с изменениями и дополнениями по состоянию на 06.04.2016 г.);

- Закон Республики Казахстан от 23 ноября 2015 года № 416-V «О государственной службе» (с изменениями и дополнениями по состоянию на 06.04.2016 г.);

- Закон Республики Казахстан от 4 мая 2008 года № 31-IV «О ратификации Конвенции Организации Объединенных Наций против коррупции»;

- Закон Республики Казахстан от 6 января 2011 года № 380-1V «О правоохранительной службе» (с изменениями и дополнениями по состоянию на 06.04.2016 г.);

- Указ Президента РК «О дополнительных мерах по усилению борьбы с преступностью и коррупцией и дальнейшему совершенствованию правоохранительной деятельности в Республике Казахстан» от 22 апреля 2009 года № 793 (с изменениями и дополнениями по состоянию на 17.08.2010 г.);

- Концепция правовой политики Республики Казахстан на период с 2010 до 2020 года, утвержденная Указом Президента РК от 24 августа 2009 года № 858 (с изменениями и дополнениями по состоянию на 16.01.2014 г.);

- Этический кодекс государственных служащих Республики Казахстан (Правила служебной этики государственных служащих), утвержденный Указом Президента РК от 29 декабря 2015 года № 153;

- Антикоррупционная стратегия Республики Казахстан на 2015-2025 годы, утвержденная Указом Президента РК № 986 от 26 декабря 2014 года;

- Указ Президента РК от 29 декабря 2015 года № 155 «Об утверждении Правил проведения внешнего анализа коррупционных рисков»;

- приказ Министра по делам государственной службы Республики Казахстан от 29 декабря 2015 года № 18 «Об утверждении Типовых правил проведения внутреннего анализа коррупционных рисков»;

- приказ Министра финансов Республики Казахстан от 30 ноября 2015 года № 599 «Об утверждении типового положения о службах внутреннего аудита»;

- приказ Министра по делам государственной службы Республики Казахстан от 29 декабря 2015 года № 16 «Об утверждении Правил проведения антикоррупционного мониторинга».

Помимо этого, вопросы противодействия коррупции также раскрываются в иных, в том числе ведомственных нормативных актах, которые имеют локальный, ограниченный характер.

Исходя из круга источников, можно сделать вывод, что ответственность за коррупцию в Республике Казахстан носит уголовный, административный и дисциплинарный характер.

Анализ антикоррупционного законодательства Республики Казахстан, по нашему мнению, позволяет сформулировать ряд выводов и предложений, решение и реализация которых окажет позитивное влияние на содержание антикоррупционного законодательства.

Мы предлагаем гармонизировать нормы национальных законодательств государств – участников СНГ, регламентирующие понятие коррупции и ответственность за коррупционные

правонарушения и преступления, с имеющимися межгосударственными документами, в качестве основы используя формулировки, рекомендованные Соглашением о сотрудничестве генеральных прокуроров (прокуратур) государств – участников Содружества Независимых Государств в борьбе с коррупцией от 25 апреля 2007 года; дополнить статью 5 Положения о Координационном совете генеральных прокуроров государств – участников Содружества Независимых Государств, утвержденного решением Совета глав государств Содружества Независимых Государств от 25 января 2000 года и статьи 3, 4, 5 Положения о Координационном совете Республики Казахстан по обеспечению законности, правопорядка и борьбы с преступностью, утвержденного Указом Президента РК от 2 мая 2011 года № 68 следующим текстом: «организует проведение научных исследований противодействия коррупции на базе межведомственного и межгосударственного органов прокуратур»; рассмотреть возможность внесения изменения в санкции статей 366, 367, 368 УК РК с уменьшением кратности суммы штрафа от суммы взятки; дополнить статью 1 Закона Республики Казахстан от 21 декабря 1995 года № 2709 «О Прокуратуре» пунктом 3 в следующей редакции: «3. Прокурорский надзор в Республике Казахстан – это высший надзор за:

- точным и единообразным применением законов, указов Президента Республики Казахстан и иных нормативных правовых актов на территории республики;

- соблюдением прав и свобод человека и гражданина, законных интересов юридических лиц и государства;

- законностью оперативно-розыскной деятельности, дознания и следствия, административного и исполнительного производства;

- применением законодательства в сфере правовой статистики и специальных учетов;

- применением законов в сфере международного правового сотрудничества».

Изложить пункт 14-2 статьи 4 Закона Республики Казахстан от 21 декабря 1995 года № 2709 «О Прокуратуре» в следующей редакции: 14-2) координирует и проводит межведомственные научные исследования в сфере правоохранительной деятельности, формирует ведомственную научно-исследовательскую тематику для подготовки и размещения заявок на грантовое финансирование научных исследований, в том числе с зарубежным участием;»; дополнить Закон Республики Казахстан от 21 декабря 1995 года № 2709 «О Прокуратуре» главой 9-1 «Надзор за законностью в сфере противодействия коррупции» с

определением соответствующих полномочий специальных прокуроров; изложить пункт 9) статьи 1 Закона Республики Казахстан от 18 ноября 2015 года № 410-V «О противодействии коррупции» в следующей редакции: «9) Противодействие коррупции – это любые действия физических и юридических лиц в пределах действующего законодательства по:

- выявлению, изучению и устранению причин и условий совершения коррупционных правонарушений;

- выявлению, пресечению, раскрытию и расследованию коррупционных правонарушений;

- устранению общественно опасных последствий коррупционных правонарушений».

Дополнить статью 1 Закона Республики Казахстан от 18 ноября 2015 года № 410-V «О противодействии коррупции» пунктом 14) в приводимой в тексте диссертации редакции; дополнить статью 1 Закона Республики Казахстан от 18 ноября 2015 года № 410-V «О противодействии коррупции» пунктом 15) в следующей редакции: 15) Система противодействия коррупции – это совокупность объектов, в отношении которых ведется антикоррупционная деятельность, субъектов, ведущих данную деятельность, а также мер антикоррупционного характера; изложить статью 4 Закона Республики Казахстан от 6 января 2011 года № 380-IV «О правоохранительной службе» в следующей редакции: «Статья 4. Принципы правоохранительной службы.

1. Служба в правоохранительных органах осуществляется в соответствии с принципами государственной службы в Республике Казахстан и специальными принципами правоохранительной службы.

2. Специальными принципами правоохранительной службы являются:

1) обязательность защиты прав и свобод человека и гражданина, интересов общества и государства от преступных и иных противоправных посягательств;

2) сотрудничество с институтами гражданского общества;

3) единство подходов к организации правоохранительной службы в правоохранительных органах, признание координирующей роли органов прокуратуры;

4) единоначалие и субординация (подчиненность);

5) независимость от деятельности политических партий и иных общественных объединений».

Дополнить п. 1 статьи 1 «Общие положения» Положения о Координационном совете Республики Казахстан по обеспечению законности, правопорядка и борьбы с преступностью следующим текстом:

«Координационная деятельность органов прокуратуры по обеспечению законности, правопорядка и борьбы с преступностью – это целесообразное упорядочение взаимосвязанных действий всех государственных, в том числе правоохранительных органов по защите прав и свобод граждан, обеспечению законности и противодействию правонарушениям».

Проведя изучение сущности и специфики прокурорского надзора в сфере противодействии коррупции, мы вносим обоснованные предложения по повышению его эффективности, а именно разработать и утвердить приказом Генеральной Прокуратуры РК Инструкцию об организации прокурорского надзора за применением Закона «О противодействии коррупции», поставив на утрату приказ Генеральной Прокуратуры РК от 24 апреля 2001 года № 68 «Об организации прокурорского надзора за применением Закона «О борьбе с коррупцией»; разработать соответствующие ведомственные инструкции, памятки и методические рекомендации, пособия по вопросам о конкретизации требований, условий, категорий действующего законодательства в сфере противодействия коррупции сотрудниками органов прокуратуры, сроков рассмотрения обращений по коррупционным правонарушениям, регулярно издавать сборники актов прокурорского реагирования в данном направлении; переработать и утвердить постановлением Правительства РК Инструкцию по расчету рейтинга уровня коррупции в государственных органах в соответствии с требованиями Стамбульского плана действий ОЭСР в целях увеличения аналитических возможностей правоохранительных органов, обеспечения более эффективного статистического мониторинга коррупции и коррупционных преступлений во всех сферах государственной службы, полиции, прокуратуры и судов на основе гармонизированной методологии, которая позволит минимизировать или исключить условия коррупции в государственных органах; провести конкретизацию и системную реализацию пункта 2.4.3 Межгосударственной программы совместных мер борьбы с преступностью на 2014-2018 годы № 234 от 25 октября 2013 года, которым рекомендовано рассмотреть перспективные направления развития межгосударственного сотрудничества в сфере борьбы с коррупцией.

Органы прокуратуры, по нашему мнению, должны пересмотреть теоретико-организационные основы прокурорского надзора в сфере противодействии коррупции, для чего предлагается активизировать широкое вовлечение средств массовой информации в такие антикоррупционные процессы, как формирование антикоррупционного сознания, выработка нулевой терпимости к коррупции, разъяснение законодательства, информирование о принимаемых мерах, результатах антикоррупционной деятельности, в том числе приговора суда, за исключением законодательно ограниченной; поручить Академии правоохранительных органов при Генеральной Прокуратуре РК вынести на научно-практическую полемику вопрос о расширении круга субъектов и деяний, относимых к коррупционным, а также усилении ответственности за совершение коррупционных деяний с тем, чтобы привести казахстанское законодательство в соответствие лучшим международным практикам противодействия коррупции и борьбы с нею; обязать Научно-исследовательский институт Академии правоохранительных органов при Генеральной Прокуратуре РК проводить комплексный анализ состояния законности и правопорядка в республике, оценку эффективности прокурорского надзора в сфере борьбы с коррупционными преступлениями, разработку соответствующих ведомственных инструкций и методических рекомендаций.

Немаловажно также, по нашему мнению, совершенствовать кадровое обеспечение противодействия коррупции, для чего предлагается внести соответствующие изменения в Устав Академии правоохранительных органов, утвержденный приказом Генерального Прокурора РК от 3 июля 2015 года № 89, в части открытия новой специализации «Противодействие коррупции» специальности «Правоохранительная деятельность» (магистратура, докторантура) с получением соответствующей лицензии и подготовки на базе Академии правоохранительных органов при Генеральной Прокуратуре РК специалистов-теоретиков и практиков для органов прокуратуры по противодействию коррупции; активизировать деятельность по регулярному повышению квалификации сотрудников органов прокуратуры, усилению интегративных процессов с другими государственными органами, сотрудничеству с проверяемыми органами, интенсификации обмена информацией и положительным опытом в области противодействия коррупции, в том числе на базе Академии государственного управления при Президенте РК и Академии правоохранительных органов при Генеральной Прокуратуре РК, в частности проведению специальных обучающих курсов, семинаров, лекций и курсов на двух языках по юридической технике, по порядку оформления актов прокурорского реагирования, правилам оформления, формулировки, издания на двух языках, соблюдению требований целесообразности, законности и требований организационно-технического характера и иным вопросам.

Заключение

Процесс дальнейшего совершенствования антикоррупционного законодательства должен неуклонно следовать принципам верховенства Конституции и соответствия норм актов нижестоящего уровня актам вышестоящего уровня.

Правильным, на наш взгляд, совершенствование норм действующего антикоррупционного законодательства необходимо проводить путем реализации следующих мер:

- восполнения пробелов в правовом регулировании и углубления его в наиболее важных сферах общественных отношений, возникающих в процессе осуществления антикоррупционной деятельности;

- продолжения и расширения практики проведения научной экспертизы законопроектов с совместным привлечением теоретиков и практических работников, в том числе на предмет соответствия интересам антикоррупционной политики государства;

- ускорить формирования в целях унификации антикоррупционного законодательства единого перечня (понятийного аппарата) используемых в нем терминов на государственном и русском языках;

- для повышения эффективности реализации в правоприменительную деятельность принимаемых законов и ведомственных актов следует разработать реальный механизм финансово-материального обеспечения данного процесса;

- обязательное введение криминологической экспертизы проектов нормативных правовых актов в целях выявления предпосылок, прямо или опосредованно создающих условия для совершения коррупционных и административных правонарушений;

Следует планировать работу по систематизации массива национального законодательства на среднесрочную перспективу, вести научный анализ общественных отношений, требующих правовой регламентации. Такой упреждающий анализ позволит выявить сферы общественных отношений, не урегулированных нормативными правовыми актами и нуждающихся в разноуровневой регламентации.

Систематизация законодательства должна осуществляться посредством применения всех трех ее форм: инкорпорации, консолидации и кодификации.

Сегодня законодательные акты содержат большое количество бланкетных (отсылочных) норм, позволяющих государственным органам принимать подзаконные акты, содержание которых не соответствует воле законодателя, а порой и прямо противоречит ей. В нормотворческой практике государственных органов не изжит узкоотраслевой, ведомственный подход, в результате чего имеют место коррупционные правонарушения, ущемление прав, свобод человека и законных интересов граждан и организаций. К тому же такая ситуация приводит к фактической подмене законов подзаконными актами. В связи с этим процесс разработки законодательных актов должен характеризоваться решительным уменьшением количества отсылочных норм и оптимально возможной конкретизацией законов. Наряду с этим следует усовершенствовать механизм введения в действие принятых законов, обеспечивающий их полную реализацию, в том числе своевременное принятие необходимых подзаконных актов.

В целях построения правового государства и реализации вышеуказанных задач правовую политику должны реализовывать государственные органы и должностные лица в своей повседневной деятельности. Основными ее принципами должны в полной мере утвердиться:

- законность, то есть соблюдение и надлежащее применение норм Конституции и законов, основанных на них подзаконных нормативных правовых актов;

- приоритет прав и свобод человека, означающий верховенствующее положение прав и свобод человека и гражданина;

- гуманизм, то есть признание высшей ценности человеческой личности, ее прав на свободное развитие и проявление способностей, утверждение блага индивидуума как критерия оценки качества общественных отношений.

При этом правовая политика должна отражать государственное видение основных направлений, базовых механизмов развития правовой системы и совершенствование мер правоприменительной практики на определенный период времени.

Выводы

Подводя итог проведенному исследованию, укажем, что рассмотренные в исследовании важные аспекты и приоритеты прокурорского надзора за исполнением законов о противодействии коррупции в Республике Казахстан позволяют сделать вывод о возможности и необходимости решения наличествующих проблем путем его совершенствования на основе научных разработок.

Изложенные в статье теоретические аспекты противодействия коррупции в прокурорской деятельности направлены на дальнейшее развитие науки о прокурорской деятельности, совершенствование и оптимизацию практической

деятельности органов прокуратуры, а выводы и предложения могут быть использованы для организации и проведения дальнейших научных исследований в области прокурорского надзора, в правотворческой и практической деятельности органов прокуратуры.

References:

1. (2011). *U4 Anti-Corruption Resource Centre.* Retrieved 26 June 2011.
2. (2001). *Lorena Alcazar, Raul Andrade. Diagnosis corruption.* ISBN 978-1-931003-11-7. pp. 135-136.
3. Znoj, H. (2009). "Deep Corruption in Indonesia: Discourses, Practices, Histories". In Monique Nuijten, Gerhard Anders. Corruption and the secret of law: a legal anthropological perspective. Ashgate. (pp. 53-54). ISBN 978-0-7546-7682-9.
4. (n.d.). *Otchet o korrupcionny`x prestupleniyax, liczax ix sovershivshix, osuzhdenny`x i dvizhenii ugolovny`x del o korrupcionny`x prestupleniyax i o sub``ektax korrupcionny`x pravonarushenij.* General`naya prokuratura RK.
5. Hamilton , A. (2013). *Small is beautiful, at least in high-income democracies: the distribution of policy-making responsibility, electoral accountability, and incentives for rent extraction*, World Bank.
6. (2014). *O nekotory`x voprosax Agentstva Respubliki Kazaxstan po delam gosudarstvennoj sluzhby` i protivodejstviyu korrupcii i vnesenii izmenenij i dopolnenij v nekotory`e ukazy` Prezidenta Respubliki Kazaxstan: Ukaz Prezidenta Respubliki Kazaxstan ot 29 avgusta 2014 goda № 900.* Retrieved from http://adilet.zan.kz/rus/docs/U1400000900
7. (0410). *O protivodejstvii korrupcii: Zakon Respubliki Kazaxstan ot 18 noyabrya 2015 goda № 410-V.* Retrieved from http://adilet.zan.kz/rus/docs/Z1500000410
8. (2015). *O gosudarstvennoj sluzhbe Respubliki Kazaxstan: Zakon Respubliki Kazaxstan ot 23 noyabrya 2015 goda № 416-V.* Retrieved from http://adilet.zan.kz/rus/docs/Z1500000416
9. (2015). *Ob obshhestvenny`x sovetax: Zakon Respubliki Kazaxstan ot 2 noyabrya 2015 goda № 383-V.* Retrieved from http://adilet.zan.kz/rus/docs/Z1500000383
10. (2015). *O dostupe k informacii: Zakon Respubliki Kazaxstan ot 16 noyabrya 2015 goda № 401-V.* Retrieved from http://adilet.zan.kz/rus/docs/Z1500000401
11. (2014). *Ob Antikorrupcionnoj strategii Respubliki Kazaxstan na 2015-2025 gody`: Ukaz Prezidenta Respubliki Kazaxstan ot 26 dekabrya 2014 goda № 986.* Retrieved from http://adilet.zan.kz/rus/docs/U1400000986
12. (2015). *Ugolovny`j kodeks Respubliki Kazaxstan ot 3 iyulya 2014 goda № 226-V ZRK (s izmeneniyami i dopolneniyami po sostoyaniyu na 24.11.2015 g.).* Retrieved from http://adilet.zan.kz/rus/docs/K1400000226
13. Kapinus, O.S. (2015). Sovremenny`e problemy` protivodejstviya korrupcii. *Vestnik Akademii General`noj prokuratury` Rossijskoj Federacii*, № 3 (47), p.3.
14. (n.d.). *Informacionno-pravovaya sistema «Әdilet», raspolozhennoj v informacionno-telekommunikacionnoj seti Internet po adresu* Retrieved from http://adilet.zan.kz

Sojidakhon Saidmakhmadovna Samadova
under the SEI "Khujand State University named after acad. B.Gafurov"
candidate of philological sciences, Associate Professor of the department of English language
Khujand, Tajikistan
sojidakhon@mail.ru

Muhayo Abdulloevna Yuldosheva
under the SEI "Khujand State University named after acad. B.Gafurov"
applicant of the department of Tajik language and literature attached to the faculty of oriental languages
Khujand, Tajikistan

Parvina Ismoilovna Bobokalonova
under the SEI "Khujand State University named after acad. B.Gafurov"
applicant of the department of Tajik language and literature attached to the faculty of oriental languages
Khujand, Tajikistan
bobokalonova83@mail.ru

THE IMPORTANCE OF MAINTAINING AND USING DICTIONARIES WHILE LEARNING FOREIGN LANGUAGES

Abstract: The given article dwells on the importance of maintaining and using dictionaries while learning foreign languages. It is noted that knowing a foreign language other than your native language has evolved to be extremely beneficial. It is worth mentioning that lexicography is a science of dictionary compiling. English lexicography dates from the fifth century. English - Latin dictionaries came into existence in this period. In conclusion, it would be desirable to have one's own personal dictionary for recording special terms; unlike the personal educational dictionary discussed above, this dictionary may include a thematic set of special vocabulary, comments made on the topic, and other professional foreign language information. Working on foreign-language technical or special texts is inevitably associated with the use of dictionaries, so a personal dictionary can reduce the time spent to a minimum; in addition, a foreign term reviewed several times in the text and fixed is remembered faster and more firmly.

Key words: dictionary, foreign language, lexis, practice, English - Latin dictionaries, thematic set of special vocabulary.

Language: English

Introduction

UDC 81.821.08

In today's era, multilingualism has become more than just 'important'. Knowing a foreign language other than your native language has evolved to be extremely beneficial. Whether viewed from the financial or social aspect, being able to communicate in a foreign language helps to make 'real' connection with people and provides a better understanding of your language. A good dictionary is an essential tool for any language learner. It can, however, be difficult to use, and not all language learners fully understand how a dictionary works, or the best type to use [1; 3; 6].

The science which studies the dictionary is lexicography. Lexicography is the science of dictionary compiling. English lexicography dates from the fifth century. English - Latin dictionaries came into existence in this period. The first dictionary of English was published in 1755 by Samuel Johnson in which he gave the origin of words with examples from the works of famous writers. There are different kind of dictionaries such as bilingual, monolingual, explanatory, terminology dictionaries and etc. Nevertheless in all stages of learning foreign languages it is necessary to organize personal educational dictionaries. Maintaining personal educational dictionaries, which everybody has repeatedly encountered when learning a foreign language, can be much more beneficial if a systematic approach is applied in this regard. With a systematic approach, each new lexical unit considered or phraseological expression will take an appropriate place in the educational dictionary, which will certainly contribute to their better assimilation, interconnection with other lexemes and freer use in speech practice. The very fact of maintaining personal dictionaries when learning a language is by no means superfluous or optional, since the written fixation of any word or expression is much more productive way of memorizing them than when listening or searching in a common dictionary. In addition, this is the easiest way to refresh the studied material in memory, to repeat something that is not memorized in the head [12, p.8].

The main part of the article

However, as observations show, the unsystematic fixation of words in the order of acquaintance with them, which is used quite often, does not adequately meet the goals of systematizing vocabulary. Foreign words columned on the left side of a notebook page with translation on the right and transcription in the middle column - this is a picture of dull, often abandoned halfway or a quarter of the way, educational dictionaries that keep traces of negligence and lack of demand. Such a dictionary can be active only when it is maintained taking into account the dynamic properties of linguistic units. Only in this case it becomes initially focused on the use of the studied lexical material in acts of speech communication. How to achieve this?

Logically, the simplest way of primary systematization of lexical material can be the breakdown of the studied lexical units into parts of speech1. Based on this principle, words are recorded in dictionaries in separate sections corresponding to the main (significant) parts of speech - noun, verb, adjective, adverb [2; 4; 7; 9].

At the same time, it is very useful to do something that is not done in any general dictionary - to write nouns (countable) with the indefinite article (in the singular), and verbs (in the indefinite form)

with the particle to. And of course, it is completely unacceptable to write words not in the infinitive, but in one of the paradigms (for example, writing an adjective in the form of one of the degrees of comparison or a verb in the form of the past tense). This is confusing and is a gross violation in the maintenance of dictionaries. If you understand which of the forms of the word is the main one and which is categorical, then they will be entered in the dictionary in the only correct way. What happens with separate fixation in the dictionary of lexical units by parts of speech?

Firstly, each of them immediately acquires its own syntactic potential for the language learner, i.e. the ability to use it in a speech unit - a sentence as a subject, predicate, attribute, object and adverb [11, p.20].

With direct word order in English at first, this can be very helpful, because, when composing a sentence, you can choose a subject or object from the first section ("Nouns"), a predicate from the second section ("Verbs"), a definition from the third section ("Adjectives"), a circumstance from the fourth section ("Adverbs"). A new manager plays tennis well. — A new manager speaks English well. — A new manager knows English well. — A clever manager speaks English well. — A clever manager speaks English badly. For example, the sentence A new colleague plays tennis well is instantly composed and parsed into parts of speech, in it any of the lexical units can be replaced, which is the mechanism for using words in speech. A new manager plays tennis well. — A new manager speaks English well. — A new manager knows English well. — A clever manager speaks English well. — A clever manager speaks English badly.

Discussion

Thus, maintaining dictionaries by parts of speech can be of real help in developing the skill of constructing simple and then complex sentences in speech. Secondly, maintaining a dictionary according to the part-of-speech principle contributes to a better identification of antonymic, synonymous and thematic lexical relationships.

So, for the adjective *tall*, it will not be difficult to choose the antonym *short,* and for the adjective *pretty*, it will be a synonym for *beautiful.* The same connections are established in our minds, which is why words are chosen so quickly in speech with fluency in the language. As for thematic links, they are similarly formed when lexical units united by the same topic entered into dictionaries [12, p.10].

For adjectives, for example, it is possible to unite on a color basis, on the basis of size and volume, on the basis of descriptive characteristics, etc. For nouns, thematic associations can go on certain topics: family, study, office, travel, etc. The main thing is so that the abundance of lexical material does not overlap the

Clarivate Analytics *indexed*

permissible limits and does not distract from the main task - the systematic and consistent study of the various possibilities of using language means in speech practice, which combines grammatical and lexical means of expression [8; 10; 14].

It is not at all necessary and even in many cases not useful that at the initial or middle stage of language proficiency a certain lexical topic is represented by all possible words and phrases at once. The topic can be constantly expanded and supplemented as knowledge deepens and the structural capabilities of the language are mastered.

The same applies to the synonymy of verbs, which expands very gradually, from direct, dominant nominations that belong to the core vocabulary, to peripheral nominations that concretize the meaning and make speech more accurate and diverse. For example, to think–to suppose–to consider–to estimate–to infer–to imply, etc.

Including verbs in a separate section can mostly reveal the movement from units that are most frequent in use to units that have a more private, individual meaning. Therefore, it is not surprising that among the first four hundred recorded verbs there will be about a hundred irregular verbs (their forms should be indicated in brackets after the indefinite form of the verb).

This will help navigate quickly when choosing the necessary form of the verb as the organizer of the sentence, first in the course of writing tasks, and then in real speech practice, since, as mentioned above, the order when fixing vocabulary in the dictionary leads to ordering their storage in long-term memory [15; 16; 17; 19].

The correct organization of the vocabulary in the mind of the learner is extremely important, since in the course of any speech act, the operations described occur, including the selection of lexical units, their comparison, combination, rearrangement, decision making, etc.

Maintaining an educational dictionary broken down into parts of speech makes it possible, as it were, to personally follow this process when compiling sentences - there is comparison, selection, combination, and decision-making, which occurs according to the grammatical rules of the language. Actually, to these two operations - the choice of words from the dictionary and the composition of messages according to the rules of the language [18, p.27].

Speaking about the compilation of sentences according to the rules of speech, one can identify another advantage of maintaining a training dictionary by parts of speech, which lies in the greater convenience of working with prepositions, especially when used with verbs. As you know, the meaning of verbs in the English language can change radically due to a change in the preposition, and these metamorphoses are much more convenient to follow

and learn if all the verbs are concentrated in one place, and not randomly scattered throughout the dictionary.

Effective perception and mastery of polysemy verbs in all meanings cannot be instantaneous, it will be gradual; however, the mandatory inclusion of them in educational dictionaries with the appropriate preposition and translation will be invaluable in their assimilation and subsequent use in speech [13].

Here one more circumstance must be taken into account: in the same meaning, the use of a verb with a preposition in English often corresponds to a non-prepositional use in Russian and vice versa Some verbs of the English language, in principle, do not have direct equivalents in Russian, Tajik , some have several meanings, the assimilation of each of which is necessary in order to approach mastering the skills and abilities of a full-fledged foreign language speech. Such lexical phenomena, as observations show much better traced and assimilated if they are broken down into separate parts of speech.

In addition, the reaction is much faster and more effective in the process of searching for a word when performing exercises on the differentiation of meanings, on determining lexical meanings by definition, and other lexical exercises. Another section of the dictionary - the last one - should be reserved for recording activated phraseological units and idiomatic expressions, including stable colloquial constructions.

This article reflects the lexical and grammatical compatibility of linguistic elements, which allows them to use as ready-made speech models. Such expressions and constructions include, for example, the following: to take a car/a bus/a train/ a plane; to be in time for come on time; to fall in love; it won't do that; you don't say so it doesn't matter, etc.

The perception and introduction of such expressions and constructions into the dictionary plays a significant role in the formation of communicative competence in language learning. The location at the end of the educational dictionary makes it possible to refresh their memory and use them in practice quickly, during dialogical work in the classroom or during direct communication in an English-speaking environment.

Depending on the type of teaching aid that is used in mastering a foreign language, there comes a time when it becomes necessary to use a common dictionary. This does not mean at all that from this moment there is no need to make entries in the educational dictionary. On the contrary, the use of a common vocabulary is more efficient if the found lexical unit is fixed as described above.

However, if the maintenance of the educational dictionary could partly take place in the classroom, then the use of a common English-Russian and Russian-English dictionary is confined exclusively to extracurricular activities, and therefore marks a new stage in language acquisition, involving an independent search and selection of meanings that

correspond to a particular context. A good dictionary, like a textbook, can be compared to a high-precision working tool, the quality of which ultimately determines the result of the time and effort spent. As for the electronic Internet dictionaries that are so popular in our time, their use, on the one hand, certainly saves search time, however, on the other hand, the word displayed on the site page, even in its many meanings, is perceived in isolation from the general treasury of the language, which is a good dictionary.

Leafing through it in search of the right word, can be stumbled upon something interesting and memorable, which means that when using a regular, non-electronic dictionary, the student is in closer contact with the lexical richness of the language.

And it's time to answer the question, in what cases and at what stage of mastering the language, the use of a common dictionary becomes an integral part of the educational process. The beginning of the systematic use of a common vocabulary in terms of the described approach should be timed to coincide with the completion of the basic level of language acquisition (Intermediate level) and the transition to the second level (Upper Intermediate level) [12, p.16].

By this time, students have a fairly high level of language competence, i.e., implicit knowledge of the language system, which allows them to be automatically used in speech. At the same time, at this stage, a fairly high level of linguistic intuition (of the first order) is noted.

All these parameters of language proficiency determine a new approach to working with a text, which includes, among other things, independent semantic of lexical units based on the context (as opposed to working on basic-level texts accompanied by a list of newly encountered lexical units).

If, when working with text, contextual semantisation is not possible, the use of a common dictionary is required (outside the classroom). Thus, work with the English-Russian dictionary is primarily necessary for the functional reading of educational texts - at first adapted with a progressively increasing complexity of the lexical and grammatical set of language tools, and then - non-adapted, original texts. In this kind of work, unfamiliar lexical units should not be fixed in no case, in a list with the subsequent finding of their values in a common dictionary outside the given context.

On the contrary, each of the words should be considered in the course of working on the text, looking in the dictionary for exactly the meaning that corresponds to its use in a given contextual situation. Naturally, in the process of using the English-Russian dictionary, one comes across words that correspond to a whole range of meanings. Such words should be recorded in the educational dictionary in the meaning in which they are used in the text, leaving room for other meanings that will be considered during lexical

analysis, during exercises and when using this word in speech practice. As for the Russian-English dictionary, its use is aimed at finding additional means of expression when performing creative written (or oral) tasks, if the available lexical unit does not have the unit or units necessary to formulate an idea. In principle, when performing such tasks, one should be focused on using the already existing arsenal of language tools - this is precisely the art of writing a story or report within the framework of the curriculum.

However, sometimes the lack of lexical material can be compensated by searching for the missing lexical item in the general dictionary. In this case, there is a certain risk, since from a series of data in the dictionary of values, a completely different value may be found that should be used in the message and which should have been selected. Errors of this kind happen, they can be corrected – that is not the point.

The point is to learn to respect the fact that not all concepts of one language can be literally expressed in another.

Nevertheless, it should be noted that, as observations show, lexical units meaning objects and qualities can be quite easily found and embedded in the created text. As for lexemes that mean actions or processes and perform a predicative function in an utterance, one must be very careful with them so as not to damage the semantic organism of the utterance as a whole.

Another side that motivates the independent search for additional lexical means may be the identification of an individual style of foreign language. This is a very important point, since each person has an individual style of speech with turns and expressions characteristic of him personally, which are most consistent with his inner world.

In the native language, the style of speech is formed as they grow older. When learning a foreign language - with the acquisition of the ability to think in a foreign language, which is accompanied by the variability in the use of language means. Therefore, it is quite natural at a certain stage of language learning to find parallels and correspondences between individual turns of native and foreign languages in order to use the latter in foreign language speech activity. These can be introductory words, phraseological turns, idiomatic expressions. Usually, finding and using them in written or oral speech is associated with the logic of the statement, so this work is extremely useful. The use of monolingual (explanatory) dictionaries becomes possible and highly desirable when two-thirds of the way to learning a language is already over; then, with sufficiently formed skills of speech activity, there is a need to improve these skills by expanding the vocabulary from core to peripheral vocabulary. In addition, monolingual dictionaries make it possible not to involve the use of the native language in the

process of selecting synonyms or interpreting words, but to achieve understanding exclusively within the framework of foreign language means.

Working with monolingual dictionaries is very useful, because in addition to the interpretation of lexical units, they give examples of the live use of each or almost each word in a sentence. The perception of such authentic examples makes an invaluable contribution to the development of speech skills and feelings. It is also interesting to note that the famous Hornby Dictionary, for example, takes into account the thematic principle of dictionary organization: consideration of the meanings of a number of generalizing nominations is accompanied by illustrations` indicating the designations of objects or phenomena that make up the topic.

Such illustrated "differentiations" can be found on many topics, for example, musical instruments, musical instruments, flowers, insects, wild animals, etc. Tasks referring to monolingual dictionaries can be very diverse; they are confined, as a rule, to extracurricular activities: the search for definitions, the addition of a synonymic series, the differentiation of meanings when using lexical units with prepositions in different meanings, the replacement of a sentence member indicated by a given word with an expression that has the same meaning, etc.

A monolingual dictionary can also be of great help for understanding the patterns of word formation, since, firstly, all lexical units on the pages of the dictionary are divided into syllables, and secondly, the meanings of words formed from the same roots with the help of affixes - suffixes and prefixes [12, p.12].

It is most rational to start working with a special terminological dictionary in order to master special professional vocabulary after studying the language system and mastering basic speech skills. In this case, based on the mastered language material and developed foreign language thinking, special vocabulary will be a natural addition, expanding

lexical possibilities when mastering a certain special topic for its professional use.

Special dictionaries exist for many areas of knowledge: physics and chemistry, medicine and pharmacology, economics and law. They are built on the same principle as ordinary bilingual dictionaries, with the only difference that the lexical material presented in them relates to a specific professional topic, making up a set of special terms. Provided that the language is spoken at an advanced level, the use of such a dictionary for mastering professional vocabulary or for translation work in any field will not be difficult: the language system formed in the mind will freely accept new lexical information, which will function perfectly in the general system of the language. It is another matter if the knowledge of the language system is the most superficial, as often the case when studying the "specialty language" in the first and second years of study at a non-linguistic university.

Classes in a special branch in foreign language practice are designed to deepen language skills, expand the intellectual sphere and create opportunities for the free use of special vocabulary in free foreign language speech activity. Working with special dictionaries can be of great help in this regard, since, using such a dictionary, it is not difficult to compose a lexical set necessary for studying a particular topic, conducting correspondence or negotiations.

In conclusion, it would be desirable to have one's own personal dictionary for recording special terms; unlike the personal educational dictionary discussed above, this dictionary may include a thematic set of special vocabulary, comments made on the topic, and other professional foreign language information. Working on foreign-language technical or special texts is inevitably associated with the use of dictionaries, so a personal dictionary can reduce the time spent to a minimum; in addition, a foreign term reviewed several times in the text and fixed is remembered faster and more firmly.

References:

1. Ashrapov, B.P. (2021). On the issue concerned with communicative culture and its impact on students` personal development. *Designing. An Experience. Result,* No.4. pp. 12-14.
2. Ashrapov, B.P. (2021). On the issue concerned with principles of interethnic tolerance formation of higher educational establishments students. *Designing. An Experience. Result,* No. 3. pp. 16-18.
3. Ashrapov, B.P. (2021). On the issue concerned with students` self-sufficient work organization in the educational process (based on credit tuition). *Designing. An Experience. Result,* No. 2. pp. 5-7.
4. Ashrapov, B.P. (2022). Effectiveness of video materials for foreign language teaching. *International Journal of Humanities and Natural Sciences,* 2022. No.4-1(67). pp.74-76.

Clarivate Analytics *indexed*

5. Ashrapov, B.P. (2022). Foreign Language Learning Strategies. *Tendencii razvitija nauki i obrazovanija.,* No. 85-5. pp. 64-66.

6. Ashrapov, B.P. (2023). Teaching foreign languages based on distance tuition system. *International Research Journal,* No. 2(128). – DOI 10.23670/IRJ.2023.128.1.

7. Ashrapov, B.P., & Dodokhojaeva P.I. (2021). On the issue concerned with communicative competence of students of foreign languages faculties. *Obrazovanie ot "A" do "Ja",* No.3, pp. 5-6.

8. Ashrapov, B.P., & Murodi, N. (2021). On the issue concerned with the notion of teaching methods in the didactical system. *Designing. An Experience. Result,* No. 4. pp. 15-17.

9. Ashrapov, B.P., & Rizoeva P.S. (2021). On the issue concerned with empirical research on distance tuition. *Obrazovanie ot "A" do "Ja",* No. 2. pp. 7-8.

10. Kamyanova, T.G. (2017). *English grammar. English Grammar: Theory and Practice Part II. Key exercises.* (p.368). Moscow: Eksmo.

11. Kamyanova, T.G. (2015). *Practical course of English language. The 9th edition.* Moscow: Slavonic publishing house.

12. Kamyanova, T.G. (2017). *Successful English. Systematic approach to learning English.* (p.480). Moscow: Eksmo.

13. Karlinsky, A.E. (1974). Some features of speech activity in the primary and secondary languages. *Study of verbal and mental activity,* pp. 55-65.

14. Rashidova, D.A., & Ashrapov, B.P. (2022). The Leader of the Nation Emomali Rahmon`s Contribution into Enactment of Programme of Foreign Languages. *Herald of the Pedagogical University*, No. 3(98), pp.85-88.

15. Samadova, S.S. (2022). Basic properties of the term and the concept of modern terminology. *Herald of the pedagogical university.* No. 6-2(101). pp. 114-119.

16. Samadova, S.S., & Khakimov, N.S. (2021). The problems of formation of syntax units related to computer terminology in Tajik language (with application of English language materials). *Biology and Integrative Medicine,* No. 6(53). pp. 319-324.

17. Samadova, S.S., Yuldosheva M.A., & Bobokalonova P.I. (2021). Mult - verb - words and its difficulties of learning. *Eurasian Scientific Association,* No. 12-4(82). pp. 300-302. – DOI 10.5281/zenodo.5834091.

18. Simonov, P.V. (1989). Beauty is the language of the superconscious. *Science and life,* No. 4. pp. 27-37.

19. Sodiqova, P.O., & Ashrapov, B.P. (2023). On the issue concerned with communicative culture formation of English language future teacher. *Theoretical and applied aspects in the field of humanities: Materialy V Mezhdunarodnoj nauchno-prakticheskoj konferencii, Rostov-na-Donu, 28 aprelja 2023 goda,* (pp. 202-204). *Rostov-na-Donu: Obshhestvo s ogranichennoj otvetstvennost`u "Izdatel`stvo Manuskript.*

Feada M. Samadbek
Alisher Navo'i Tashkent State University of Uzbek Language and Literature
Researcher
fada.mfada@gmail.com

DROP OF CONSONANT IN AFGHANISTAN UZBEK TAKHAR-ESHKAMESH DISTRICT DIALECT

Abstract: In this study, the dialect of Uzbek Turks living within the borders of Eshkamesh district of Takhar province in the Northeast Region of Afghanistan was examined. In the study, the Uzbek dialect spoken in this field was examined in terms of phonetics, based on the compilations made from the Eshkamesh district of Takhar province.

As it is known, the dialect studies are based on sound, shape, word, etymology, etc. of historical or contemporary dialects of the Turkish language. It can give important clues in solving some of the problems encountered in the subject. Therefore, this study is of great importance in terms of Turkish language.

It is also a fact that the dialects spoken in this region are gradually disappearing due to the advancement of technology and the influence of the languages that dominate the region. Therefore, this study is of particular importance in terms of examining the Turkish dialects spoken in Afghanistan and writing them down with scientific methods.

In the transcription of the compiled sound recordings, the system of signs accepted by the Turkish Language Institution, which provides a detailed display of the phonetic values of the sounds, was used. The written texts were then examined in terms of sound and morphology. The simultaneous grammar method was used in the study.

Key words: Afghanistan, Uzbek language, Eshkamesh district, dialect.
Language: English
Citation: Samadbek, F. M. (2023). Drop of consonant in Afghanistan Uzbek Takhar-Eshkamesh district dialect. ISJ Theoretical & Applied Science, 06 (122), 90-92.
Soi: http://s-o-i.org/1.1/TAS-06-122-17   Doi: crossref https://dx.doi.org/10.15863/TAS.2023.06.122.17
Scopus ASCC: 1200.

Introduction

Consonants are mainly divided into two as vibratory and non-vibratory consonants. The waves of vibrating consonants are harmonic, just like vowels. Their vibratory and harmonic nature is related to the activation of the vocal cords, in other words, to their vibration. Vibrant sounds, whether vowels or consonants, are also called tonal sounds, which are among grammatical terms. All vowels and tonal consonants derive their sound from the vocal cords. Vowels and tonal consonants; they begin to form when the air flow from the lungs hits the vocal cords and starts vibrating the vocal cords at the same time. In other words, the airflow that makes the vocal cords vibrate is now a tan airflow as soon as it completes its journey between the vocal cords. During the formation of all vowels and tonal consonants, the vocal cords always vibrate the same number of times, for example, on average, 100 times per second for men, 200 times per second for women, and 400 times per second for children [Çoşkun 1999: 46] .

The consonants of the dialect of Eshkamesh county can be classified as follows.
A) Voiced and voiceless consonants
1. Voiced consonants: /b/, /c/, /d/, /g/, /ǵ/, /ḡ/, /ġ/, /ğ/, /j/, /l/, /m/, /n/, /ŋ/, /r/, /v/, /w/, /y/, /z/.
2. Voiceless consonants: /ç/, /f/, /h/, /ḥ/, /ḫ/, /k/, /ḳ/, /ḱ/, /ḵ/, /p/, /s/, /ş/, /t/.
B) Consonants according to their structure:
1. Double-lip consonants: /b/, /p/, /m/, /w/.
2. Dental-lip consonants: /f/, /v/.
3. Dental consonants: /d/, /t/, /n/, /s/, /z/.

4. Palatal-dental consonants: /c/, /ç/, /j/, /ş/.

5. Anterior palatal consonants: /g/, /ǵ/, /k/, /ḱ/, /l/, /r/, /y/.

6. Middle palate consonants: /ḡ/, /k̲/.

7. Posterior palate consonants: /ġ/, /ğ/, /ḥ/, /ḫ/, /ḳ/, /ŋ/.

8. Throat consonants: /h/.

The following consonant drop has been determined in the dialect of the Uzbeks living in the Eshkamesh district of Takhar province.

Drop of /s/:

It occurs in three examples: küreşám (<küreş-se-m) "if i wrestle", maġıdga (<masġid-ga) "to mosque", ḳay-yerge (<ḳaysı-yerge) "to where".

Drop of /t/:

Usually in the quote words this event seen, in Turkish words as it can be seen the /t/ next to the (k, l, t, r, y) consonants is dropped. In borrowed words, it is seen that the /t/ consonant next to the consonants (s, ş, ḫ, f) is dropped: kórínáyaḳan (<körün-e yat-ḳan) "appearing", ḳos (<ḳost) "place name", ālmış (<altmış) "sixty", aytım (<ayt-tı-m)" I told", aysak (<ayt-sak) "if we say".

Drop of /d/:

In the following words an event is seen and not permanent: ziyātar (<ziyād-tar) "more", şāmamu_táyin (<şah mahmud de-y-in) "Like Shah Mahmud", nurudini (<nurid-din-ni) "Nuriddin's", mózúr (<mózdúr) "employee", moysápílerini (<moysápíd-ler-i-ni) "the elders", ḳocabavadin (<ḳocabahavaddin) "place name".

Drop of /ğ/:

Ulu (<oğulu) "her son", toru (<toğru) "corrent".

Drop of /ḫ, h/:

In Arabic and Persian borrowed words ḫ, h consonants are usually dropped. This event is seen at the beginning, middle and end of the word: ḳandaar (<ḳandahar) "place name", ḳarargaga (<ḳarargah-ga) "to headquarters", ḫanavala (<ḫana-valah) "married", acı (<hâci) "pilgrim".

Drop of /ḳ, k/:

When the Dative suffix is used for a word that usually ends with /ḳ/ or /k/ consonants, one of the twinned consonants is dropped. It is also seen that the /k/ consonant falls before the /t/ consonant or between two vowels in some borrowed words: ḳışlaḳa (<ḳışlaḳ-ḳa) "to village", ḳoturbılaḳa (<ḳoturbulaḳ-ḳa) "place name", árálıḳa (<aralıḳ-ḳa) "to middle", askerlike (<askerlik-ke) "to military service", ineke (<inek-ke) "to the cow" eşeke (<eşek-ke) "to the donkey".

Drop of /l/:

This event, which is one of the most chrysteristic features of the dialect of Eshkamesh district of Tahkar province, is mostly seen in the /l/ consonants in the verb bases: ḳamadı

(<ḳal-ma-dı) "no more", ḳaptı (<ḳal-ıp-tı) "left", ḳı (<ḳıl) "do", ḳığanım (<ḳıl-gan-ı-m) "i did", ḳımayman (ḳılma- y-man) "i won't", âŋar (<âl-ı-ŋ-lar) "take it", apkeŋer (<al-ı-p kel-i-ŋ-ler) "bring it", appardım (<al-ı-p bar-dı-m) "I transferred", amasa (<al-maz-sa) "if he/she doesn't take".

Drop of /n/:

When the load case suffix /-ni/ is added to the end of the word or suffix ending with /n/ consonant, the /n/ consonant of the load case suffix is dropped. This situation is almost certain. In addition, it is rarely seen that the /n/ consonant falls in and at the end of the word: ma~şunça (<muna-şu-n-ça) "this much", bår~eke (<bar eken) "there is", ḳırmānı (<ḳırman-nı) "its blend", soralmaġanı (<sor-a al-ma-gan-nı) "that he/she didn't ask", tıramanı (<tirah-mah-nı) "the autumn".

Drop of /ŋ/:

This is detected in the word of maa (< maŋa < menge) "to me".

Drop of /r/:

In the dialect of Eshkamesh district of Takhar province, this event is abundantly seen both in Turkish affixes and words, and in Arabic and Persian borrowed words: ḳalasıla (<ḳal-ası-lar) "you will stay", ḳoḫsaŋ (<ḳork-sa-ŋ) "if you will be afraid", ḳışla (<ḳeyş-ler) "relatives", abdıraman (<abd-ur-rahman) "noun", ágá (<agar) "if", bege (<bu yer-ge) "here", gitegene (<gart-tek-gene) "a little", jege (<yer-ge) "to the ground".

Drop of /m/:

This is a sound phenomenon seen in words of havarça (<hamvar-ça) "flat ground", top~unan (<top munan) "with the ball", bilimen (<bil-me-y-men) "I don't know ".

Drop of /y/:

ḳa~erge (<ḳa-yer-ge) "To where", amneat (<ámniyet) "safety", ayta~atır (<ayt-a yabtır) "says", baraaptı (<bar-a yap-tı) "is coming", beşiz (<beş yüz) "five hundred",keleatır (< kel-e yap-tır) "coming", uleatka (<ulayat-ka) "to the province", yeleneatır (<yelen-e-yaptır) "pleading", áğá~innarğa (<ağa-ini-ler-ge) "to brothers", şörden (<şu-yer-den) "from here", şörge (<şu-yer-ge) "to there", üçüz (<üç yüz) "three hundred".

Drop of /z/:

This is an event seen in the word of izet (<izzet) "respect".

Drop of /ع/ "ayın":

The sounds of the (ع) "ayın" in words borrowed from Arabic and Persian fall in many words [: faal (<faʾal) "active", tazaru (<tazarruʾ) "entreaty", şáfi (<şafiʾ) "noun", saat (<sâʾt) "clock", mavzunı (<mavzuʾnı) "the subject".

The sound of (ع) "ayın" also seen that is preserved in some words: maʿlım (<maʿllim) "teacher", maʿlımat (<maʿlumat) "information", masʿut "noun".

References:

1. Coşkun, V. (1999). "Türkiye Türkçesinde ünlüler ve ünsüzler." *TDAY Belleten, S* 42 (1999).

2. AMİNİ, M. K. (2013). *A collection of poems the voice of exile,* DOSTAN, press Mazar-e-Sharif

3. KHAYRİ, A. (2013). *"Language Policies in Afghanistan",* Retrieved 16.01.2014 from https://guneyturkistan.wordpress.com/2013/07/26/LanguagePoliciesinAfghanistan

4. LABİB, M. A. (2006). My feelings, my worries*, collection of peoms*, Mazar-e-Sharif, Bakhtiyar civilaztion and pulishing Assiciation.

5. TURAN, A. (1999*). The sound of hearts, vulume I, Pishawar, Assosiation,* Makhdumqulı Firaqi publication.

6. YARQIN, H. (2010). "Kronology of Afganistan rhetoric prose", https://cenubiturkistan.wordpress.com/2010/05/11/4.05.2015

Contents

17. **Samadbek, F. M.**   90-92
     Drop of consonant in Afghanistan Uzbek Takhar-Eshkamesh district dialect.

International Scientific Journal
Theoretical & Applied Science
www.T-Science.org

Scientific publication

«ISJ Theoretical & Applied Science, USA» - Международный научный журнал зарегистрированный во Франции, и выходящий в электронном и печатном формате. **Препринт** журнала публикуется на сайте по мере поступления статей.

Все поданные авторами статьи в течении 1-го дня размещаются на сайте **http://T-Science.org**.

Печатный экземпляр рассылается авторам в течение 3 дней после 30 числа каждого месяца.

Импакт фактор журнала

Impact Factor	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
JIF		1.500								
ISRA (India)		1.344				3.117	4.971		6.317	
ISI (Dubai, UAE)	0.307	0.829							1.582	
GIF (Australia)	0.356	0.453	0.564							
SIS (USA)	0.438	0.912								
РИНЦ (Russia)		0.179	0.224	0.207	0.156	0.126		3.939	0.671	
ESJI (KZ)		1.042	1.950	3.860	4.102	6.015	8.716	8.997	9.035	8.771
SJIF (Morocco)		2.031				5.667			7.184	
ICV (Poland)		6.630								
PIF (India)		1.619	1.940							
IBI (India)			4.260							
OAJI (USA)						0.350				

Clarivate Analytics **indexed**

Deadlines

	Steps of publication	Deadlines	
		min	max
1	Article delivered	-	
2	Plagiarism check	1 hour	2 hour
3	Review	1 day	30 days
4	Payment complete	-	
5	Publication of the article	1 day	5 days
	publication of the journal	30th of each month	
6	doi registration	before publication	
7	Publication of the journal	1 day	2 days
8	Shipping journals to authors	3 days	7 days
9	Database registration	5 days	6 months

INDEXING METADATA OF ARTICLES IN SCIENTOMETRIC BASES:

International Scientific Indexing ISI (Dubai, UAE)
http://isindexing.com/isi/journaldetails.php?id=327

Cl.An. // THOMSON REUTERS, EndNote (USA)
https://www.myendnoteweb.com/EndNoteWeb.html

Research Bible (Japan)
http://journalseeker.researchbib.com/?action=viewJournalDetails&issn=23084944&uid=rd1775

Scientific Object Identifier (SOI)
http://s-o-i.org/

РИНЦ (Russia)
http://elibrary.ru/contents.asp?issueid=1246197

Google Scholar (USA)
http://scholar.google.ru/scholar?q=Theoretical+t-science.org&btnG=&hl=ru&as_sdt=0%2C5

Turk Egitim Indeksi (Turkey)
http://www.turkegitimindeksi.com/Journals.aspx?ID=149

Directory of abstract indexing for Journals
http://www.daij.org/journal-detail.php?jid=94

DOI (USA)   http://www.doi.org

CrossRef (USA)   http://doi.crossref.org

Open Academic Journals Index (Russia)
http://oaji.net/journal-detail.html?number=679

Japan Link Center (Japan)
https://japanlinkcenter.org

Kudos Innovations, Ltd. (USA)
https://www.growkudos.com

AcademicKeys (Connecticut, USA)
http://sciences.academickeys.com/jour_main.php

Cl.An. // THOMSON REUTERS, ResearcherID (USA)
http://www.researcherid.com/rid/N-7988-2013

RedLink (Canada)
https://www.redlink.com/

TDNet
Library & Information Center Solutions (USA)
http://www.tdnet.io/

RefME (USA & UK)
https://www.refme.com

Collective IP (USA)
https://www.collectiveip.com/

PFTS Europe/Rebus:list (United Kingdom)
http://www.rebuslist.com

Korean Federation of Science and Technology Societies (Korea)
http://www.kofst.or.kr

Sherpa Romeo (United Kingdom)
http://www.sherpa.ac.uk/romeo/search.php?source=journal&sourceid=28772

Cl.An. // THOMSON REUTERS, ORCID (USA)
http://orcid.org/0000-0002-7689-4157

Yewno (USA & UK)
http://yewno.com/

Stratified Medical Ltd. (London, United Kingdom)
http://www.stratifiedmedical.com/

THE SCIENTIFIC JOURNAL IS INDEXED IN SCIENTOMETRIC BASES:

Advanced Sciences Index (Germany)
http://journal-index.org/

SCIENTIFIC INDEXING SERVICE (USA)
http://sindexs.org/JournalList.aspx?ID=202

Clarivate Analytics **indexed**

Global Impact Factor (Australia)
http://globalimpactfactor.com/?type=issn&s=2308-4944&submit=Submit

CiteFactor (USA) Directory Indexing of International Research Journals
http://www.citefactor.org/journal/index/11362/theoretical-applied-science

JIFACTOR
http://www.jifactor.org/journal_view.php?journal_id=2073

Eurasian Scientific Journal Index (Kazakhstan)
http://esjindex.org/search.php?id=1

SJIF Impact Factor (Morocco)
http://sjifactor.inno-space.net/passport.php?id=18062

InfoBase Index (India)
http://infobaseindex.com
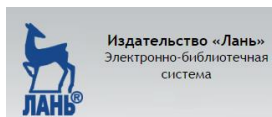
Электронно-библиотечная система «Издательства «Лань» (Russia)
http://e.lanbook.com/journal/

International Society for Research Activity (India)
http://www.israjif.org/single.php?did=2308-4944

International Institute of Organized Research (India)
http://www.i2or.com/indexed-journals.html

Journal Index
http://journalindex.net/?qi=Theoretical+%26+Applied+Science

Open Access Journals
http://www.oajournals.info/

Indian citation index (India)
http://www.indiancitationindex.com/

Index Copernicus International (Warsaw, Poland)
http://journals.indexcopernicus.com/masterlist.php?q=2308-4944

Printed «Theoretical & Applied Science»

Clarivate
Analytics **indexed**