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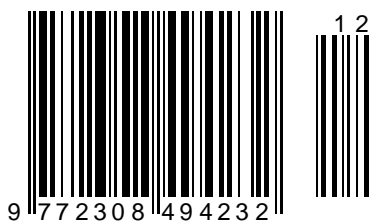
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Article



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

Abstract: The results of the computer calculation of air flow around the airfoils having the names beginning with the letter W 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

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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 [1-39]. In this work,

the airfoils having the names beginning with the letter *W* 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
WACO COOTIE	8.46% at 30.0% of the chord	6.28% at 40.0% of the chord	0.8839%	0.5%
WASP (smoothed)	9.35% at 27.1% of the chord	2.98% at 37.9% of the chord	0.794%	0.023%
WB-135-35 13,5% smoothed	13.55% at 25.0% of the chord	3.75% at 50.0% of the chord	1.0142%	0.0%
WB-140-35-FB 14%	13.93% at 35.0% of the chord	3.7% at 45.0% of the chord	1.096%	0.5%
Westphal 18105	10.5% at 30.0% of the chord	1.75% at 30.0% of the chord	1.7056%	0.2%
WHITCOMB INTEGRAL SUPERCRITICAL	10.96% at 35.0% of the chord	2.29% at 82.5% of the chord	1.9733%	0.05%
WOODSTOK	5.7% at 20.0% of the chord	7.85% at 50.0% of the chord	1.3239%	0.3%
WORTMANN FX 049-915	14.72% at 37.1% of the chord	5.82% at 37.1% of the chord	1.4886%	0.0%
WORTMANN FX 05-188	18.82% at 37.1% of the chord	2.62% at 50.0% of the chord	1.6214%	0.0%
WORTMANN FX 05-191	19.08% at 37.1% of the chord	2.62% at 50.0% of the chord	1.3765%	0.0%
WORTMANN FX 057-816	16.18% at 37.1% of the chord	5.13% at 37.1% of the chord	1.5276%	0.0%
WORTMANN FX 05-H-126	12.61% at 37.1% of the chord	4.4% at 37.1% of the chord	0.8007%	0.0%
WORTMANN FX 082-512	11.8% at 25.0% of the chord	4.16% at 62.9% of the chord	1.2991%	0.0%
WORTMANN FX 08-S-176	17.61% at 37.1% of the chord	5.66% at 37.1% of the chord	0.6544%	0.0%
WORTMANN FX 2	20.45% at 43.5% of the chord	3.77% at 69.1% of the chord	1.601%	0.0%
WORTMANN FX 3	19.98% at 50.0% of the chord	4.16% at 75.0% of the chord	1.5151%	0.0%
WORTMANN FX 60-126	12.59% at 27.9% of the chord	3.56% at 56.5% of the chord	1.0934%	0.0%
WORTMANN FX 60-126-1	12.58% at 30.0% of the chord	3.93% at 50.0% of the chord	1.2355%	0.0%
WORTMANN FX 61-140	14.0% at 30.0% of the chord	2.4% at 30.0% of the chord	1.2795%	0.0%
WORTMANN FX 62-K-131	13.09% at 40.2% of the chord	3.89% at 53.3% of the chord	0.5774%	0.0%
WORTMANN FX 62-K-131-17	13.16% at 40.0% of the chord	3.92% at 50.0% of the chord	0.903%	0.0%
WORTMANN FX 63-100	10.1% at 30.0% of the chord	4.34% at 50.0% of the chord	1.1317%	0.0%
WORTMANN FX 63-120	12.0% at 30.0% of the chord	5.31% at 60.0% of the chord	1.2814%	0.0%
WORTMANN FX 63-137	13.71% at 30.9% of the chord	5.97% at 53.3% of the chord	1.336%	0.0%
WORTMANN FX 66-17A-175	17.52% at 33.9% of the chord	4.16% at 40.2% of the chord	0.581%	0.0%
WORTMANN FX 66-17AII-182	18.84% at 35.0% of the chord	3.65% at 40.1% of the chord	0.9998%	0.08%
WORTMANN FX 71-089A	8.94% at 22.2% of the chord	0.0% at 0.0% of the chord	1.6569%	0.0%
WORTMANN FX 71-120	11.99% at 25.0% of the chord	0.0% at 0.0% of the chord	2.2348%	0.0%
WORTMANN FX 72-MS-150A	15.01% at 37.1% of the chord	8.34% at 46.7% of the chord	1.6172%	0.0%
WORTMANN FX 72-MS-150B	15.01% at 37.1% of the chord	9.72% at 46.7% of the chord	1.498%	0.0%
Wortmann FX 74-CL5-140 Modified	13.08% at 27.1% of the chord	9.72% at 41.6% of the chord	0.985%	0.012%
WORTMANN FX 77-W-153	15.26% at 27.9% of the chord	4.49% at 27.9% of the chord	1.5674%	0.181%
WORTMANN FX 77-W-258	26.15% at 30.9% of the chord	4.34% at 27.9% of the chord	7.0492%	1.219%
WORTMANN FX 77-W-343	34.41% at 34.0% of the chord	4.7% at 25.0% of the chord	11.4941%	4.223%
WORTMANN FX 79-K-144-17	14.39% at 43.5% of the chord	2.81% at 40.2% of the chord	0.9631%	0.2%
WORTMANN FX L V-152	15.3% at 34.0% of the chord	0.0% at 0.0% of the chord	0.9243%	0.04%
WORTMANN FX M2	8.4% at 19.6% of the chord	4.78% at 30.9% of the chord	1.5513%	0.0%
WORTMANN FX-L-142-25	14.16% at 30.0% of the chord	0.0% at 0.0% of the chord	1.2879%	0.0%
WORTMANN M 2	8.23% at 20.0% of the chord	4.74% at 30.0% of the chord	1.3547%	0.25%
WRIGHT-6	13.6% at 30.0% of the chord	7.17% at 30.0% of the chord	1.5465%	0.0%
WRIGHT1	13.37% at 30.0% of the chord	7.06% at 40.0% of the chord	1.7369%	0.21%

Note: Westphal 18105 (F. Westphal (Germany)), Wortmann FX 74-CL5-140 Modified (high lift airfoil).

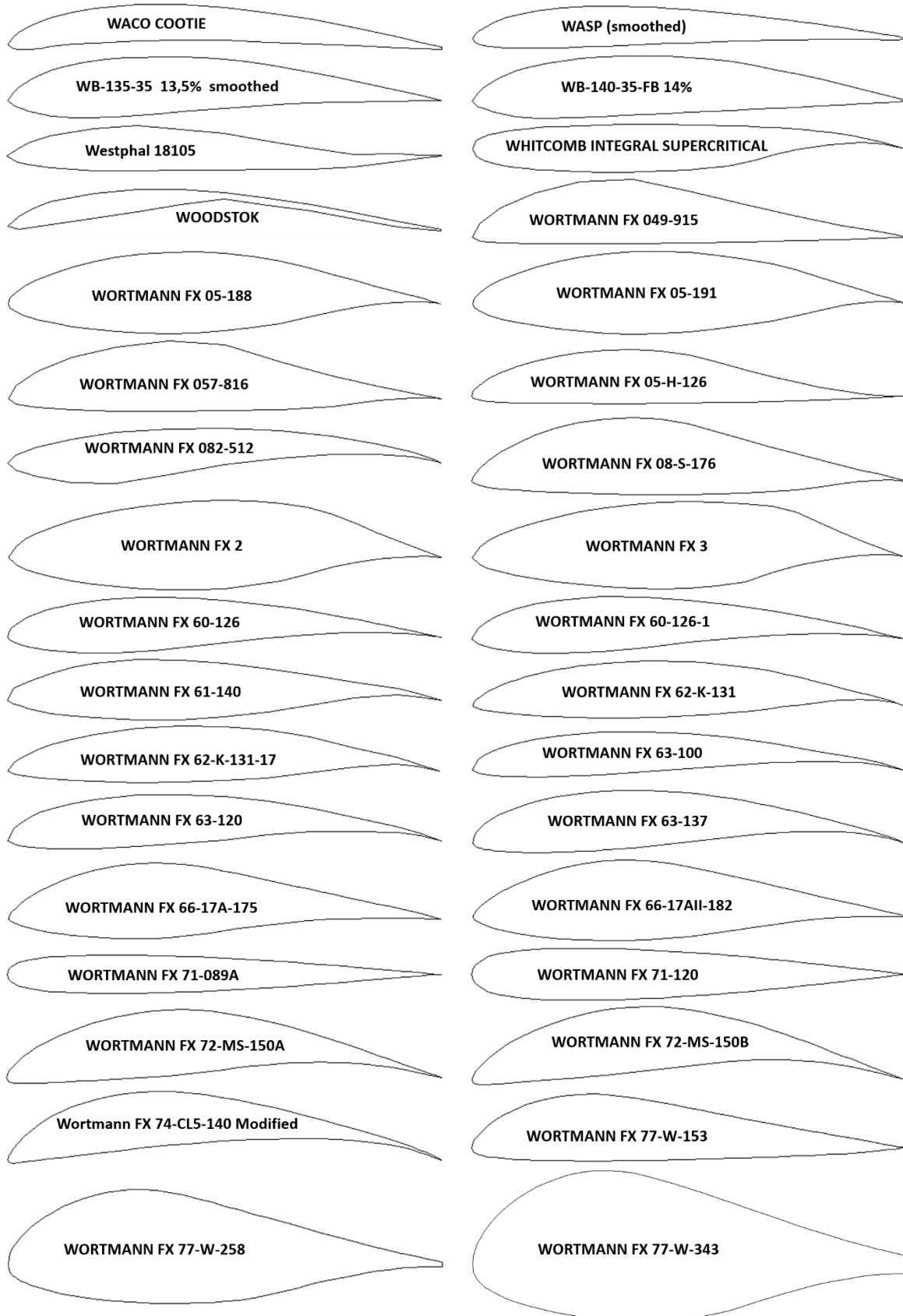
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Table 2. The geometric shapes of the airfoils in the cross section.

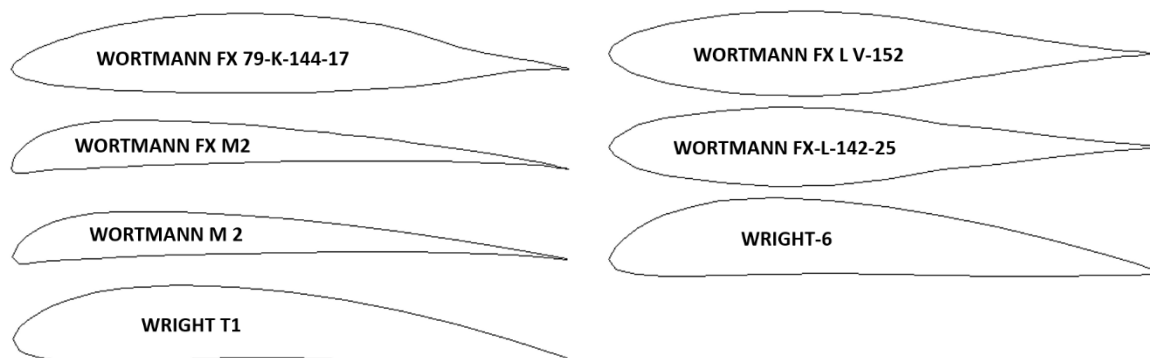


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Results and discussion

The calculated pressure contours on the surfaces of the airfoils at different angles of attack are presented in the Figs. 1-41. 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.

41 WORTMANN type airfoils and a number of others were considered. All airfoils are asymmetrical, with the exception of WORTMANN FX 71-089A, WORTMANN FX 71-120, WORTMANN FX L V-152 and WORTMANN FX-L-142-25.

The WORTMANN FX 77-W-343 airfoil has a maximum thickness of 34.41%. The minimum thickness of 5.7% is determined for the WOODSTOK airfoil. The maximum camber of 9.72% is determined for the WORTMANN FX 72-MS-150B and Wortmann FX 74-CL5-140 Modified airfoils. The minimum camber of 0.0% is defined for the asymmetric airfoils. The largest leading edge radius of 11.4941% was noted for the WORTMANN FX 77-W-343 airfoil, and the minimum radius of 0.5774% was noted for the WORTMANN FX 62-K-131 airfoil. The largest thickening of the trailing edge of 4.223% was performed in the WORTMANN FX 77-W-343 airfoil. There is no thickening on the trailing edge for most airfoils.

Let us consider the aerodynamic characteristics of the airfoils described above.

Due to the curved geometric shape of the WOODSTOK airfoil, the pressure drop (positive and

negative) on the upper and lower surfaces is negligible when the airplane descent. However, during the airplane climb on the leading edge of the airfoil, significant negative pressures arise, causing a large drag. The concave lower surface of the airfoil contributes to the formation of gradients of both positive and negative pressures.

The convex upper and lower surfaces of the WORTMANN FX 62-K-131 airfoil, when the airplane climb, lead to an increase in the drag on the leading edge, compared with the WOODSTOK airfoil. The airplane descent at an angle of attack of -15 degrees leads to a 3-fold pressure difference on the surfaces of the WORTMANN FX 62-K-131 airfoil.

The pressure drop on the surfaces of the WORTMANN FX 72-MS-150B airfoil during horizontal flight and descent of the airplane is almost the same. When climb, the pressure difference reaches a value of 2.5 times, which is the minimum value of the above-considered airfoils.

However, a similar configuration of the Wortmann FX 74-CL5-140 Modified airfoil, but with a smaller thickness, increases the pressure difference on the upper and lower surfaces by almost 2 times.

The WORTMANN FX 77-W-343 airfoil ensures the same pressure difference on the upper and lower surfaces during horizontal flight and climb of the airplane. The airplane descent with this airfoil of the wing leads to an increase in the drag by 2.5 times, compared with the airplane climb.

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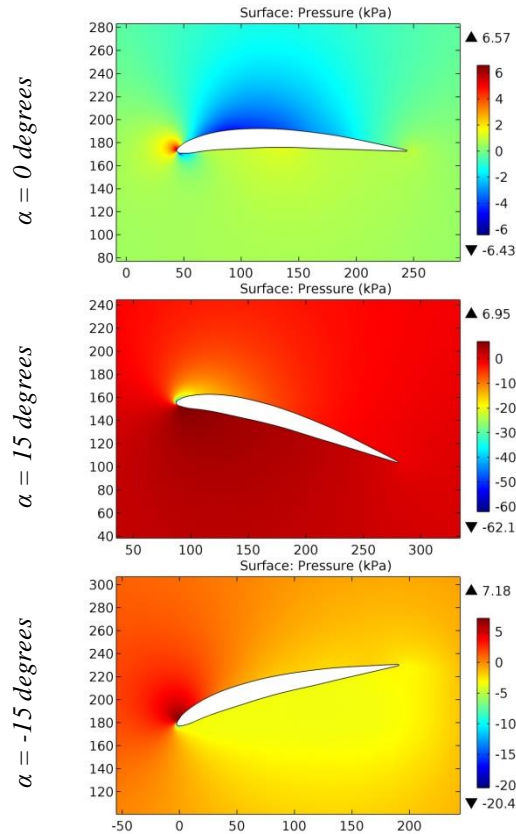


Figure 1. The pressure contours on the surfaces of the WACO COOTIE airfoil.

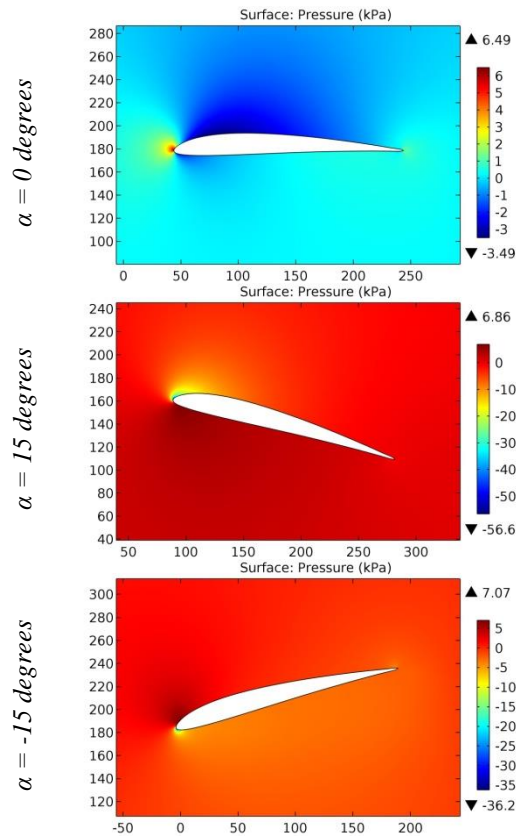


Figure 2. The pressure contours on the surfaces of the WASP (smoothed) airfoil.

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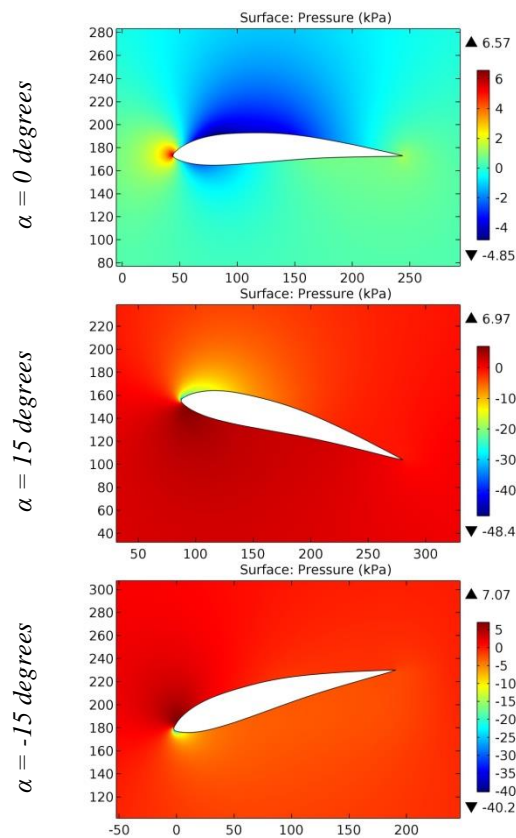


Figure 3. The pressure contours on the surfaces of the WB-135-35 13,5% smoothed airfoil.

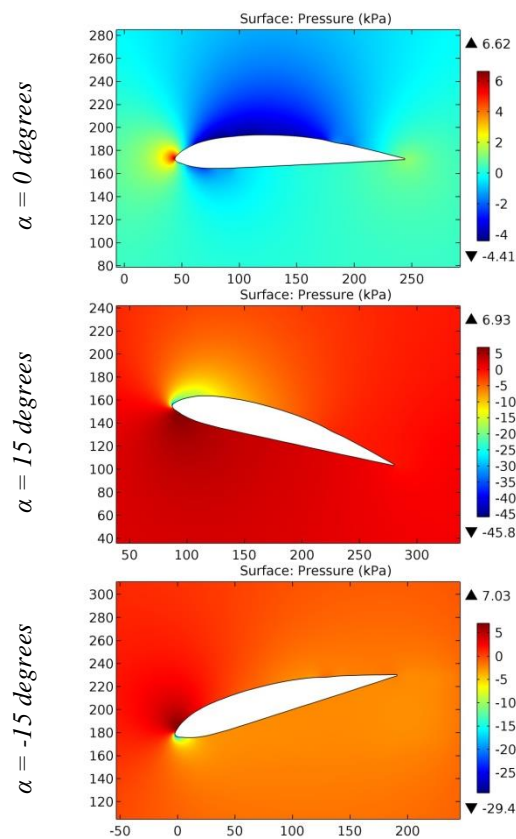


Figure 4. The pressure contours on the surfaces of the WB-140-35-FB 14% airfoil.

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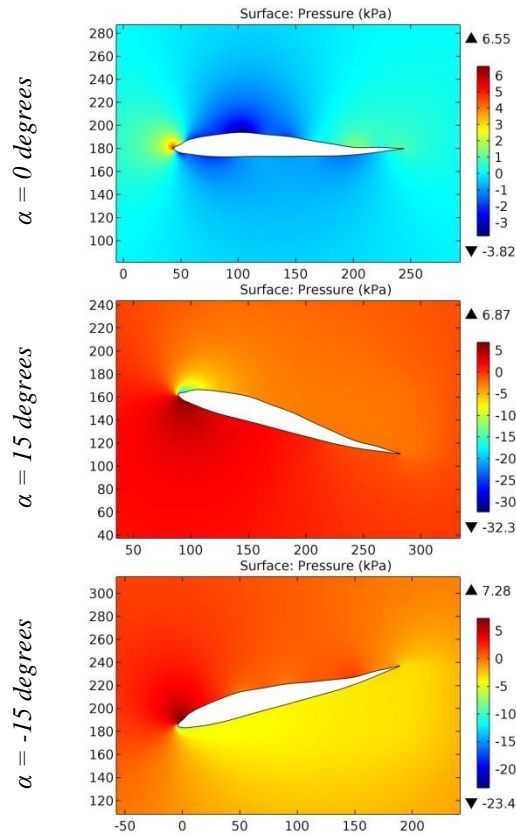


Figure 5. The pressure contours on the surfaces of the Westphal 18105 airfoil.

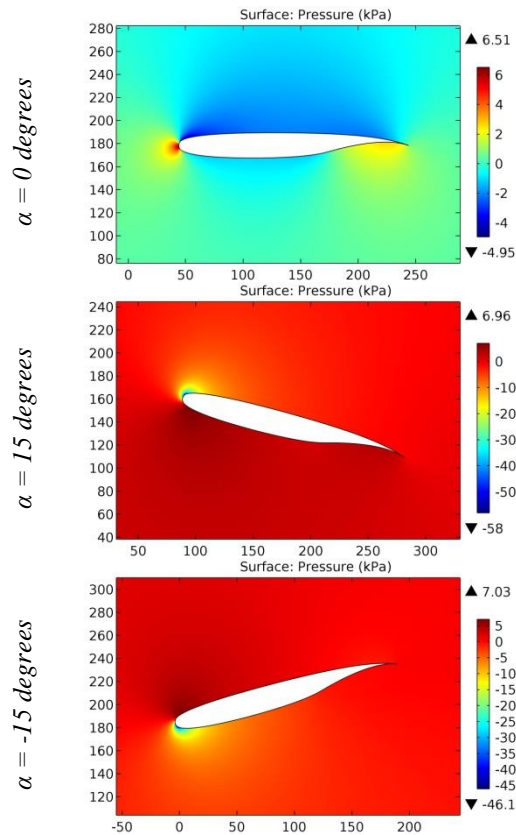


Figure 6. The pressure contours on the surfaces of the WHITCOMB INTEGRAL SUPERCRITICAL airfoil.

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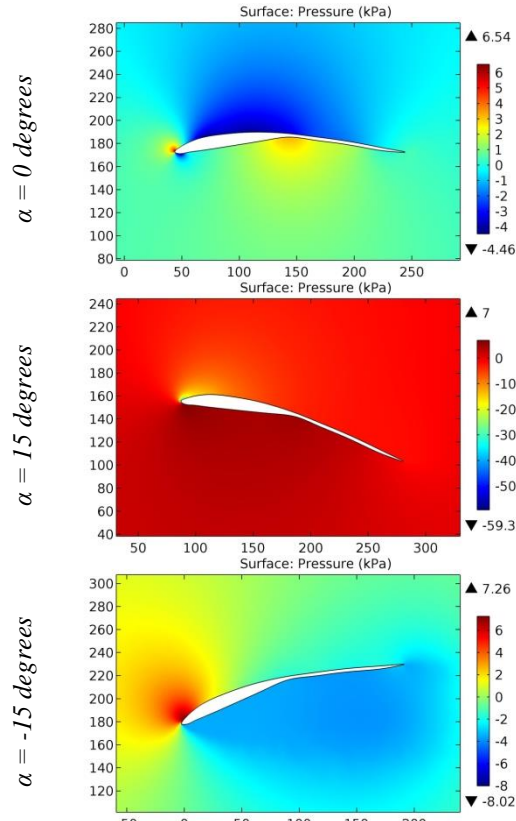


Figure 7. The pressure contours on the surfaces of the WOODSTOK airfoil.

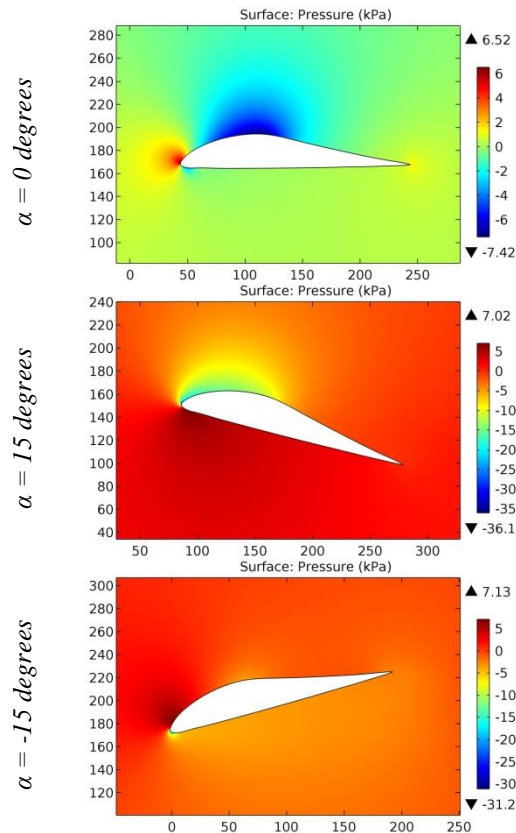


Figure 8. The pressure contours on the surfaces of the WORTMANN FX 049-915 airfoil.

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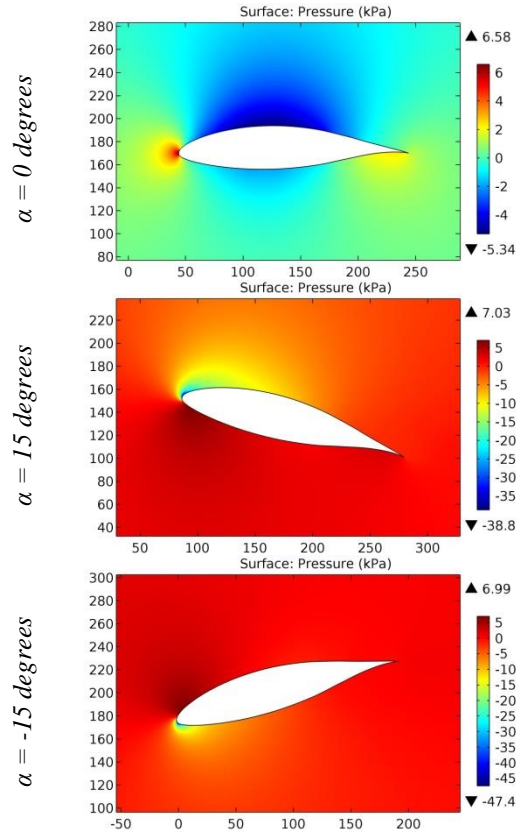


Figure 9. The pressure contours on the surfaces of the WORTMANN FX 05-188 airfoil.

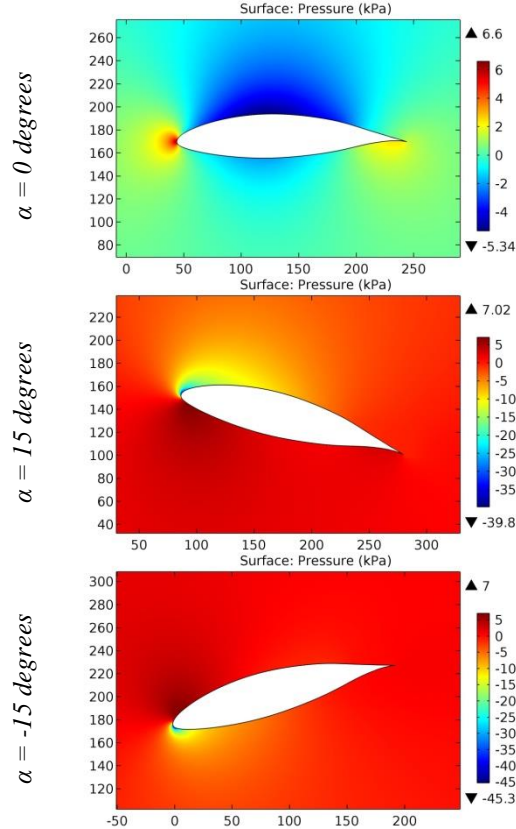


Figure 10. The pressure contours on the surfaces of the WORTMANN FX 05-191 airfoil.

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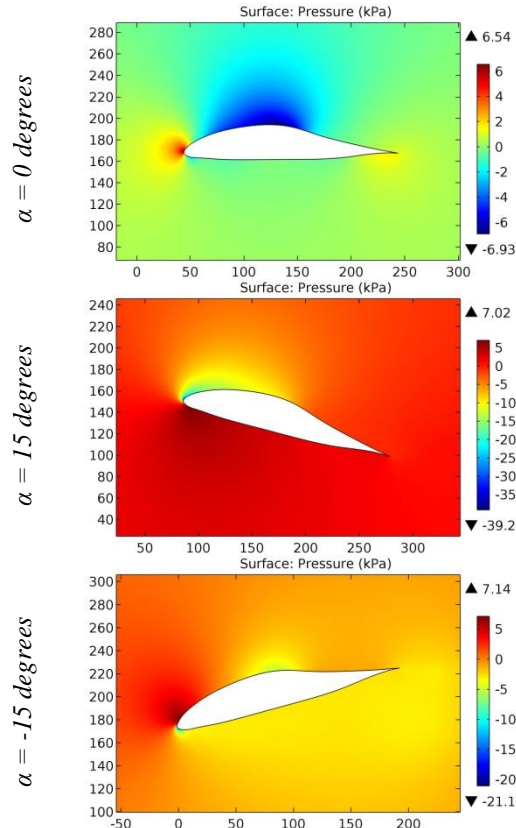


Figure 11. The pressure contours on the surfaces of the WORTMANN FX 057-816 airfoil.

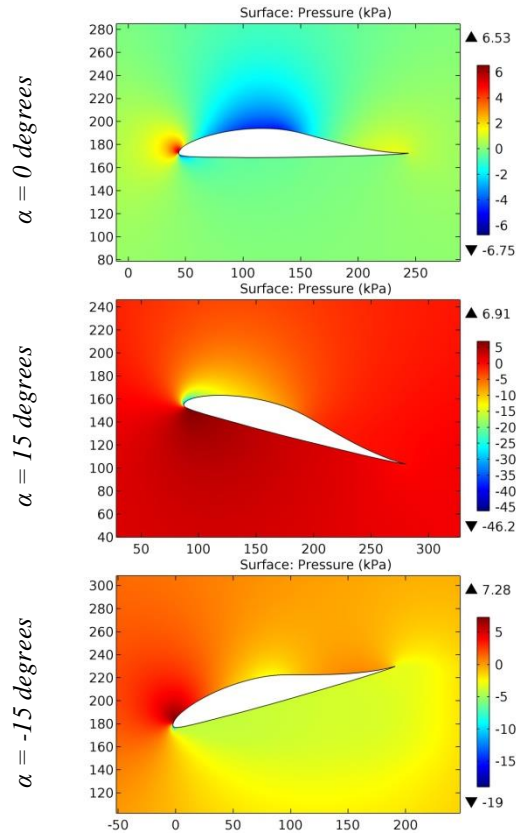


Figure 12. The pressure contours on the surfaces of the WORTMANN FX 05-H-126 airfoil.

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GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

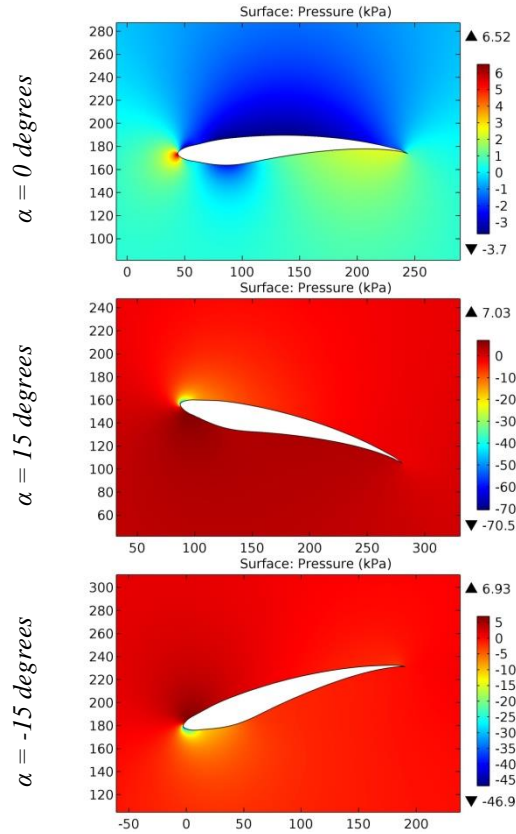


Figure 13. The pressure contours on the surfaces of the WORTMANN FX 082-512 airfoil.

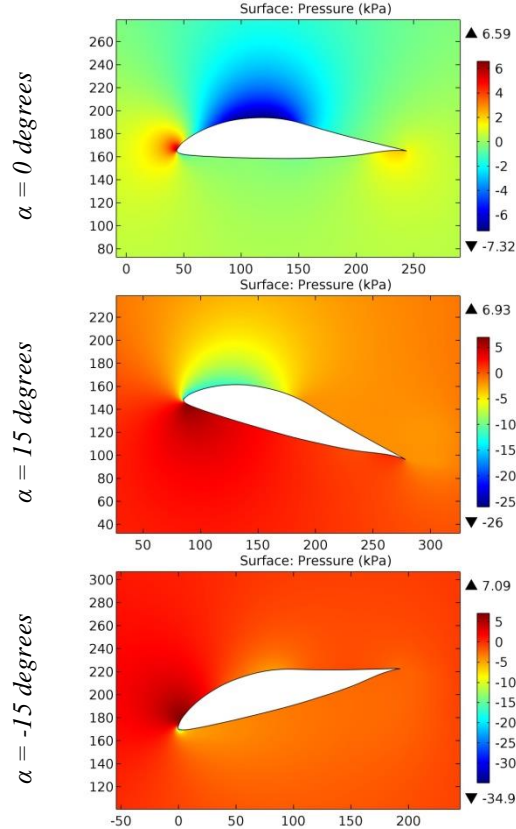


Figure 14. The pressure contours on the surfaces of the WORTMANN FX 08-S-176 airfoil.

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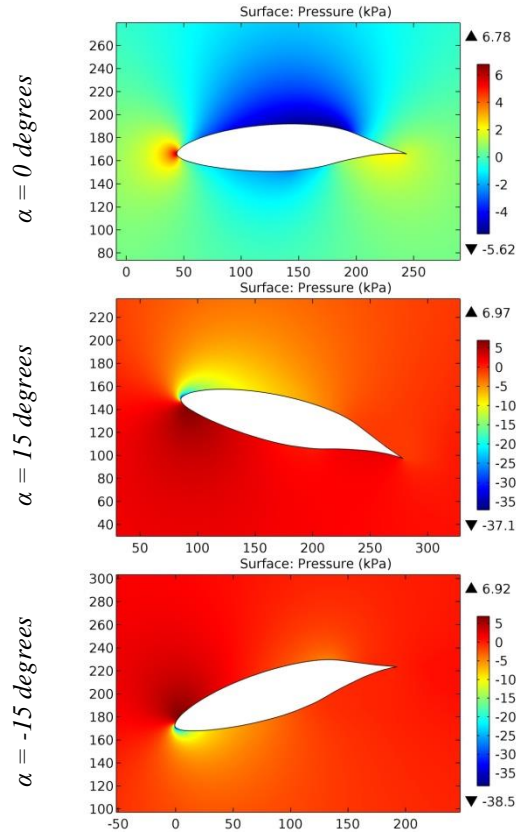


Figure 15. The pressure contours on the surfaces of the WORTMANN FX 2 airfoil.

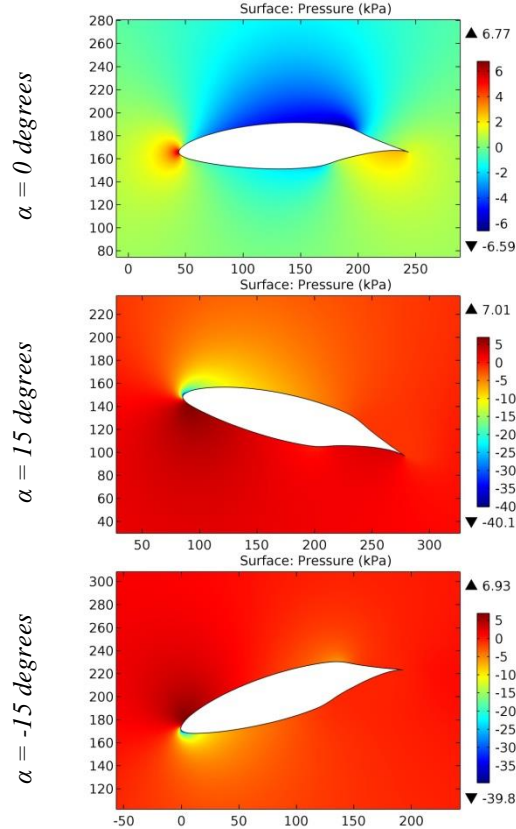


Figure 16. The pressure contours on the surfaces of the WORTMANN FX 3 airfoil.

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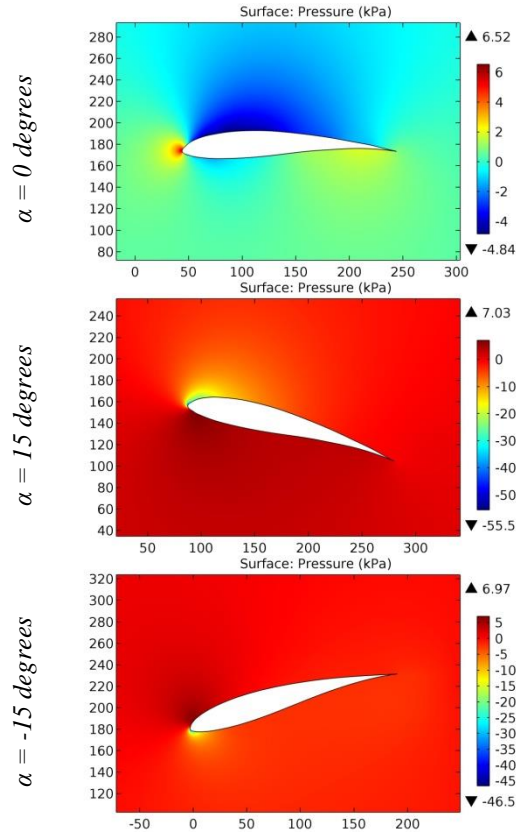


Figure 17. The pressure contours on the surfaces of the WORTMANN FX 60-126 airfoil.

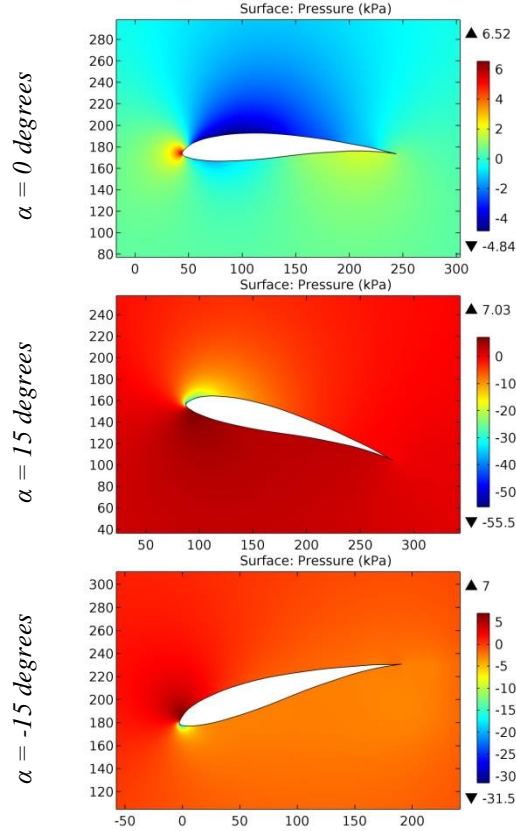


Figure 18. The pressure contours on the surfaces of the WORTMANN FX 60-126-1 airfoil.

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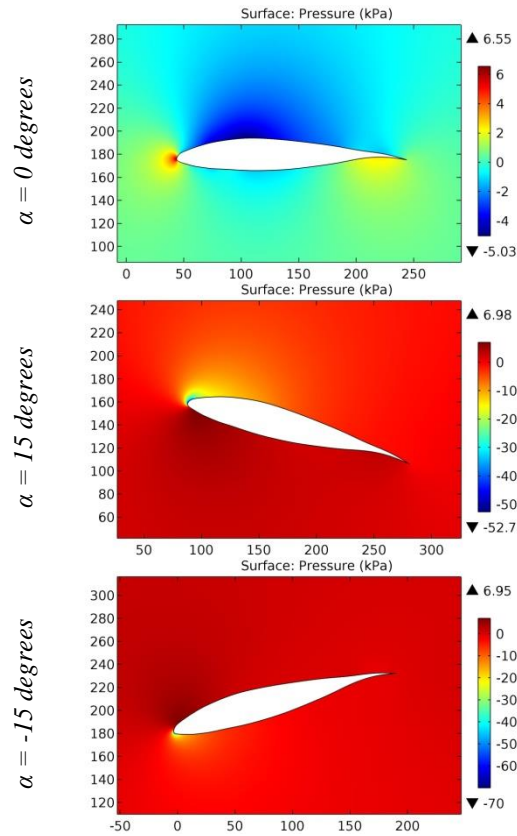


Figure 19. The pressure contours on the surfaces of the WORTMANN FX 61-140 airfoil.

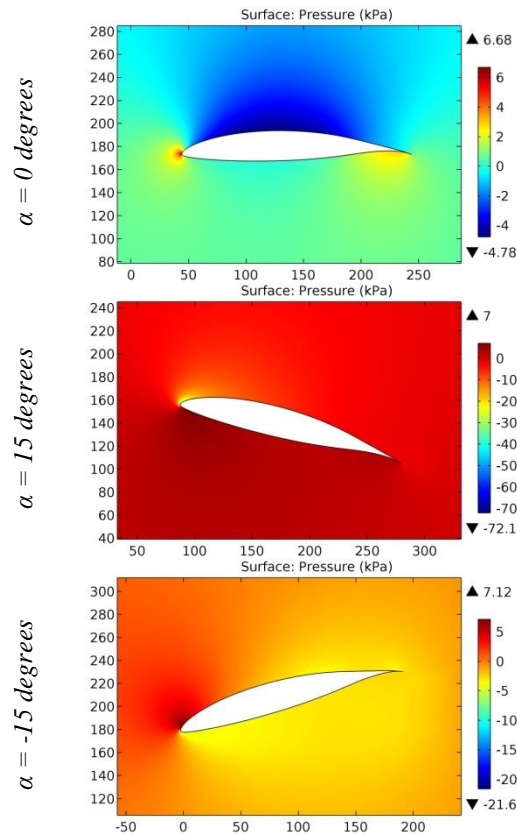


Figure 20. The pressure contours on the surfaces of the WORTMANN FX 62-K-131 airfoil.

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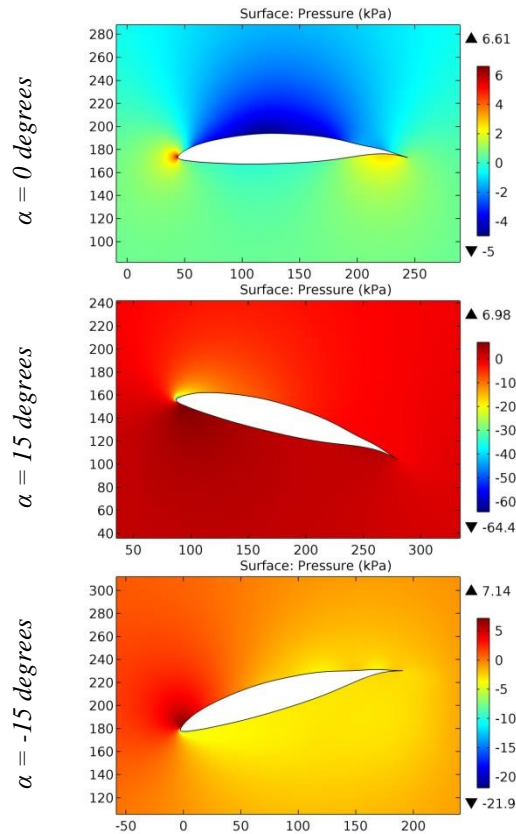


Figure 21. The pressure contours on the surfaces of the WORTMANN FX 62-K-131-17 airfoil.

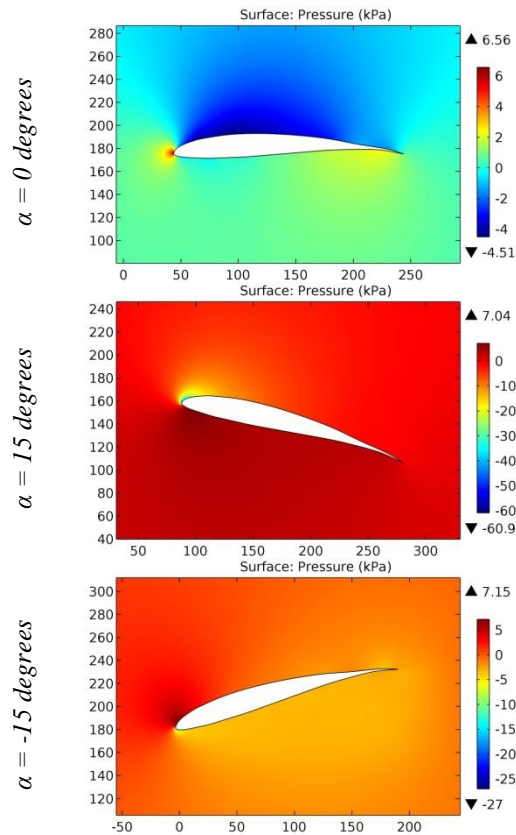


Figure 22. The pressure contours on the surfaces of the WORTMANN FX 63-100 airfoil.

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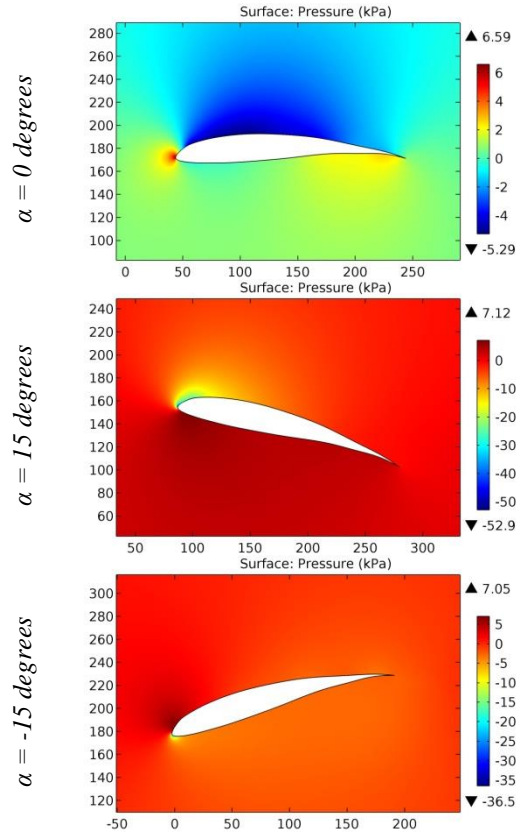


Figure 23. The pressure contours on the surfaces of the WORTMANN FX 63-120 airfoil.

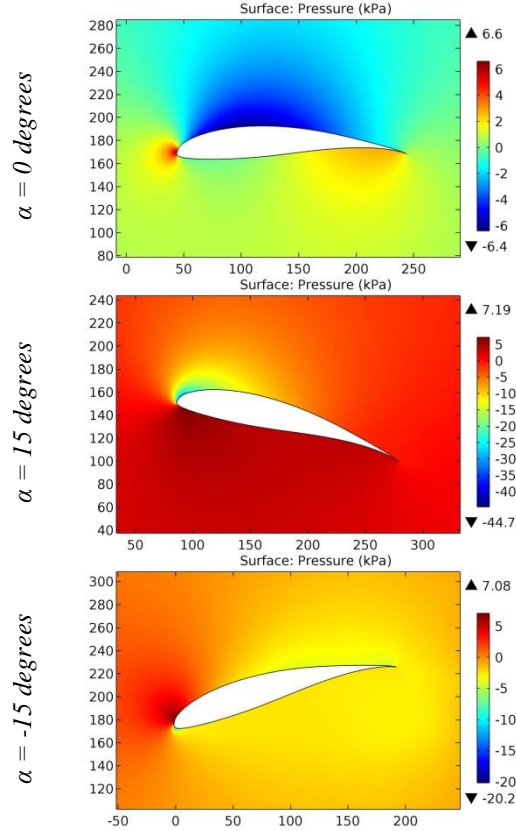


Figure 24. The pressure contours on the surfaces of the WORTMANN FX 63-137 airfoil.

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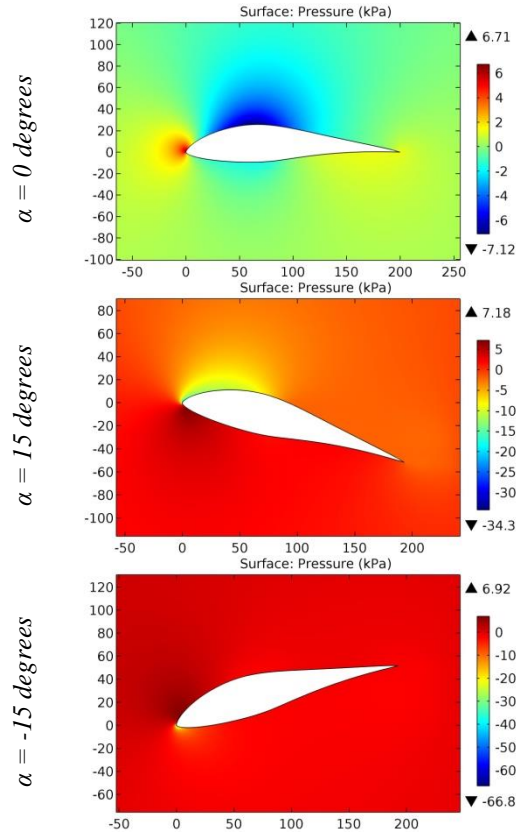


Figure 25. The pressure contours on the surfaces of the WORTMANN FX 66-17A-175 airfoil.

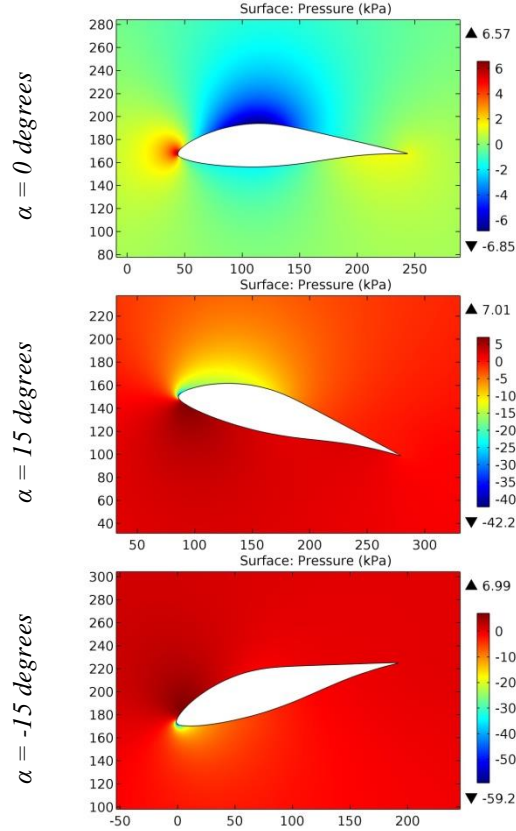


Figure 26. The pressure contours on the surfaces of the WORTMANN FX 66-17AII-182 airfoil.

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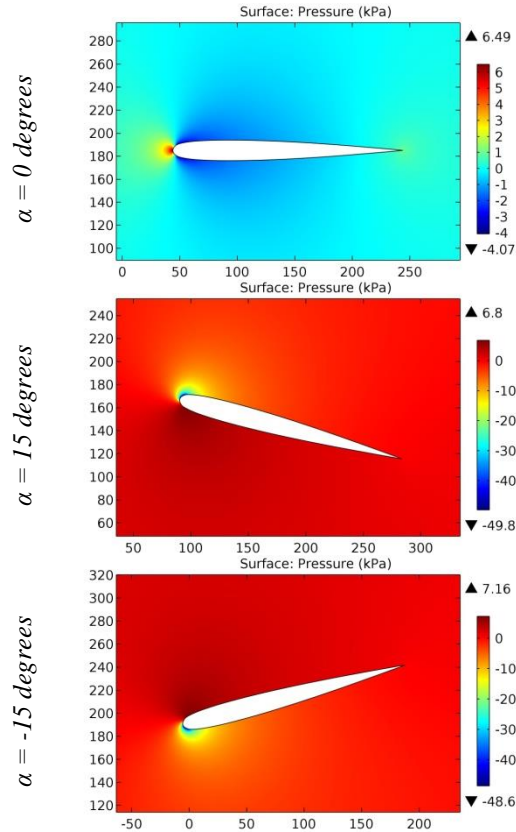


Figure 27. The pressure contours on the surfaces of the WORTMANN FX 71-089A airfoil.

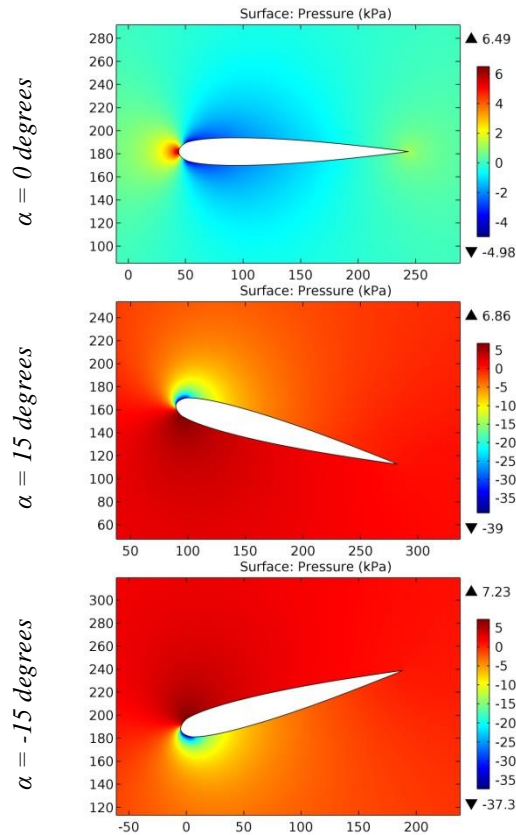


Figure 28. The pressure contours on the surfaces of the WORTMANN FX 71-120 airfoil.

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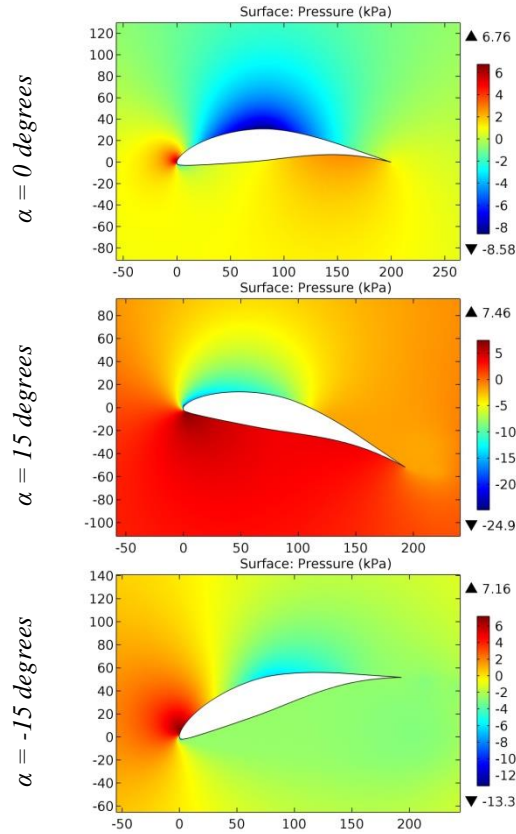


Figure 29. The pressure contours on the surfaces of the WORTMANN FX 72-MS-150A airfoil.

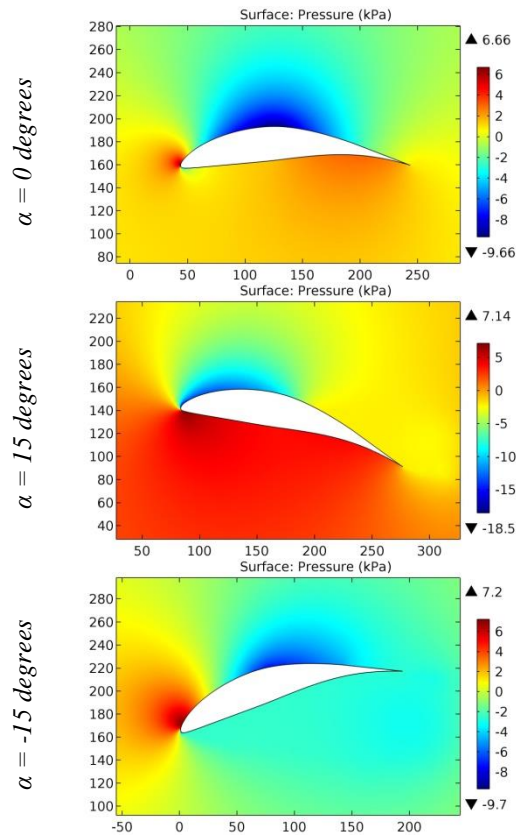


Figure 30. The pressure contours on the surfaces of the WORTMANN FX 72-MS-150B airfoil.

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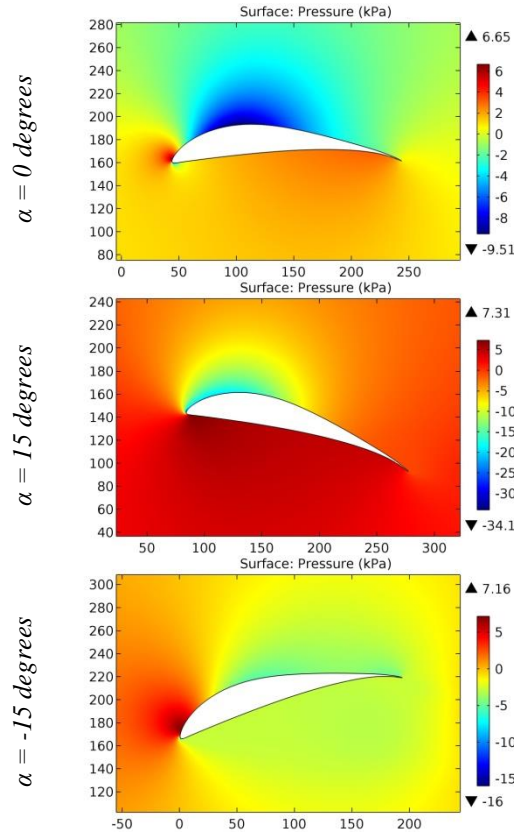


Figure 31. The pressure contours on the surfaces of the Wortmann FX 74-CL5-140 Modified airfoil.

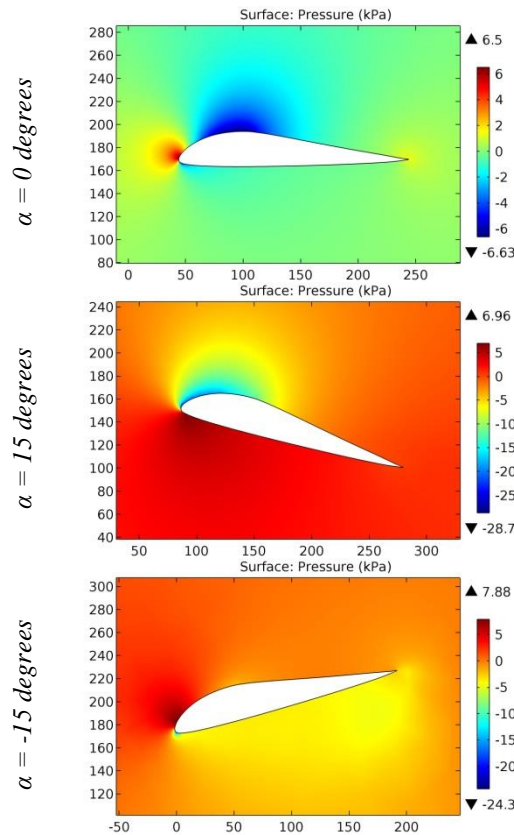


Figure 32. The pressure contours on the surfaces of the WORTMANN FX 77-W-153 airfoil.

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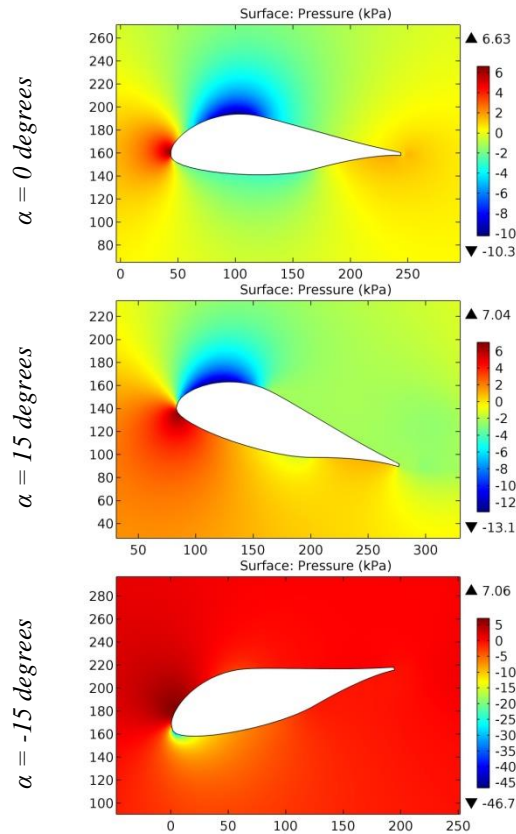


Figure 33. The pressure contours on the surfaces of the WORTMANN FX 77-W-258 airfoil.

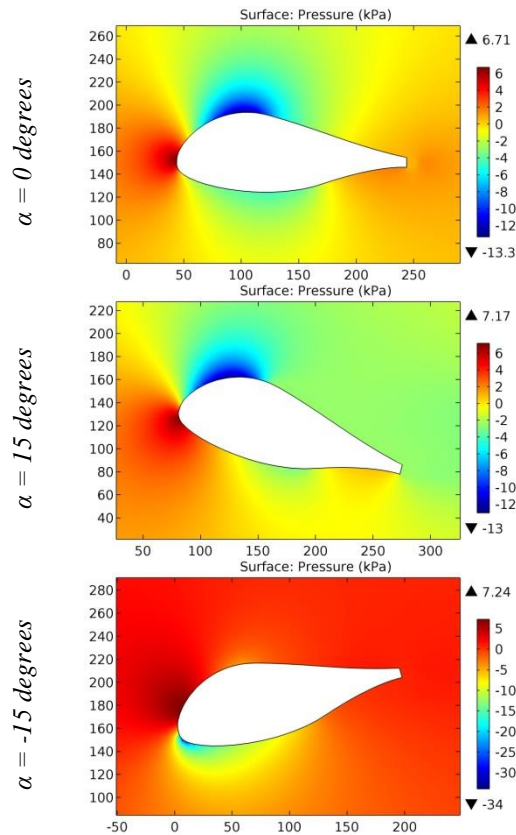


Figure 34. The pressure contours on the surfaces of the WORTMANN FX 77-W-343 airfoil.

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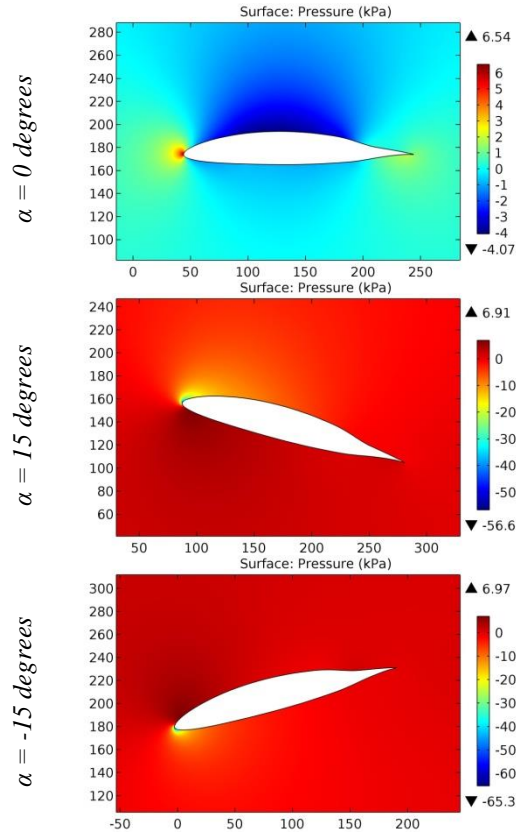


Figure 35. The pressure contours on the surfaces of the WORTMANN FX 79-K-144-17 airfoil.

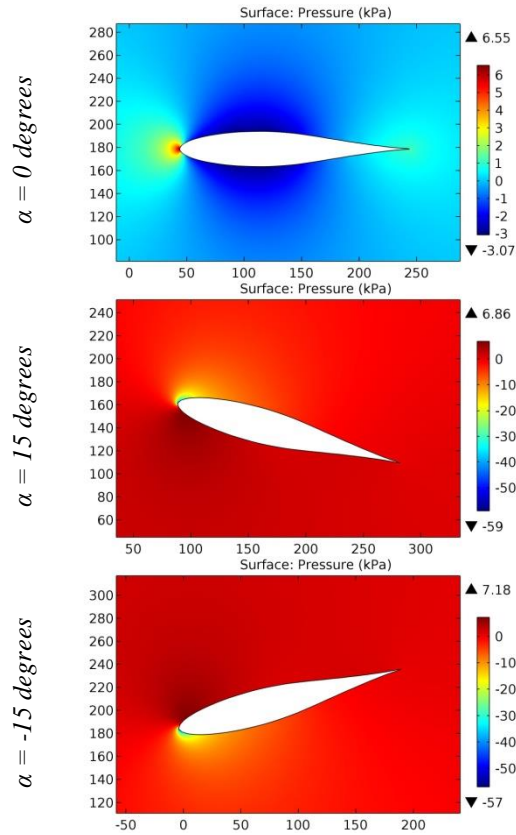


Figure 36. The pressure contours on the surfaces of the WORTMANN FX L V-152 airfoil.

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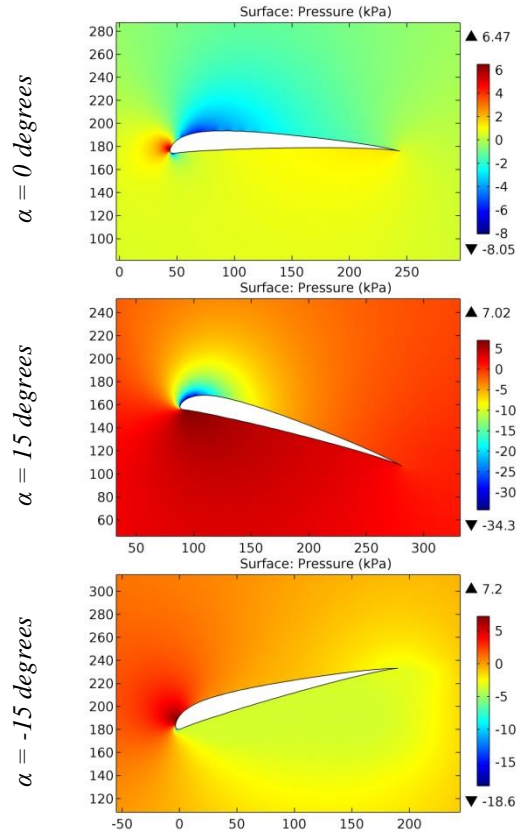


Figure 37. The pressure contours on the surfaces of the WORTMANN FX M2 airfoil.

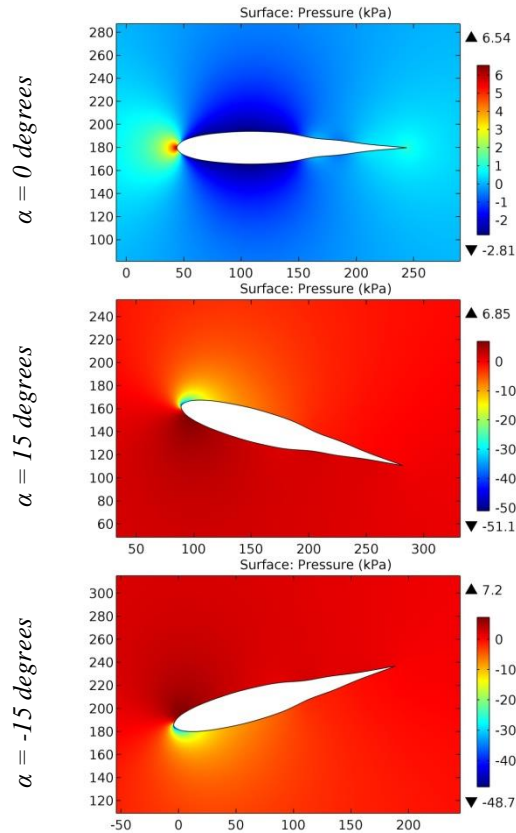


Figure 38. The pressure contours on the surfaces of the WORTMANN FX-L-142-25 airfoil.

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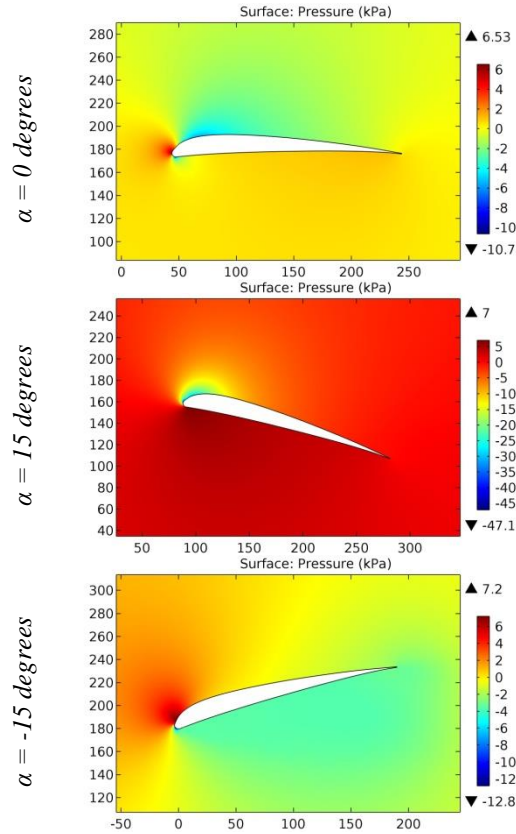


Figure 39. The pressure contours on the surfaces of the WORTMANN M 2 airfoil.

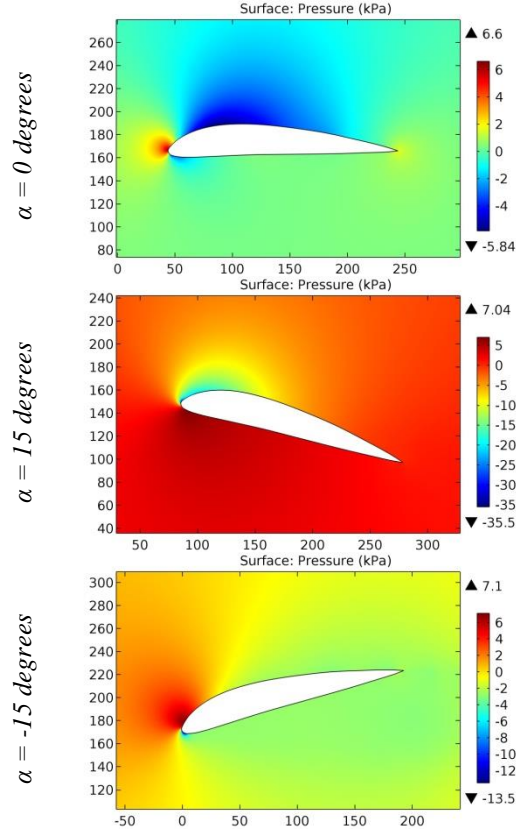


Figure 40. The pressure contours on the surfaces of the WRIGHT-6 airfoil.

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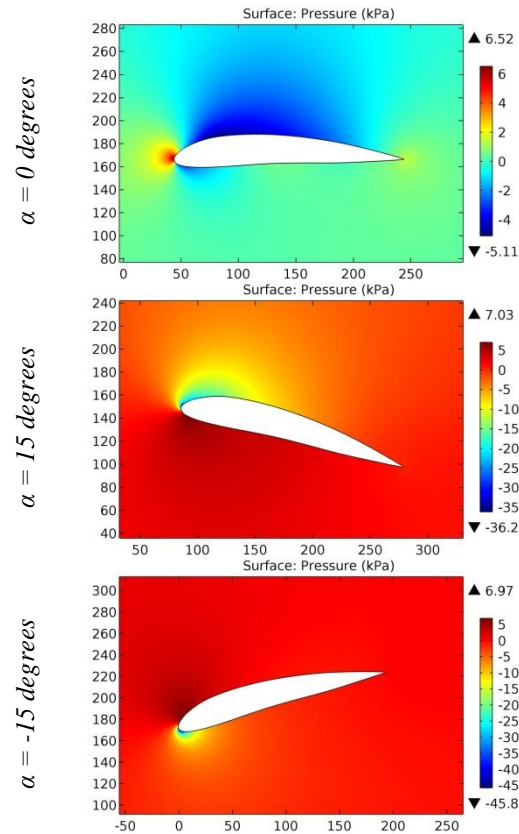


Figure 41. The pressure contours on the surfaces of the WRIGHT T1 airfoil.

Conclusion

The reduction of drag on the surfaces of the airplane wings can be provided by a rational configuration of the airfoil. To search for and further select airfoils with the best aerodynamic characteristics, computer testing of configurations of the airplane wing elements in cross section is proposed, taking into account the use of real boundary conditions, turbulence models, etc. For horizontal

flight and the main maneuvers of the airplane, the dependences of the change in the value of drag and lift on the thickness, camber, radius of the leading edge and thickness of the trailing edge of the airfoil were determined. Thus, the time of testing the configuration of the airfoil is reduced with the possibility of obtaining reliable results at the design stage of the airplane wing.

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

Abstract: The results of the computer calculation of air flow around the airfoils having the names beginning with the letter Z 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

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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 [1-39]. In this work,

the airfoils having the names beginning with the letter Z 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
ZAGI10	9.94% at 30.0% of the chord	1.99% at 30.0% of the chord	0.7791%	0.0%
ZAGI12	11.9% at 30.0% of the chord	1.99% at 30.0% of the chord	0.9591%	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. 1-2. 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.

2 airfoils of the ZAGI type were considered. The considered airfoils are asymmetrical.

The maximum thickness has the ZAGI12 airfoil. The minimum thickness is determined for the ZAGI10 airfoil. The camber values for each airfoil are the

same. The largest leading edge radius of 0.9591% was noted for the ZAGI12 airfoil, and the minimum radius of 0.7791% was noted for the ZAGI10 airfoil. There is no thickening on the trailing edge for all airfoils.

Let us consider the aerodynamic characteristics of these airfoils.

The difference in the two considered airfoils is noted in the thickness and the leading edge radius. At the same time, the execution of maneuvers by the airplane leads to a decrease in the drag in conditions of increasing the thickness of the airfoil.

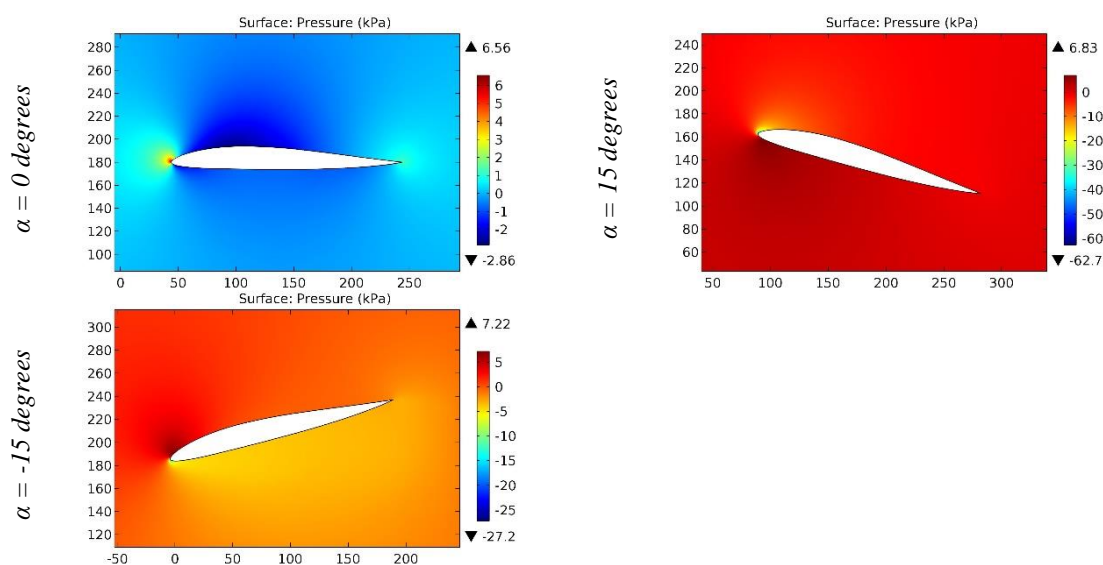


Figure 1. The pressure contours on the surfaces of the ZAGI10 airfoil.

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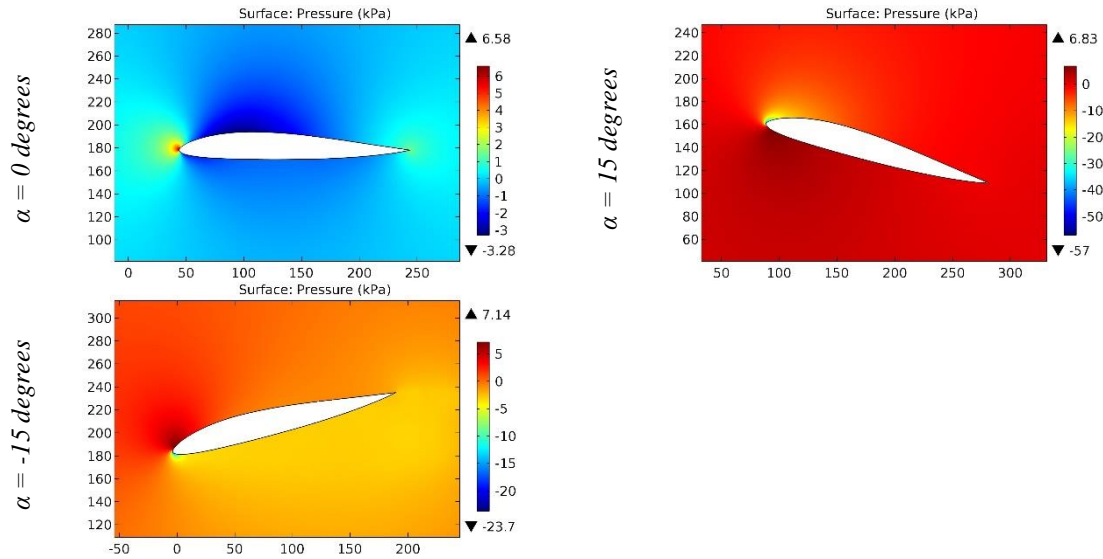


Figure 2. The pressure contours on the surfaces of the ZAG112 airfoil.

As in most cases, the airplane climb is characterized by a higher drag on the leading edge. However, at zero angle of attack of the compared airfoil, a large leading edge area increases the drag of the airfoil, which is noted for ZAG112.

Conclusion

Thus, the considered airfoils are characterized by a decrease in the drag at the leading edge during the

airplane descent. An increase in the thickness and radius of the leading edge of the airfoil by 2% and 0.2%, respectively, led to a decrease in the effective pressure by about 5 kPa.

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Issue

Article



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APPLICATION OF GREEN FERTILIZERS FOR POTATOES

Abstract: the growth, development, yield and seed quality of potato varieties after siderate crops were studied in the conditions of typical old-irrigated typical gray-earth soils of Kashkadarya region. The possibility of obtaining high yields with good seed qualities of early and medium-early potato varieties is scientifically justified.

Key words: siderate crops, sideration, biomass, growth and development, vegetation period, potato varieties, leaf surface area, yield of commodity and seed crops, reproduction coefficient, seed quality.

Language: Russian

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ПРИМЕНЕНИЕ ЗЕЛЁНЫХ УДОБРЕНИЙ ПОД КАРТОФЕЛЬ

Аннотация: В условиях староорошаемых типичных сероземных почв Кашкардарьинской области были изучены агрофизические, водные свойства, пищевой режим почвы, рост, развитие, формирование урожая, урожайность и семенные качества сортов картофеля после сидератных культур. Научно обосновано возможность получения высоких урожаев с хорошими семенными качествами ранних и среднеранних сортов картофеля после лучших сидератных культур.

Ключевые слова: сидератные культуры, сидерация, биомасса, рост и развитие, вегетационный период, сорта картофеля, площадь листовой поверхности, выход товарного и семенного урожая, коэффициент размножения, семенные качества.

Введение

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Картофель - основная стратегическая культура, имеет важное значение в обеспечении продовольственной безопасности страны. Он отличается высокой отзывчивостью к элементам питания, влажности и плодородию почвы.

В сохранении и повышении плодородия почвы большие возможности дает использование сидератов, которые положительно влияют на количество и качество урожая, особенно на снижение зараженности вирусами семенного картофеля.

Изучены влияние сидератных культур на плодородие почвы посевов, рост, развитие, зараженность растений сорняками, болезнями и урожайность хлопчатника, зерновых и других

культур [1,4,6,11,12.], а в картофелеводстве [2,3,4,5,7,8,13,14.].

Однако, влияние осенних сидератных культур на элементы плодородия почвы посевов, рост, развитие, формирование урожая, количество и качество урожая в разрезе сортов картофеля неизучено.

Цель исследования. Изучение влияния различных сидератных культур на рост, развитие, формирование урожая, урожайность и семенные качества сортов картофеля, а также элементов плодородия почвы и на их основе подбор лучших сидератов и сортов, позволяющие получить устойчивый высококачественный здоровый урожай семенного картофеля.

Материалы и методы. Приведены сведения о проведённых в 2020-2022 годах полевых и

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производственных опытах в условиях староорошаемых типичных серозёмов.

Почва опытного поля - староорошаемые типичные сероземы, грунтовые воды находятся на глубине 6-8 метров, механический состав средний глинистый, содержание гумуса (0-30 см) -0,093-1,15%, объёмная масса почвы-1,27-1,31 г/см³, удельная масса-2,6-2,7 г/см³, в пахотном слое 0-30 см валовой азот составляет 0,094-0,093%, общий фосфор-0,144-0,163%, калий-2,6-2,9%, азот в виде нитрата-5,14-6,51 мг/кг, подвижный фосфор-17-27 мг/кг, обменный калий-287-307 мг/кг. По приведённым данным выявлено, что количество питательных элементов в подпахотном слое почвы немного меньше.

Содержание гумуса в пахотном слое почвы определяли по методу Тюрина И.В., валовой азот, фосфор, калий - Мальцева И.М., Грищенко Л.П., азот нитратный - Гранвальд-Ляжу, азот аммонийный - Несслера, механический состав почвы - Н.А. Качинского, фосфор подвижный - В.П.Мачигина, обменный калий - П.В.Протасова, водопроницаемость почвы с помощью металлического кольца - С.И.Долгова и С.Н.Рыжова, влажность почвы определяли термостатными методами.

Опытном определены густота стояния осенних сидератных культур, изучены сроки посева, а также оптимальное количество и сроки посева. Проведены фенологические наблюдения фаз развития изученных сортов картофеля, биометрические измерения, количества листьев, стеблей, боковых веток и урожай клубней, количества клубней, средней производительности по весу одного клубня. Рассчитана урожайность сортов картофеля, определён выход товарного и семенного урожая и коэффициент размножения, качество семенных клубней по опытным вариантам (по заражённости растения вирусными заболеваниями и выходу вырожденных клубней, а также урожайности последующей репродукции). Показатели урожайности статистически обработаны по методу Б.А.Доспехова (1985), проведён дисперсионный и корреляционный анализы.

Объектом исследования служили 1-репродукция семенного материала среднераннего

Бахро-30, а также среднеранние сорта Saviola и Sante интродуцированный из Нидерландов.

Для этих сортов картофеля изучали следующие сидератные культуры:

В варианты озимых сидератов (весенней сидерации): 1.Озимая вспашка (контроль); 2. Рапс - сорт Немерчанский-2268; 3. Масличная редька - сорт Радуга; 4. Горох - сорт Восток-55; 5. Горчица сизая - сорт Юбилейная; 6. Горох+масличная редька.

Площадь делянки по сидератам 250 м², а по сортам 21 м², повторность опыта четырехкратная. Посев сидератных культур проводили в осенью 14-20 октября, нормы высева: рапса - 16,0; гороха - 70; горчицы сизой - 14,0; масличной редьки - 20,0 кг/га, а при совмещенном посеве культур норму брали пополам. Удобрений вносили в норме N-30 P-100 K-60 кг/га. После посева озимых сидератов поливали 2 раза - осенью и весной.

У озимых сидератных культур 12-14 дней до посадки картофеля, в период массового цветения, затем с помощью агрегата КИР-1,5 измельчали, дисковали и запахали на глубину 28-30 см.

В опытах все учеты, анализы, наблюдения и мероприятия проводили на основе общепринятых методик и агорекомендаций [9, 10.].

Результаты исследований. Озимые сидератные культуры рапс, сизая горчица, масличная редька провели период зимнего покоя в фазе образования ботвы, горох - в фазе прорастания всходов, густота стояния растения на 1 м² озимых сидератных культур составила 473,0 у рапса, масличной редьки-481,2, гороха-198,7, сизой горчицы-477,7, гороха+масличной редьки-489,8 шт; высота растений-115,0 см у рапса, масличной редьки-122,5 см, гороха-207,6, сизой горчицы-219,6 см, гороха+масличной редьки-215,3 см.

Урожайность биомассы озимых сидератных культур составила 22,1-35,1 т/га по видам сидератов. Наибольший урожай биомассы составил 35,1 т/га при посеве масличной редьки, относительно высокий урожай биомассы (29,6-32,3 т/га) при смешивании гороха+масличной редьки и сизой горчицы в чистом виде в качестве сидерата (таб.1).

1. Рост и урожайность биомассы сидератных культур

№	Виды сидератных культур	По озимым сидератам			
		Растений на 1 м ² , шт.	Высота растений, см	Урожайность, т/га	
зеленая масса	сухая масса				
Сроки вспашки биомассы в почве 24-27.03.2020-2022 г.					
1	Рапс	473,0	115,0	28,1	5,6
2	Масличная редька	481,2	122,5	35,1	7,0

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3	Горох	356,0	87,7	22,1	4,4
4	Горчица сизая	198,7	207,6	27,1	5,4
5	Горох+масличная редька	477,7	219,6	29,6	5,9

	2018 г.	2019 г.	2020 г.
$S_x^- = (\%)$	1,06	1,33	1,35
ЭКФ _{0,5} (т/га)=	0,31	0,37	0,41

При посеве в осенний период в качестве сидератных культур смеси гороха+масличной редьки >0,25 мм (0-30 см) составила 19,8-25,9%, или выше контрольного варианта на 8,2-13,0%. При посеве гороха, сизой горчицы в чистом виде составило 18,3-25,3%, что больше контрольной на 6,7-12,4%.

При озимых сидератах до 1-го полива сортов картофеля объемная масса почвы (0-30 см) составила 1,20-1,24 г/см³ или на 0,05-0,07 г/см³ ниже был после сидератных культур - гороха и горчицы сизой. После всех вегетационных поливов незначительное повышение объемной массы почвы наблюдалось после сидерата горох+масличная редька.

После различных осенних сидератных культур были также изучены у среднеранних сорта картофеля Бахро-30, Saviola и Sante, в которых наблюдалось, что в период вегетации растений у сортов картофеля перед 1-м поливом при посеве гороха+масличной редьки в качестве сидерата было обеспечено в пахотном слое (0-20 и 20-30 см) объемной массы 1,23 и 1,27 г/см³, или её снижение по сравнению с контрольным (осенней вспашкой) на 0,05 и 0,07 г/см³. При посеве гороха и сизой горчицы в чистом виде в качестве сидерата перед 1-м поливом у сортов картофеля в период роста в пахотном слое (0-20 и 20-30 см) выявлено снижение объемной массы на 1,24 и 1,28 г/см³, что ниже по сравнению с осенней вспашкой на 0,04 и 0,06 г/см³. При применении в качестве сидерата гороха+масличной редьки перед последним поливом в период роста в пахотном слое объемная масса составила 1,24 и 1,28 г/см³, что обеспечило наибольшее уменьшение на 0,06 и 0,07 г/см³ по сравнению с контролем. В осенний период при посеве в качестве сидерата гороха и сизой горчицы в чистом виде по сортам картофеля перед последним поливом в пахотном слое объемной массы 1,25 и 1,29 или выявлено снижение 0,05 и 0,06 г/см³ га.

По полученным данным, всхожесть клубней сортов картофеля в озимых сидератах наблюдалась через 11-15 дней после посадки, а полевая всхожесть семенных клубней составила 99,2-99,9%. По сравнению с контрольным вариантом всходы семенного картофеля появились раньше на 3-4 дня, полевая всхожесть клубней -2,8-3,2%, бутонизация -1-4 дня, цветение - на 1-5 дней позже, вегетационный период

увеличен до 4-8 дней.

При изучении озимых сидератов у сортов картофеля Бахро-30, Saviola и Sante по сравнению с контролем наивысшие показатели выявлены при посеве в качестве сидератов гороха - полевая всхожесть семенных клубней на 3,4-3,5% выше, всходы раньше на 4 дня, бутонизация и цветение удлинились на 3-5 дней, продолжительность вегетационного периода увеличилась на 7-8 дней. При применении в качестве сидератов смеси гороха+масличной редьки и горчицы сизой в чистом виде определены относительно высокая полевая всхожесть семенных клубней (99,6-99,8 или 3,4-3,5%), всходы (15 или 4 дня раньше), бутонизация (34 или дольше на 4 дня) и цветение (17-18 или дольше на 3-4 дня), продолжительность вегетационного периода (87-89 или дольше на 7 дней).

Исследования картофеля среднеранних сортов Бахро-30, Saviola и Sante, изученных в озимых сидератах, показали, что рост, развитие и формирование органов роста (стеблей, листьев и боковых побегов) на 30-й день выращивания составили 37,6-46,5 или выше 2,9-7,6 см, период вегетации на 40-70-день составил от 48,5 до 83,6 или выше от 2,6 до 16,4 см.

Наивысшее формирование с одного куста листьев, стеблей и боковых побегов у сортов картофеля Бахро-30, Saviola и Sante, изученных на озимых сидератах, наблюдалось осенью при посеве гороха как сидерата в чистом виде, что по сравнению с контрольным вариантом на 40-й день вегетации составило с куста: листьев 140,6-145,6 или на больше 17,3-19,0; стеблей 4,5-4,6 или на 1,0-1,3; боковых побегов 3,3-3,6 или 1,1-1,2, то на 70-й день вегетации с куста количество листьев увеличивается на 217,8-242,6 или 42,6-53,7, а боковых побегов до 8,6-9,4 или 3,0-3,8 шт. При посеве в виде сидерата смеси гороха+масличной редьки и сизой горчицы в чистом виде на 40-й день вегетации по сортам по сравнению с контролем листьев с куста больше на 16,2-16,9 шт., стеблей 1,1-1,0; боковых побегов 0,9-1,2, в последующем на 50-70-й дни листья увеличились на 17,1-47,0; боковые побеги на 2,2-3,4.

Площадь листовой поверхности составила 70,6-71,6 тыс. м²/га у среднеранних сортов картофеля Бахро-30, Saviola и Sante осенью при посеве гороха в качестве сидерата. Отмечено, что при применении гороха в виде сидерата площадь

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 GIF (Australia) = 0.564
 JIF = 1.500

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 ESJI (KZ) = 8.771
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ICV (Poland) = 6.630
 PIF (India) = 1.940
 IBI (India) = 4.260
 OAJI (USA) = 0.350

листовой поверхности на 21,3-21,8 тыс. м²/га выше контроля.

При изучении формирования урожая и продуктивности картофеля среднеранних сортов Бахро-30, Saviola и Sante после озимых сидератов продуктивность клубней с одного куста, количество клубней и средний вес одного клубня были самыми высокими при посеве гороха в качестве сидерата, что по сравнению с контролем на 60-й день вегетации урожай клубней с куста составил 399,3-336,3 или 131,0-63,6, средний вес одного клубня 76,7-74,7 или больше на 18,4-11,3 г, количество клубней 5,2-4,5 или больше на 0,6-0,2 шт., данные показатели увеличиваются на 70-80-й дни вегетации в соответствии с законом, в последний вегетационный период (на 90-й день) количество клубней увеличилось соответственно с куста: 643,8-652,3 или 250,1-203,6, 78,5-93,1 или 8,0-17,1 г, на 8,2-7,0 или 1,7-1,1 шт. После посева смеси гороха+масличная редька и сизой горчицы в виде сидерата, что обеспечило по сравнению с контролем (зяблевая вспашка) у сортов картофеля

испытанных на 60-й день урожая клубней, вегетации на одном кусте: урожай клубней 57,5-120 г, количество клубней составляет 0,2-0,7 г., при средней массе клубня более 11,3-14,1 г, эти показатели увеличиваются по закону через 70-80 дней, а в последний период роста (90-й день) с куста: урожайность клубней 617,6-627,1 или 223,9-178,4 грамма, количество клубней составляет 7,0-8,1 или 1,1-1,6 штук, при средней массе клубня 76,2-89,6 или 15,7-13,6 грамма больше.

Продуктивность картофеля среднеранних сортов Бахро-30, Saviola и Sante, изученных в озимых сидератах, была наибольшей при посеве гороха в чистом в виде сидерата (конечный урожай 643,8-997,6 или 317,8-203,6 г). При использовании смешения горох+масличная редька и горчицы сизая в чистом виде, по сортам картофеля получено с одного куста: итоговая урожайность составила 876,5-988,7 г, что на 214,9-300,9 г больше, чем в контроле (зяблевая вспашка).

2. Влияние озимых сидератов на урожайность сортов картофеля

№ №	Варианты сидератов	Урожайность по годам, т/га			Средняя урожай- ность, т/га	По сравнению с контролем	
		2020	2021	2022		т/га	%
У сорта Sante							
1	Озимая вспашка (контроль)	23,4	22,5	24,6	23,5	-	100
2	Рапс	27,7	27,3	29,3	28,1	4,6	119,6
3	Масличная редька	26,9	26,4	27,4	26,9	3,4	114,5
4	Горох	32,7	31,2	33,0	32,3	8,8	137,4
5	Горчица сизая	30,9	29,9	31,3	30,7	7,2	130,6
6	Горох+Масличная редька	32,2	30,7	32,5	31,8	8,3	135,3
	$S_x^- = (\%)$	3,80	4,19	4,49			
	НСР_{0,5} = (т/га)	1,39	1,60	1,20			
У сорта Бахро-30							
1	Озимая вспашка (контроль)	22,3	23,6	25,2	23,7	-	100,0
2	Рапс	28,2	29,6	30,7	29,5	5,8	124,4
3	Масличная редька	26,2	27,7	28,9	27,6	3,9	116,4
4	Горох	31,0	32,8	34,0	32,6	8,9	137,5
5	Горчица сизая	28,2	30,6	32,1	30,3	6,6	127,8
6	Горох+Масличная редька	28,9	31,5	32,9	31,1	7,4	131,2
	$S_x^- = (\%)$	2,34	2,51	3,17			
	ЭКФ_{0,5} = (т/га)	0,96	0,79	1,08			
У сорта Saviola							
1	Озимая вспашка (контроль)	25,6	30,1	28,7	28,1	-	100,0
2	Рапс	33,9	33,4	34,3	33,8	5,7	120,2
3	Масличная редька	33,6	32,9	34,0	33,5	5,4	119,2
4	Горох	37,5	35,4	39,2	37,3	9,2	132,7
5	Горчица сизая	36,5	34,6	37,0	36,0	7,9	128,1
6	Горох+Масличная редька	37,2	35,0	37,7	36,6	8,5	130,2
	$S_x^- = (\%)$	2,57	2,18	2,87			

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	GIF (Australia) = 0.564	ESJI (KZ) = 8.771	IBI (India) = 4.260
	JIF = 1.500	SJIF (Morocco) = 7.184	OAJI (USA) = 0.350

	ЭкФ_{0,5} (т/га)	0,85	0,72	0,97			
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Было отмечено, что урожайность картофеля среднеранних сортов Бахро-30, Saviola и Sante, изученная в озимых сидератах, была самой высокой при использовании гороха в качестве сидерата, и урожайность составила 32,3-37,6 тонн с гектара или дополнительный урожай 8,8-9,2 тонн. Относительно высокие урожаи 30,7-36,6 т/га были получены при посеве смеси гороха+масличной редьки и сизой горчицы в чистом виде как сидерата и получена прибавка урожая на 7,2-8,5 т/га больше, чем в контроле (осенняя вспашка) (таблица 2).

У изученных сортов картофеля Бахро-30, Saviola и Sante после озимых сидератов товарный урожай составил с гектара 23,4-28,3 т или 93,2-98,6% от общего урожая, из них семенной урожай 15,5-25,7 т/га или 66,3-72,8% от товарного урожая.

При изучении гороха как озимых сидерата по сортам товарная урожайность составила с гектара 23,4-38,8; урожай семенных клубней - 22,8-29,0 тонны, а коэффициент размножения 6,9-8,8%.

При использовании озимых сидератных культур у сортов картофеля отмечена положительная корреляционная зависимость высокой степени между урожайностью и площадью листовой поверхности $r=0,797(R^2=0,6347)$, между урожайностью и средней массы одного клубня с куста - высокой степени $r=0,877(R^2=0,7689)$, между товарной и семенной урожайностью (рисунок 1) – высокой степени $r=0,995(R^2=0,9910)$.

В картофелеводстве посев семенных клубней сортов картофеля в качестве двуурожайных культур, возделываемых после гороха, рапса, сизой горчицы в чистом виде и смеси гороха+масличной редьки в качестве сидератных культур полевая всхожесть составила 95,3-97,5%, всходы появляются раньше на 3-6 дня, вегетационный период удлинялся до 6-8 дней, высота растения достигла прироста 9,8-15,6 см, количество стеблей в кусте на 1,4-1,9 шт. больше, отмечено резкое снижение заражения растений вирусными заболеваниями (явной: 7,6-8,8, скрытой: 23,3-26,7%), улучшилось семенное качество клубней. Особенно резко снизилось заражение растений и клубней вирусными заболеваниями по сортам после применения в осенний период сизой горчицы, рапса, гороха, редьки масличной в чистом виде и смеси гороха+масличной редьки. При этом повысилась урожайность с гектара на 21,5-31,0 т/га и обеспечено производство здоровой (доля вырожденных клубней менее 3,3-4,1%) экологически чистой товарной продукции.

Выводы

1. Установлено, что в условиях староорошаемых типичных серозёмных почв Кашкадарьинской области при возделывании рапса, масличной редьки, гороха и сизой горчицы в чистом виде, а также смеси гороха+редьки масличной в качестве сидератных культур в осенние периоды, урожайность биомассы с гектара составила весной 22,1-35,1 тонны. Наивысшая урожайность биомассы в оба периода получена в условиях посева масличной редьки в чистом виде и смеси гороха+масличной редьки.

2. Определено, что применение биомассы сидератных культур, в качестве зелёных удобрений улучшили плодородие почвы, особенно при возделывании в осенний период гороха, сизой горчицы, рапса в чистом виде и смеси гороха+масличной редьки, в пахотном слое по сравнению с контрольным вариантом наблюдалось увеличение доли макроагрегатов на 13,4-25,9%, уменьшение микроагрегатов на 24,7-27,6%, водопроницаемость увеличилась на 71,0-124,7 м³/га или больше на 15,1-26,17%, уменьшение объемной массы на 0,01-0,07 г/см³, в результате чего содержание гумуса составило до 1,17-1,22 или больше 0,01-0,03%, валового азота, фосфора и калия, особенно нитратного азота до 12,38-33,56, а подвижного фосфора 31,37-43,25 и обменного калия 311,4-326,2 мг/кг почвы.

3. Наибольшая урожайность (32,3-37,6 или 8,8-9,2 т/га дополнительно), из них товарная урожайность 23,4-38,8 т/га, урожай семенных клубней 22,8-29,0 т/га, коэффициент размножения в пределах 6,9-8,8 у среднеранних сортов картофеля Бахро-30, Saviola и Sante зафиксированы при использовании гороха, сизой горчицы и смеси гороха+масличной редьки в качестве озимых сидератных культур.

4. В картофелеводстве посев семенных клубней сортов картофеля в качестве двуурожайных культур, возделываемых после гороха, рапса, сизой горчицы в чистом виде и смеси гороха+масличной редьки в качестве сидератных культур полевая всхожесть составила 95,3-97,5%, всходы появляются раньше на 3-6 дня, вегетационный период удлинялся до 6-8 дней, высота растения достигла прироста 9,8-15,6 см, количество стеблей в кусте на 1,4-1,9 шт. больше, отмечено резкое снижение заражения растений вирусными заболеваниями (явной: 7,6-8,8, скрытой: 23,3-26,7%), улучшилось семенное качество клубней. Особенно резко снизилось заражение растений и клубней вирусными заболеваниями по сортам после применения в осенний период сизой горчицы, рапса, гороха, редьки масличной в чистом виде и смеси

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гороха+масличной редьки. При этом повысилась урожайность с гектара на 21,5-31,0 т/га и обеспечено производство здоровой (доля

вырожденных клубней менее 3,3-4,1%) экологически чистой товарной продукции.

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Article



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FINDING EFFECTIVE MEANS TO RESOLVE THE COMPETING INTERESTS OF INDIGENOUS PEOPLE AND MINING COMPANIES

Abstract: *the article evaluates the main directions of economic and social development of the Arctic zone of the Russian Federation, the possibility of simultaneously combining the goals of developing the natural resources of the Arctic territories with the goals of nature conservation and supporting the traditional crafts of the indigenous peoples of the North. The principles of solving these problems on the basis of state support for indigenous people are shown. The need to preserve the population of these territories is substantiated. A comparison was made of the current practice of state support for indigenous peoples in Russia and in countries close to it in terms of natural and climatic conditions. An assessment is made of the future development of industrial production and traditional crafts in the region. The article is devoted to the problems of ensuring sustainable development of the Arctic territories of Russia. The main issues of economic, social and environmental development of the region are considered. It is concluded that the policy of the Russian Federation is mainly aimed at using the economic potential of the Arctic and, accordingly, attracting investment in the mining industry and infrastructure of the Northern Sea Route. At the same time, it is necessary to develop a scientifically based policy to ensure the social and environmental sustainability of the region.*

Key words: *socio-economic development, support for the indigenous population of the North, traditional crafts, prospects for the settlement of northern territories, Russian Arctic, Arctic; investments; Northern Sea Route; transport infrastructure; environmental sustainability.*

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Introduction

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Currently, a number of large-scale projects for the formation and development of support zones for industrial and agricultural production are being implemented in the Arctic Zone (AZ) of Russia. The adopted Development Strategies for Russia and the regions until 2035 provide for investment projects aimed at exploration and production of mineral resources, development of transport, energy and housing infrastructure, and ensuring food security in the region. It is obvious that the intensive development of large mineral deposits and the organization of the work of many industries and settlements in AZ require solving population problems and supporting the traditional crafts of indigenous peoples.

The Arctic zone is one of the few regions where the population of the Arctic part is steadily decreasing. Since 1990, the number of residents in it has decreased by more than 2 times. If in the 1990s it was 148 thousand people, now it is a little more than 67 thousand. Over the past ten years, the population in the AZ of the republic has decreased by almost 9%. The temporary stay of workers engaged in production on a rotational basis and located only in limited places of its concentration does not guarantee the achievement of the necessary population of the northern lands.

World experience in the development and habitation of lands in extreme conditions shows the increasing desire of indigenous peoples for affordable consumer goods, similar in quality to urban ones. Thus, a number of important directions for the socio-economic development of the Arctic territories of Russia are determined, related to the need for industrial development of the territory, taking into account the specific interests and needs of the indigenous inhabitants of the North, who adhere to traditional areas of economic management, living conditions and consumption.

Traditional forms of environmental management in the Arctic territories - reindeer husbandry, hunting, fishing - are not currently the determining factors in their economic development. The main role belongs to the intensive development of large mineral deposits and the organization of the work of many industries caused by the need to develop food potential in the Arctic.

Currently, the share of agriculture in the production of the gross municipal product of the Russian Arctic is 3.3%. In Arctic conditions, this industry is important for providing the local population with agricultural products of their own production, for preserving the traditional way of life of the indigenous population and the cultural identity of indigenous peoples.

Under the subprogram for the development of traditional industries of the North of the Russian Arctic state program "Development of agriculture and regulation of markets for agricultural products, raw materials and food for 2018-2035," 24 subsidies are provided for the support and development of reindeer husbandry. In 2018-2021 government support amounted to more than 4 billion rubles. At the beginning of 2019, the AZ of the Russian Federation contained 106.3 thousand heads of deer, or 72.5% of the total number of reindeer in the republic. Despite government support, in 2019 compared to 2010, the deer population decreased by 16.2%. Meanwhile, the production of meat and venison products has significant export potential in the context of their environmental friendliness. After 2000, due to cases of "mad cow disease" in many European countries (as an alternative to beef), wider use of wild animal meat (deer, elk, roe deer) is being considered. The Russian Arctic, within the framework of the subprogram "Development of the fishery complex" of the Russian Arctic state program "Development of agriculture and regulation of markets for agricultural products, raw materials and food for 2012-2021", since 2015, Arctic regions have been allocated funds for the construction of fishing bases, glaciers, and the purchase of all-terrain vehicles equipment, boats, refrigerated containers and fish processing equipment. In the conditions of the Arctic territories of the country, in relation to the development of the agro-industrial complex, it is advisable to develop technologies using ice as a structural material for food storage. The relatively low environmental load and high level of development of traditional types of economy create a potential sufficient for the integrated development of coastal fisheries, largely due to the participation of the indigenous population. Modernization of the agro-industrial complex, increasing demand for environmentally friendly products will make it possible to achieve deep waste-free processing of reindeer husbandry and fishing products, ensure the development of fish farming and the food industry, satisfy domestic demand for food and enter new markets, including export, create new jobs for the population of the Arctic districts.

Thus, the development and support of traditional crafts should be considered as a form of "green" employment for the local population. One of the main life-supporting activities is hunting. The main objects of hunting are wild reindeer, white arctic fox, sable, muskrat, and squirrel. Significant resources are available in the Arctic Zone of the Russian Federation.

In all regions of the Russian Arctic, there is a downward trend in the number of cattle. In 2021 compared to the average for 2016-2018, the livestock decreased by 58.7% (to 5,737 heads). This decrease is due to high costs of purchasing feed. About half of the

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livestock is kept on private farms, 30% on peasant farms, and 20% on agricultural organizations. The strategy for the socio-economic development of the Russian Arctic until 2035 provides for the “Arctic Stud Farms” project - the creation of unique types of meat processing products from the Kolyma and Yana horse breeds and Yakut aboriginal cattle. Currently, the food and processing industry in the Russian Arctic is poorly developed.

There is extremely insufficient production of greenhouse products in the Russian Arctic. If in the central regions of the European part of Russia, vegetables and fruits grown indoors are consumed in a volume of 32 kg/person. per year, then in the northern regions of the country, in Siberia, where they are practically the only source of vitamins, their content in the diet is only 7 kg/person.

According to data on the state of agricultural production in the northern territories, the problem of providing residents with locally produced products and, consequently, the required population of the northern territories has not been sufficiently solved. This problem can be solved most successfully by guaranteeing the assignment of land to the indigenous peoples of the North and their tribal communities for

the maintenance and development of traditional crafts. Meanwhile, the development of oil and gas and mineral resources directly affects the interests of the indigenous peoples of the North, a significant part of whom lead a traditional way of life. In the North of Russia for 1990-2018. the fishing territories of indigenous residents decreased by 47.5% due to the expansion of oil and gas fields. An analysis of foreign experience indicates a search for adequate scenarios for the sustainable development of Arctic territories. Given the similarity of the natural and climatic conditions of Alaska, the North of Canada, Norway and Russia, there are noticeable differences in the development and development of these territories, not in favor of Russia (Table 1).

In the implementation of social policy in foreign countries and Russia, the differences in a number of indicators are not too great. Thus, in the US healthcare system, on average, 54% of services are provided at public expense. In Alaska this part is 70%, in the northern regions of Russia - 84%. In US colleges, 23% of students study for free, in Alaska - 40%, in Russia - 52%.

Table 1. Production and sale of products from traditional crafts of indigenous peoples

Index	Countries (2018-2022 average)			
	Russia – North Siberia	USA – Alaska	Canadian North	Norway
Volume of fish and seafood caught by indigenous people, thousand tons.	176.1	115.2	137.8	158.6
Annual catch per 1 indigenous resident, i.e.	5.4	9.4	7.6	10.3
Share of fish caught by indigenous people in total fish caught, %	9.5	10.3	6.8	11.5
Average retail price of 1 kg of fish and seafood, US dollars	18.3	14.5	16.6	25.8
Volume of venison production, tons per year	3163	1446	918	1167
Venison production per indigenous person, kg/year	97	118	105	125
Retail price of 1 kg of venison, USD	24.8	15.7	30.1	38.5
Sales volume of fur produced by indigenous people in foreign and domestic markets, million US dollars	2.6	3.1	2.8	2.9

The system of privileges for the local population in the state of Alaska, the northern provinces of Canada, and the polar regions of Norway differs from the Russian one. It provides for the exemption of individuals from taxes. In Russia, in particular in the Russian Arctic, in 2019, on an initiative basis, a decision was made to exempt residents of the Arctic regions from a number of taxes. The issue of zeroing out transport tax, property tax for individuals, and land tax is also being resolved at the legislative level. Financial support for agricultural territories in Russia is carried out in line with the national policy of

protecting agricultural labor. In Alaska, stimulation of the development of the meat food supply, dairy, and poultry farms can be considered evidence of social care. From a pragmatic point of view, there is no particular need for farms - food is delivered from Seattle literally within one day. But Alaskans prefer local products. Alaska's private capital makes contributions to the federal and regional treasuries, and also allocates funds for social needs, including supporting indigenous people in the amount of 40-50% of its income, which is significantly higher than in other states. In Russia, as part of the social and

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environmental responsibility of business, measures are also being taken to support the indigenous inhabitants of the North at the expense of mining companies. Comparing the similarities and differences in the paths of socio-economic development of the northern territories of Russia and other countries, one should note a common main feature: external support for the economy and life of the population living in the extreme conditions of the North. In the state of Alaska, the northern provinces of Canada, and Norway, support is actively provided by large and medium-sized capital, for which, in turn, the state uses economic, administrative and legal incentives to provide such support. In Russia, support measures are currently carried out mainly by the state at the expense of federal and regional budgets. The most important urgent tasks of the socio-economic development of the North in the near future include:

- *growth of industrial production, including high-tech;
- *preservation and general improvement of the environment, especially in places where people live;
- *development of ecological and ethnological tourism;
- *preventing demographic desertification of territories, entailing geopolitical losses for the country.

The implementation of these tasks is provided for in the regional development strategies of the Russian Arctic until 2035.

According to prospective estimates, as a result of the implementation of measures to support traditional crafts, the procurement of wild reindeer meat in the Russian Arctic will increase by 2024 to 1000 tons in slaughter weight. Supporting low-power projects for deep processing of fish and the production of fish products with high added value or with unique consumer properties, as well as feed from production waste, will also improve the resource base for the production of raw materials and finished products in the region's agro-industrial complex.

The development of a system for the procurement of antlers, furs, processing of reindeer husbandry and hunting products is also aimed at creating conditions for the production and sale of export-oriented products. In this regard, measures are envisaged to economically stimulate deep waste-free processing of reindeer herding products and provide financial support (in the form of subsidies) for the purchase of slaughterhouses and the organization of the collection of endocrine enzyme raw materials from reindeer herds. The Arctic regions are very favorable for cage-based fur farming from the point of view of the availability of food resources (trash fish and waste from the fishing industry). Breeding caged animals (sable, silver-black fox of the Norwegian type), the skins of which are in demand raw materials for light industry enterprises and the most export-oriented type

of fur raw material, will diversify production, strengthen inter-industry ties, and create new jobs in the Arctic regions. It is estimated that from 2024, the processing and production of fur products and leather and fur raw materials could reach 85 million units annually.

The assessment of the berry, mushroom and herbal potential of the Russian Arctic shows that the possible annual volumes of procurement of medicinal raw materials, berries, mushrooms and nuts here are respectively 36 tons, 3993.8 tons, 2112.5 tons and 2220.0 tons. At the same time, in the Arctic regions, the collection and procurement of plant resources for personal consumption of the population is recommended. The Russian Arctic is also implementing a research program on the formation of food technologies and diets based on traditional products of the North. In the centers of municipal districts, it seems appropriate to develop the processing industries of the agro-industrial complex, including the processing of meat, dairy products and fisheries products, by creating a full cycle of "production – processing – sale" with the introduction of modern technologies at all stages of the product life cycle. The development of traditional industries of the North (cattle and horse breeding, animal husbandry) is associated with the need to provide the local population with meat, fish and milk of their own production, food security in this region. Northern deliveries still have a special role in ensuring food security in the Arctic regions - a guaranteed supply of fuel and energy resources and food to the settlements of the Russian Arctic. The government annually approves the need for the delivery of life-sustaining goods in the context of municipalities and major enterprises. The list of socially significant food products includes 12 items: flour, pasta, vegetable oil, cereals, tea, salt, sugar, meat and fish products, powdered and condensed milk, processed and canned fruits and vegetables. In addition, the range of these food products includes baby food, milk and dairy products, eggs, vegetables and melons, fresh fruits, margarine, sausages and confectionery. The number of settlements in the regions of the Russian Arctic, to which delivery of socially important food products is provided, includes 268 settlements, of which 97 settlements are AZ Sakha (Yakutia).

Supporting projects for the development of traditional crafts, the production and purchase of food products from local raw materials will not only reduce the severity of the problem of northern imports, but also create the prerequisites for the supply of traditional crafts products to other regions of the country and abroad, taking into account the high environmental standards of such products. In this regard, the experience of a number of mining companies (Almazy Anabara JSC, Arctic Capital LLC) in purchasing products from traditional crafts, food products for their own needs, as well as financing

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projects for the processing of such products within the framework of Agreements on Social-economic development of the territory between the mining company, local authorities, indigenous people and their tribal communities.

In the agricultural sector, measures are envisaged to stimulate employment and self-employment of the population, organize the purchase of commercial products in regional centers, create infrastructure (logistics centers, purchase of transport for transportation), modernize production by creating complexes for advanced processing of reindeer herding and fishing products. The implementation of the project “Construction of trade and logistics centers” with the assistance of the Far East Development Fund, the development of a regional law on trading posts will radically improve the food security of the AZ regions of the Russian Federation.

Solving the set tasks for the development of the agro-industrial complex is closely related to the construction of affordable, energy-efficient, safe and comfortable housing suitable for Arctic conditions. In the regions of the Russian Arctic, it is planned to implement the “Model House for the Arctic” project, which meets modern requirements for wear resistance, rapid construction, energy efficiency, and environmental friendliness in the Arctic.

An important task is the implementation of the “Workforce for the Arctic” project. It provides for the expansion of vocational training, retraining and advanced training programs for the adult population, as well as the opening of new professions and specialties, such as “Reindeer Herder-Mechanist”, “Huntsman”, “Taxidermist”, “Commercial Hunter”, “Chuma Mistress”.

The project for the modernization of the reindeer husbandry and fisheries industries involves the continuation of the implementation of subprograms for the competitive distribution of state budget funds for the regions of the Russian Arctic for the acquisition of objects for the modernization of industries (fishing bases, slaughterhouses, refrigeration equipment, all-terrain vehicles, etc.) with an increase in the share of co-financing of the initiator of the application, which will allow increasing the annual volume of fish catching to 6000 tons and the volume of deep processing of fish by 2024 - up to 2000 tons. The project “Model territories of indigenous peoples of the North” deserves special attention, the goal of which is to create a model territory with the official status of “cluster of traditional management of indigenous peoples of the North” in the central part of the Zhigansk district. This model territory provides for the creation of an economy that will be based on the integrated use of local natural resources, the production of environmentally friendly products and the provision of tourism services.

The experience of the Russian Arctic regions in conducting ethnological examination of projects deserves attention and dissemination at the federal level. This approach involves harmonizing the interests of mining companies, local authorities and indigenous people when implementing projects for the industrial development of the Arctic. As part of compensation for potential losses to the indigenous peoples of the North during the economic development of territories of traditional natural resource use, mining companies make compensation payments, part of which can be used to support traditional crafts, develop production facilities for processing agricultural raw materials, and create infrastructure facilities. This approach corresponds to the implementation of the principle of obtaining and using benefits during the industrial development of the Arctic.

Coordination and monitoring of the implementation of the “Strategy for the socio-economic development of the regions of the Russian Arctic for the period until 2035” is carried out by the Ministry for the Development of the Arctic and the Affairs of the Peoples of the North. As target indicators for the implementation of this Strategy, we can note maintaining the level of natural growth and reducing the migration outflow of the population, reducing the level of general unemployment to 5.7%, increasing the standard of living of the population of the Russian Arctic regions by 1.8 times compared to the base level. Over the past 10 years, the concept of the blue economy has become quite widespread. Gradually, humanity is coming to realize the exceptional role of the World Ocean in the natural complex of the Earth, understanding that the rapid degradation of its ecosystems and the depletion of the resource base due to increasing environmental and economic pressure inevitably have a negative impact on the well-being and health of people. The World Wildlife Fund estimates the global value of the oceans at 24 trillion dollars. According to FAO estimates, the oceans and seas provide food for 10–12% of the world's population, and according to the IPCC, the oceans absorb 30% of the carbon dioxide produced by humans. If managed sustainably based on the UN Sustainable Development Goals, the world's oceans could produce six times more food and 40 times more renewable energy than currently. This will lift millions of people out of poverty, improve economic and environmental sustainability, build the industries of the future and produce low-carbon fuels and food.

Despite the lack of a unified formalized understanding of the content of the concept of “blue economy”, it can be noted that what is common to both national and international approaches is the recognition that this concept is aimed at the systematic and sustainable development of economic sectors related to the use of the resources of the World Ocean and seas, while maintaining a balance between

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economic growth and environmental safety. According to the World Bank classification, the main economic activities related to the blue economy are the fishing and trade of living marine resources, the extraction of non-living and non-renewable natural resources (offshore and deep-sea mining of minerals and energy resources), renewable energy, maritime transport, trade, tourism and other types of commercial activities using the potential of the World Ocean [The concept of the “blue economy”. An extremely important aspect of the blue economy is to take measures aimed at reducing the negative human impact on the ecology of the seas and oceans. To this end, many coastal states (such as EU countries, India, Indonesia, Canada, Norway, China, etc.), as well as international organizations (UN, OECD, G20, APEC, Arctic Council, etc.) are developing various strategies and initiatives aimed at creating sustainable management of the World Ocean. Russia also takes part in the development of initiative projects by these international organizations. First of all, this concerns issues of sustainable development of the Arctic, since Russia is the largest Arctic state. In addition, it has mastered and uses the Northern Sea Route, which today has no analogues in the world, including other Arctic countries (USA, Canada, Norway, Sweden, etc.).

Main part

The Arctic zone of the Russian Federation, in accordance with the Spatial Development Strategy, is classified as a geostrategic territory, i.e. territories that are essential for ensuring sustainable socio-economic development, territorial integrity and security of Russia, characterized by specific living conditions and economic activities.

The country's leadership attaches great importance to the development of Arctic territories for several reasons. First of all, this is a matter of ensuring the national security of the northern borders, especially given the position of the United States, which insists that the Arctic should be open to the peaceful passage of ships from third countries, as well as scientific development. This problem has a long history associated with the peculiarities of both the international legal status of the Arctic, enshrined in the 1982 UN Convention on the Law of the Sea (UNCLOS), and the determination of the boundaries of first the USSR and then Russia in the Arctic. The USSR relied on the right of historical ownership of Arctic waters, since Russia, starting from the 16th century (and even earlier), was actively involved in the study of Arctic territories and the development of northern sea routes. Since the time of Veliky Novgorod, the seas of the Arctic Ocean have been internal waters used exclusively by Russia for inland navigation. Accordingly, based on the international concept of historical straits, the USSR significantly expanded the boundaries of its internal waters, and,

accordingly, the boundaries of the territorial sea and the exclusive economic zone, establishing a permitting procedure for passage through them and a mandatory requirement for pilotage and icebreaker assistance.

The United States, in turn, does not recognize these demands as legal. They attempted to cross the territory of the USSR exclusive economic zone in the Arctic back in the 1960s. So, during 1963–1964. The United States carried out oceanographic research in the waters of the Soviet Arctic, between the Barents and Chukchi seas, which prompted the USSR government to tighten the shipping regime in the Arctic zone. However, the United States abandoned attempts to pass through the disputed territories, most likely due to its own technical unpreparedness.

It should be noted that not only the USSR, but also Canada insisted on recognizing its full sovereignty in relation to the Arctic territories. And just like the USSR, the Canadian government expanded its territory by straightening the border lines and established strict requirements for passage through its waters. In addition, it was Canada that initiated the inclusion of Article 234 “Ice-covered areas” in UNCLOS, according to which “Coastal States have the right to enact and enforce non-discriminatory laws and regulations to prevent, reduce and control pollution of the marine environment from ships in ice-covered areas in within the exclusive economic zone, where particularly harsh climatic conditions and the presence of ice covering such areas for most of the year create obstacles or increased danger to navigation, and pollution of the marine environment could cause serious harm to the ecological balance or irreversibly disrupt it.” Thus, this norm provided the Arctic states with the opportunity to establish their own rules for navigation in Arctic waters, if necessary, providing for more stringent rules than the norms of international law. At the same time, national legislation in this part will have priority over international law. However, the United States does not recognize this interpretation, demanding that its ships be granted the right of innocent passage and accusing Russia of violating international law. This poses a whole range of national security challenges for Russia, including:

a) attempts by a number of foreign states to revise the basic provisions of international treaties regulating economic and other activities in the Arctic, and to create systems of national legal regulation without taking into account such treaties and regional cooperation formats;

b) the incompleteness of the international legal delimitation of maritime spaces in the Arctic;

c) obstruction of the Russian Federation from carrying out legal economic or other activities in the Arctic by foreign states and (or) international organizations;

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d) the buildup of military presence by foreign states in the Arctic and the increase in conflict potential in the region;

e) discrediting the activities of the Russian Federation in the Arctic.

Geopolitical tensions in the Arctic region are gradually increasing, which is not surprising. The Arctic has significant economic and natural potential. It is estimated to hold 1/4 of the world's undiscovered natural resource reserves (including metals, including precious ones), 1/4 of the world's natural gas reserves, and 10% of the world's hidden oil reserves. In addition, as the eternal ice melts, the use of the Northern Sea Route (NSR) as an international transport artery connecting Europe with Asia is becoming increasingly promising. However, we must not forget that the Arctic territories are very specific; they require a careful attitude towards nature and a special attitude towards human capital. Therefore, in this region, more than anywhere else, it is important to ensure sustainable development, which implies a balance between economic, social and environmental goals. It is this approach that is reflected in the Fundamentals of the State Policy of the Russian Federation in the Arctic, which identified the following goals for its development, namely:

a) improving the quality of life of the population of the Arctic zone of the Russian Federation, including people belonging to small peoples;

b) accelerating the economic development of the territories of the Arctic zone of the Russian Federation and increasing their contribution to the economic growth of the country;

c) environmental protection in the Arctic, protection of the original habitat and traditional way of life of small peoples;

d) implementation of mutually beneficial cooperation and peaceful resolution of all disputes in the Arctic on the basis of international law;

e) protection of the national interests of the Russian Federation in the Arctic, including in the economic sphere.

According to the report of A.V. Krutikov, Deputy Minister of the Russian Federation for the Development of the Far East and the Arctic at the V International Conference “The Arctic: Shelf Projects and Investment Development of Regions” in 2020, this department focuses on attracting private investment. Thus, a package of legislation was developed and adopted that created a special economic regime for the Arctic zone of Russia with a wide range of tax and non-tax preferences, which are designed to reduce risks and increase the profitability of investments in Arctic projects, making them attractive to private investors. First of all, this applies to the mining industry, for which benefits from the mineral extraction tax (MET) have been established. According to the Russian Ministry of Energy, this will help launch nine largest projects in the Arctic with an

investment volume of 15 trillion. rub. Indeed, today Russia is the only country in the world that is developing deposits within the Arctic territory, covered with eternal ice, as well as deposits on the shelf of the seas of the Arctic Ocean. Based on the exploitation, first of all, of Arctic gas fields, the Russian government planned to increase LNG production to 70 million tons per year by 2035, which would make the country practically a leader in this industry. According to A. Novak, who was the Minister of Energy in 2017, in the period until 2035, Russia can increase the share of LNG from “today’s 4% to 15–20% of the world market.”

The resources of the Russian Arctic also include copper-nickel ores, tin, rare metals and rare earth elements, gold, platinum group metals, tungsten, chromium, titanium and a number of other minerals in demand in modern high-tech industry. Therefore, as part of the Arctic development strategy, it is planned to implement incentive tools for the creation of not just extractive industries, but enterprises for the deep processing of these minerals.

At the same time, practically no attention is paid to the environmental consequences of such active industrial development of the Arctic zone. Although, as the experience of the Soviet period showed, such an approach can lead to extremely negative environmental consequences for the very fragile ecosystem of the region. At the same time, it must be admitted that many Russian companies have recently been paying increasing attention to issues of social responsibility. For example, the Rosneft company is implementing the largest Arctic exploration program since Soviet times. Since 2018, about 30 scientific expeditions have already been carried out along the entire coast of the Arctic Ocean to study glaciers and icebergs, marine and coastal zones, and rare species of animals and birds. The purpose of such a detailed study of the environment is, among other things, to ensure the conservation of biodiversity during the implementation of investment projects. However, so far these are only individual private initiatives. Whereas when developing Arctic resources, it is necessary to constantly adhere to an integrated approach that combines the introduction of modern resource- and energy-saving technologies, environmental monitoring, infrastructure development and projects in the social sphere. The most significant limiting factor for the development of both the mining and processing industries in the Russian Arctic is the lack of modern infrastructure, primarily transport and energy. In this regard, regulations have been adopted aimed at stimulating investment in its development. In particular, with the volume of investments in infrastructure projects starting from 300 million rubles, a subsidy of up to 20% of private investment is provided. In May 2020, the “Capital of the Arctic” priority development territory (ADT) was created in the Murmansk region.

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It united NOVATEK-Murmansk LLC with the investment project “Center for the Construction of Large-Capacity Marine Facilities”, LLC “Lavna Commercial Sea Port” with the investment project “Construction of a new coal terminal in the Lavna Commercial Sea Port on the western shore of the Kola Bay”; LLC "Marine Terminal TULOMA" with an investment project to create a terminal for mineral fertilizers and apatite concentrate in the seaport of Murmansk; JSC "Murmansk Region Development Corporation" with an investment project to create an international cultural and business center to realize the geopolitical and cultural potential of the region.

According to the Transport Strategy of the Russian Federation until 2035, it is planned to expand the Northern Latitudinal Railway (a railway under construction in the Yamalo-Nenets Autonomous Okrug) through directions towards the city of Norilsk to ensure transport communications and form a railway junction between the Trans-Siberian Railway and the Northern Sea Route. The development of the NSR itself and the attraction of additional volumes of transit cargo depends on ensuring its year-round use and competitive transportation costs compared to the Suez Canal. The competitiveness of the NSR may increase over time as a result of the negative impact of climate change on ports in more southern countries. Located on open coasts or in low-lying estuaries and estuaries, they are already being negatively impacted by rising sea levels, storm surges, waves and winds, as well as river and rain-fed flooding. As noted by the UNCTAD secretariat, damage to port infrastructure and/or operational disruptions and disruptions could negatively impact trade and energy supplies, with widespread negative consequences for international supply chains. Accordingly, this will force many logistics companies to pay attention to the NSR as an alternative to the southern sea route through the Suez Canal. However, the main task of the NSR today is transport support for the domestic mining industry. Thus, according to the forecast of the Ministry of Natural Resources and Environment, “the main driver of economic development in the Arctic zone is the development of natural resources, mainly minerals. Transportation of extracted mineral raw materials determines the main volumes of cargo traffic in the Northern Sea Route - from the Kara to the Chukchi Seas.” Accordingly, by 2035, it is planned to transport 41 million tons of mineral resources per year along the NSR. In the future, the NSR should become part of the Northern Sea Transit Corridor (NSTC) between Europe and Asia - a container line project from Murmansk to Petropavlovsk-Kamchatsky. According to the Strategy for the development of the Arctic zone of the Russian Federation and ensuring national security for the period until 2035, the priority task for the development of the Russian Arctic is the comprehensive development of the infrastructure of sea ports and sea shipping routes in the waters of the

Northern Sea Route, the Barents, White and Pechora seas, the creation of a terminal in the seaport of Murmansk mineral fertilizers and apatite concentrate (LLC Marine Terminal TULOMA); creation of an international cultural and business center to realize the geopolitical and cultural potential of the region (JSC "Murmansk Region Development Corporation"). The Rusatom Cargo and Rosatom companies are already developing plans to transfer cargo flows to the NSR, as well as to establish hub ports in Murmansk and Petropavlovsk-Kamchatsky for container transportation. Rosatom and Roscosmos are engaged in the creation of a satellite constellation necessary to ensure navigation in the SMTC waters. Besides, It is planned to build at least five universal nuclear icebreakers of Project 22220, three nuclear icebreakers of the Leader project, 16 rescue and towing and rescue vessels of various capacities, three hydrographic and two pilot survey vessels. Programs for the construction of cargo and cargo-passenger ships for transportation between sea and river ports in the Arctic zone should be developed and approved, and the capabilities of navigation on the rivers of the Arctic zone should be expanded, including dredging, construction of ports and port points. Taking into account the geopolitical problems outlined above, it is fundamentally important for Russia to maintain its sovereignty and control capabilities throughout the entire length of the SMTC, including by maintaining the permitting procedure for the passage of foreign ships and mandatory pilotage and icebreaker assistance. However, this is legally difficult: only the NSR waters fall under Article 234 of UNCLOS, since the Barents, White and Pechora Seas do not have permanent ice cover. That is why the very term “Northern Sea Transit Corridor” was excluded from the draft Strategy for the Development of Regions of the Arctic Zone of the Russian Federation.

However, in relation to the NSR, the regulatory framework of the Russian Federation contains the indicated provisions. In addition, in accordance with the Merchant Shipping Code of the Russian Federation, transportation along the NSR of oil, natural gas (including LNG), gas condensate and coal produced in Russia, including the Russian shelf, must be carried out under the Russian flag. Since January 2019, the Russian government has also required that all new ships operated by Russian companies in the Russian Arctic be built in Russian shipyards. For this purpose, in the Primorsky Territory, a consortium of investors led by PJSC NK Rosneft built the Zvezda shipbuilding complex (SSK Zvezda), specializing in the construction of Arctic vessels, in particular, icebreaking gas tankers intended for transporting LNG and capable of working in arctic conditions. Contracts for the construction of 15 such vessels, intended for the removal of cargo from the Arctic LNG-2 plant, were concluded by the Zvezda Shipbuilding Complex and the state development

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corporation VEB. RF in December 2019 - July 2020. In addition, the complex received an order for the construction of 12 Aframax class tankers and 12 shuttle tankers with a deadweight of 42 to 120 thousand tons. By 2024, it is planned to increase cargo flow along the NSR to 80 million tons, and in the period 2025–2035 It is expected to ensure year-round navigation throughout the entire NSR water area. However, it is too early to talk about turning the NSR into a full-fledged transit route for several reasons. Indeed, the route along the NSR is 40%, i.e. almost 4 thousand nautical miles shorter than the traditional transit route through the Suez Canal. However, this does not mean financial savings of 40%, namely:

Firstly, the Arctic Ocean is quite shallow. Accordingly, new generation container ships with a carrying capacity of more than 18 thousand TEU cannot navigate it. The maximum carrying capacity of ships that can sail along the NSR is 4000 TEU. At the same time, these must be ships of a sufficiently high ice class (minimum Arc5). Finally, the cost of mandatory pilotage and icebreaker assistance is quite high and costs more than the fee for transiting the Suez Canal. However, the latest demands from the Russian authorities are justified, since a decrease in Arctic ice cover does not at all mean an improvement in navigation conditions. Icebergs and drifting ice pose a serious hazard to navigation. Due to a decrease in the thickness of the ice cover and its extent, the ice becomes more mobile, the drift speed increases, and the behavior of the ice becomes more dynamic and less predictable;

secondly, many issues of technical support for navigation along the NSR remain unresolved, in particular:

- The NSR is still not fully mapped, as a result of which there are no detailed maps even in Russian (there are no maps at all in English), the number of electronic maps for the NSR is limited;

- the region does not have stable communications coverage, and the satellite communications capacity is insufficient (the deployed constellation of satellites of the Russian Ministry of Defense is not intended for civilian needs);

- it is necessary to increase the number of long-range unmanned aerial vehicles to solve a whole range of navigation safety problems along the NSR;

- the port infrastructure is outdated and requires urgent major repairs and reconstruction; protective structures, warning and warning systems have fallen into disrepair due to lack of proper control;

- in ports it is necessary to deepen the seabed to make it possible to receive modern ships, as well as expand technical capabilities to provide services for bunkering ships, collecting wastewater and solid waste;

- spills of oil products and chemicals pose one of the most serious environmental threats in the Arctic, and due to the inaccessibility of the territories

and the lack of reliable communications, the removal of such pollution is extremely difficult;

- The lack of open official information about incidents (accidents and incidents) on the NSR prevents the formation of insurance products by insurance companies and limits the possibilities for insuring ships, cargo and liability for damage caused to the environment. The lack of insurance is a serious barrier for many transport companies.

Thus, the prospects for the development of the NSR as a transit corridor are still very distant and involve attracting a significant amount of investment, which is becoming increasingly difficult in the context of anti-Russian sanctions and growing geopolitical tensions. A possible option is to attract Chinese investment as part of the “One Belt, One Road” project. However, today only the Yamal LNG and Arctic LNG-2 projects in combination with the construction of the Sabetta port can be considered successful. For the rest of the NSR and SMTC as a whole, no significant agreements have yet been reached. This is partly due to differences in the approaches of China and Russia to the issue of the passage of ships of third countries in the Arctic. China, having declared itself an “Arctic” and “responsible” country, advocates granting third countries the right of free and peaceful passage in the Arctic for both commercial and scientific purposes. However, this runs counter to Russia’s position stated above. In addition, in the White and Barents Seas, Russia’s competition with its western neighbors is intensifying, which are also attracting China’s attention (especially Greenland and Iceland). Finally, China is not interested in using the Russian icebreaker fleet, since it intends to build its own. The relationship between Russia and China on the development of the Arctic cannot be called simple. Our countries have both common interests in the implementation of joint investment projects, and quite significant contradictions that require the search for a difficult compromise.

It is expected that the intensification of investment activity in the Arctic region will help solve social problems, such as improving the level and quality of life of the local population. Indeed, as foreign experience, for example, Norway, shows, the implementation of oil production projects can have a significant positive effect on the entire region. Thus, from the very beginning of the development of the Snovit field, the Norwegian authorities created conditions that made it possible not only to receive economic benefits from oil production, but also to develop their own technologies, and, consequently, to obtain a multiplier effect from the development of a chain of related industries. Accordingly, when implementing projects for the development of hydrocarbon resources on the shelf of the Russian Arctic, the main priorities of state regulation of the oil and gas complex should be aimed at creating

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conditions for the “participation” of the fuel and energy complex in solving a wide range of socio-economic problems of the state. The experience of leading oil and gas powers indicates that over the past 20–30 years, approaches to integrating the tasks of developing hydrocarbon resources with solving a wide range of socio-economic problems have been developed and successfully implemented in the world. Such approaches involve a shift in emphasis from the analysis of assessing exclusively the financial and economic consequences of project implementation to the socio-economic results of their implementation.

Today, the Arctic region is characterized by population outflow. As N.A. emphasizes Roslyakov, this is due to the fact that the Soviet tradition of Arctic development, based on the development of small towns and cities, did not fit into the new concept of economic growth and development on the principles of global competitiveness, in which megacities received a special advantage. The consequence was the bankruptcy and curtailment of the activities of a large number of enterprises in the Arctic, the decommissioning of hundreds of airports and the transfer of aviation to a commercial payback regime, which sharply reduced the transport accessibility of the territories and the mobility of the population, and provoked the closure of many social institutions. In modern government strategic documents on Arctic development, the first priority is to improve the quality of life of the local population. However, neither in existing documents nor in political circles is there a clear understanding of whether the development of the NSR is an end in itself (the final goal) or is it only a tool for ensuring the socio-economic development of the Arctic itself, improving the level and quality of life in it, and creating attractive working conditions .

Although the answer to this question directly determines the solution to the problems of settlement and development of the Arctic, which is characterized by difficult living conditions, both due to climatic conditions and as a result of the policies of recent decades, which have led to the absence or insufficiency of critical social infrastructure (especially healthcare). As a result, the region's death rate is much higher than many other regions of the country. The second critically important area is quality education, the absence of which deprives the local population of the opportunity to obtain knowledge and competencies in demand on the labor market or to improve their skills. In this regard, a gap arises in the labor market and unemployment is growing among the local population, whose skill level does not meet the requirements for opening new modern enterprises. On the other hand, it is difficult to attract highly qualified personnel to the Arctic, which it urgently needs. The problem of unemployment in the Arctic zone of Russia is also largely due to the closure of many city-forming enterprises and the

change in pre-existing economic models after the transition to a market and the liberalization of foreign trade activities. A striking example is the fishing industry, which is currently characterized by a high level of exports. Thus, in the Murmansk region, at least 80–85% of the catch is exported. As a result, from 1990 to 2017, the cargo turnover of the Murmansk port for fish products decreased by 5.6 times, the number of employees - by 9.9 times. Almost all ship repair enterprises have closed, since most of the vessels fishing near the borders of the Murmansk and Arkhangelsk regions undergo repairs and maintenance in foreign ports where they deliver their catch. Ship repair activities in the Murmansk region are carried out by several small organizations and are limited to servicing small, undersized and, in small quantities, medium-sized fishing vessels. The average annual load of the main production (fillet and clipfish) of coastal fish processing enterprises does not exceed 40–45%. At the same time, the cost of raw materials (semi-finished products) in the cost structure reaches 65–70% (due to the export orientation of fish production), which determines the high level of product prices. Containers for canned fish are also no longer in demand, so only those enterprises that managed to diversify their production survived. A significant reduction in the number of employees also occurred in industry research institutes and design organizations.

Within the framework of the Arctic Zone Development Strategy, the development of the fishing industry is mentioned. Even before this, in 2016–2017 decisions were made to create fishing clusters in the Arkhangelsk, Kaliningrad and Murmansk regions. However, so far fishing organizations have not shown interest in their functioning. This is just one example that raises a whole range of questions about the socio-economic development of the Arctic territories. The main one - how much permanent population the Arctic needs and whether it is needed at all - still remains unanswered. Thus, the former plenipotentiary representative of the President of the Russian Federation in the Siberian Federal District S.I. Menyailo expressed the opinion that the Arctic is not a place of permanent residence for people. The opposite point of view is held by the Chairman of the State Duma Committee on Regional Policy and Problems of the North and Far East N.M. Kharitonov. In terms of ensuring security in modern complex geopolitical conditions, it is obvious that the Arctic territory should not only be economically developed, but also have a permanent population, at least in key points associated with the development of the Northern Sea Route. To do this, it is necessary to ensure transport connectivity of the Arctic with the rest of the country, accurately determine the places of permanent settlement of people (only in those territories that will attract investment and develop), and provide regulatory benefits not only for

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investments in mining or large infrastructure projects, but also simultaneous construction of the necessary social infrastructure for the population that will serve the relevant enterprises (it does not matter - permanently resident or temporary), to work out mechanisms for relocating the permanent population of the Arctic to neighboring regions in which new projects are beginning to be implemented, instead of attracting employees from the central parts of the country. Particular attention must be paid to the problems of indigenous peoples who, among other things, are suffering from the loss of their traditional crafts as a result of climate change. Their way of life was formed in parallel with the evolution of the northern biocenosis, and therefore in itself is a guarantor of the sustainability of the entire Arctic ecosystem, in contrast to the artificially created technogenic environment. As a result, the preservation of traditional environmental management, the way of life of indigenous peoples and their communities is extremely important.

Analysis of the existing regulatory framework of the Russian Federation on Arctic issues, draft federal laws presented by the Ministry of Economic Development of the Russian Federation, which are designed to regulate its development, as well as the above-mentioned speech by A.V. Krutikova shows that in state policy, the sustainable development of the Arctic region, first of all, is primarily understood as the economic development of the territory. At the same time, the declared goal is to improve the quality of life of the local population (i.e. sustainable social development). The environmental component is limited to a few declarations in the main strategic documents.

At the same time, as all experts involved in climate change have noted, in recent decades the temperature in the Arctic has been rising twice as fast as in other parts of the Earth. In "various regions of the Arctic, warming ranged from 0.7 to 4 °C, and warming in winter exceeded this value in summer. The reduction in the total extent of Arctic ice is impressive: from 7.5 million km² in the late 1970s to 5.5 million km² in 2005. In 2007, a new record was set - 4.3 million square kilometers." The consequences of these processes have already begun to actively manifest themselves. Thus, in 2018, the Republic of Sakha (Yakutia) faced the worst flood in the last 18 years: 63 settlements were in the flood zone, the amount of damage amounted to 1.5 billion rubles. In 2020, in Verkhoyansk, known in the world as one of the cold poles of the Northern Hemisphere, an abnormal heat wave was recorded, never before observed in the Arctic Circle: +38 °C. In October 2020, for the first time in the entire history of observations, the Laptev Sea did not freeze in Yakutia. But the greatest risks today are associated with the thawing of permafrost (an increase in soil temperature at a depth of more than 10 m by 1 °C over the past 10

years). "Destabilization of permafrost leads to a decrease in its load-bearing capacity, which entails risks for structures and engineering infrastructure, which are at risk of more frequent emergencies and increased costs for repairs and maintenance." According to scientists, by the middle of the 21st century. Due to global warming and ground melting, up to 70% of the Arctic infrastructure may be damaged.

In turn, this attacks all three dimensions of sustainable development: economic, social and environmental. For example, in the Republic of Sakha (Yakutia) alone, in the permafrost thawing zone there are: 140 thousand residential buildings, 27.4 thousand km of roads, 525 km of railways, 6.3 thousand km of main pipelines, including 1.5 thousand km of the Eastern Siberia - Pacific Ocean oil pipeline, as well as 1.3 thousand km of the Power of Siberia gas pipeline. Accordingly, man-made accidents at these facilities will have catastrophic consequences not only for this region, but also for the economy of the country as a whole. Melting permafrost causes irreparable damage to agriculture. In particular, negative phenomena are observed on 60% of all agricultural lands of the Republic of Sakha (Yakutia) and 70% of its cultivated areas, on which 60% of agricultural products are produced. At the same time, the leading agricultural regions (Megino-Kangalassky, Churapchinsky, Ust-Aldansky) are already beginning to lose pastures and arable land due to degradation processes. In addition, as a result of the thawing of permafrost, ancient viruses and pathogens are being released, which the northern regions of Russia are already beginning to encounter. Thus, several years ago, an anthrax outbreak in the Yamal-Nenets Autonomous Okrug occurred precisely because of a thawed cattle burial ground from the middle of the last century. In addition, research shows that when permafrost thaws, followed by coastal erosion, large amounts of methane, carbon dioxide, organic carbon, nutrients and potential pollutants, particularly heavy metals, are released and released into the atmosphere and water. Studies of indigenous peoples living in the Russian Arctic have found highly toxic substances such as polychlorinated biphenol (PCB), lead and hexachlorobenzene (HCB) in the umbilical cords of newborn children and adult men and women, some of the highest levels in northern countries. At the same time, it should be taken into account that the Arctic, due to its geographical features, becomes a kind of dead end in which pollution brought by branches of Atlantic currents from the more densely populated regions of Europe and America accumulates. Thus, a study conducted by a group of American scientists showed that the content of plastic particles in Arctic waters is at the same level as other (industrialized) areas of the planet, and this indicates the transfer of particles with ocean currents. They particularly highlighted the concentration of microplastics in

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Arctic sea ice (plastic particle content found to range from 38 to 234 particles per m³, which is significantly higher even compared to heavily polluted ocean currents). Microplastics were also found in marine life - fish (up to 34% of samples taken), mollusks, crustaceans (up to 100% of samples taken), etc.

Scientists emphasize that a significant part of microplastics enters Arctic waters from sea vessels. Most of the particles found consisted of polymethacrylamide, a thermoplastic widely used as an anti-fouling coating on ships, as well as anti-corrosion and waterproof coatings.

Another source of pollution in the Arctic is wastewater. In Russia, the largest discharge was recorded in the Republic of Sakha (Yakutia). In many of its settlements, wastewater is discharged either without treatment at all, or treatment facilities do not provide the appropriate level of treatment. The greatest pollution was recorded in the rivers Indigirka (very polluted with a high content of oil products, iron and manganese), Anabar (very polluted, with an excess of iron, copper, manganese), Kolyma (very polluted), Olenek (very polluted), and Lake Sulfidka (pollutants come from tailing dumps of tin ore deposits). Accordingly, all these substances then end up in the sea waters of the Arctic.

Finally, waste from the Soviet period of Arctic exploration still poses a serious problem. The All-Russian Research Institute for Environmental Protection counted 25 environmental hot spots in the Arkhangelsk region, 12 in the Yamalo-Nenets Autonomous Okrug (almost all abandoned and flooded objects in the waters of seas and rivers), six in the Murmansk region, three in the Chukotka Autonomous Okrug, Nenets Autonomous Okrug and Yakutia - two each. A total of 102 objects were identified. Among them are 33 landfills for household and industrial waste, as well as areas contaminated with petroleum products, and sites of accumulated damage from the mining industry. The main types of environmental waste were fuel, gasoline, waste oil residues, fuel and lubricants and containers for them, petroleum products, rusty aircraft and automobile equipment and household waste. Since this problem was recognized at the federal level (during a visit to Franz Josef Land in 2010, V.V. Putin announced the need for a "general cleaning" in the Arctic), the Ministry of Economic Development of Russia, the Ministry of Natural Resources of the Russian Federation, and the Ministry of Defense of the Russian Federation were involved in its solution, Russian Geographical Society, Polar Research Foundation "Polar Fund" and other organizations. As a result, during the period from 2018 to 2022, 40 thousand tons of waste were disposed of in the Arctic, and 200 hectares of land were reclaimed. The pilot region of the Arctic cleanup program was Franz Josef Land, where 44% of the accumulated waste has already been disposed of. However, due to a lack of funds, cleaning

up the Arctic is being delayed. Therefore, the Ministry of Natural Resources of the Russian Federation announced its intention to develop a new program for cleaning the Arctic zone worth 60 billion rubles. However, we are only talking about scrap metal collection. At the same time, today there are no plans for abandoned settlements, mines and tailings dumps (harmful substances from which seep and enter the soil and water bodies of the Arctic). In addition, in Yakutia alone, about 300 sunken ships need to be raised from the bottom of reservoirs. This requires an additional 9 billion rubles. Thus, "due to the limited capacity of the biosphere, the high vulnerability of Arctic landscapes and the low rate of their restoration, the ecological module of the spatial development of the Arctic acquires particular relevance, which must first of all be taken into account when developing scenarios for the development of the Arctic space."

However, within the framework of the current legal regulation, "the development of territories cannot be "ecologically friendly", since there are no criteria and understanding of "ecological development". On the contrary, "economic development" has a completely understandable and clear set of criteria, such as the level of well-being, the consumer basket, income, employment, infrastructure, gross national product and many other indicators. Therefore, strategic documents most often list development goals of an "economic" nature, and "environmental" ones are listed as either "restrictions" or "conditions", interpreted as "security". In any case, "security" and "development" are not identical concepts, and their provision has fundamentally different implications for law, governance, institutions and legal relations."

Conclusion

The development priorities of the northern territories are based, on the one hand, on the need to effectively implement the tasks of developing the natural resources of the North, and on the other, on the preservation and further development of the indigenous ethnic group. At the same time, this means the possibility of optimizing the ratio of directions of economic development according to purely economic criteria and preserving the traditional way of life of the indigenous peoples of the North. Support and development of traditional environmental management are necessary, first of all, to preserve the ethnic group, the experience of people living in extreme natural conditions, to successfully resist them, to prevent demographic desertification of the Arctic territories and preserve unique landscapes. Also important is the preservation and development of the production of rare types of natural and highly sought-after consumer products - fish delicacies, game, venison, valuable pharmaceutical raw materials. All this is necessary to improve the quality of life and preserve human capital. Supporting these

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territories is also important for guaranteeing the country's food independence, regulating employment and optimizing the labor market, preventing excessive concentration of industrial production in certain territories and dominance beyond urbanized places of residence.

As measures to support local food producers, it is useful to use the experience of some mining companies in purchasing products from traditional crafts, locally produced food products for their own needs, as well as in financing projects for processing such products within the framework of Agreements on the socio-economic development of the territory between the mining company and local authorities, indigenous people and their tribal communities.

An important effective compensation for changes in the natural and ethno-social living conditions of indigenous peoples in the process of industrial development of the North could be the expansion of the production of consumer goods, especially food products produced locally in order to increase their types and quality. Measures aimed at improving the quality of life of the population by improving living conditions, living conditions, and increasing employment of the local population can become the main means of resolving the opposing interests of indigenous residents and mining companies when implementing projects for the industrial development of the Arctic. The study shows that the development of the Arctic region of Russia in the coming years will most likely accelerate due to the expansion of the scale of natural resource extraction and the intensification of shipping on the Northern Sea Route. At the same time, the intensification of the use of NSR and SMTC in general has a number of limitations and risks, namely:

firstly, it is necessary to create a modern port, navigation and other technical infrastructure that will serve the movement of ships along the Northern Sea

Route and ensure the safety of navigation in the difficult conditions of Arctic ice. In addition, it is necessary to strengthen the connection of NSR ports with the interior of the country through the development of other modes of transport (rail, river, aviation and road). All this requires significant amounts of investment. However, in the context of growing geopolitical tensions and sanctions against Russia, the implementation of large infrastructure projects on our own seems difficult and can take many years and even decades.

The intensification of navigation and the intensive development of the mining industry are increasing the already strong anthropogenic pressure on the fragile ecosystems of the Arctic, in particular related to the pollution of Arctic waters. As a result of warming and thawing of permafrost, the risks of environmental and man-made disasters are increasing, which requires additional investments to improve the sustainability of infrastructure and buildings built or being built on frozen soils.

Secondly, at the same time, today there are no comprehensive scientifically based approaches to solving the issue of resettlement in the Arctic: where and in what quantity it is necessary to build housing; how and at whose expense to provide the existing population and those attracted to the Arctic with all the necessary social infrastructure or organize (if necessary and appropriate) the resettlement of residents from depressed settlements, which are not planned to be developed in the future, to new "points of growth"; how to increase transport connectivity of all Arctic territories among themselves and with other regions of the country, etc.

It seems that without a thorough scientific study of the complex of all these and many other issues, relying solely on the economic interests of the commercial development of the Arctic, it is simply impossible to ensure its sustainable development.

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Article



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FEATURES OF ECONOMIC SECURITY OF INDIGENOUS PEOPLES OF THE NORTH LIVING IN THE YAMAL-NENETS AUTONOMOUS DISTRICT OF THE AZRF

Abstract: Getting an education lays the foundation for improving the socio-economic living conditions of people and plays a key role in ensuring the sustainable development of a culture of peace. Thus, SDG No. 4 (Sustainable Development Goal is one of 17 interrelated goals developed in 2015 by the UN General Assembly) “Ensuring inclusive and equitable quality education and promoting lifelong learning opportunities for all” has such objectives, the implementation of which will affect to increase the number of young people and adults, especially in least developed countries and small island developing states, with in-demand skills for employment, decent work and entrepreneurship, namely, “by 2035, ensure that all children complete free education, equitable and high-quality primary and secondary education that achieves relevant and effective learning outcomes.” According to the authors, when developing an education system for indigenous minorities, it is impossible not to take into account the specific form of organization of the educational process itself, the frequency of vacations and diet. The problems of developing the education of indigenous peoples of the Arctic today acquire a special meaning and scale, going beyond the scope of local problems relating to the life and social well-being of a small part of the Russian population. Therefore, it is necessary to train local residents and then improve their skills, as this is one of the ways to reduce the level of unemployment and personnel shortages in the Russian Arctic. To do this, it is necessary to create a competent and effective personnel training system on the territory of the Russian Arctic, completely modernized and with modern technical equipment. However, there are several problems that hinder the development of educational services and their receipt by children in the Arctic. One of the central problems in the education of the indigenous population of the Arctic is the direction of education. It should be focused both on the traditional activities of peoples, and on adaptation and acquisition of modern professions. In addition, there are other problems that need to be solved in the Russian Arctic.

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Introduction

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An assessment of the current situation in the development of traditional economic activities of 19 indigenous peoples of the North in the Arctic zone of the Russian Federation confirmed that it has objects of their heritage that are of historical and cultural value of global significance. According to the 2010 All-Russian Population Census, the number of indigenous peoples of the North is 102 thousand people. The legislation of the Russian Federation today defines 13 types of traditional economic activities of indigenous peoples in the Russian Federation, namely:

livestock breeding, including nomadic (reindeer husbandry, horse breeding, yak breeding, sheep breeding); processing of livestock products, including the collection, preparation and dressing of hides, wool, hair, ossified horns, hooves, antlers, bones, endocrine glands, meat, and offal; dog breeding (breeding reindeer herding, sled and hunting dogs);

animal breeding, processing and sales of products

fur farming; beekeeping, beekeeping;

fishing (including sea hunting) and sale of aquatic biological resources; commercial hunting, processing and sale of hunting products; agriculture (horticulture), as well as cultivation and processing of medicinally valuable plants; harvesting of timber and non-timber forest resources for own needs; gathering (harvesting, processing and selling food forest resources, collecting medicinal plants); free use of commonly used useful services;

minerals for personal use; artistic crafts and folk crafts (blacksmithing and ironworking, making utensils, equipment, boats, sleds, other traditional means of transportation, musical instruments, birch bark products, stuffed game animals and birds, souvenirs made from the fur of deer and game animals and birds, other materials, weaving from herbs and other plants, knitting nets, bone carving, wood carving, sewing national clothes and other types of crafts and crafts related to the processing of fur, leather, bone and other materials); construction of national traditional dwellings and other buildings necessary for carrying out traditional types of economic activities.

For the indigenous peoples of the North, the conduct of traditional economic activities is not only

the basis of life support, but also the support of culture, worldview, folklore, rituals, holidays, folk pedagogy, traditions, and the preservation of the continuity of generations.

A feature of the Arctic zone of the Russian Federation, which determines special approaches to its socio-economic development, is its extensive demographic potential and the high sensitivity of the traditional way of life of the indigenous peoples of the North of the Russian Federation to external influences. The main factors shaping the risks of development of traditional economic activities of indigenous peoples are, namely:

intense climate change in the Arctic;

accelerating the pace of economic development of the territories of the Arctic zone of the Russian Federation in the places of traditional residence of indigenous peoples; high costs when carrying out business activities;

low level of development of transport and social infrastructure in the Arctic zone of the Russian Federation; low quality of communication and lack of high-speed access to the Internet information and telecommunications network in most places of traditional residence of indigenous peoples; inconsistency between the secondary vocational and higher education systems and the need for qualified personnel to carry out traditional economic activities.

The basis of the economy in the places of traditional residence of indigenous peoples, ensuring an increase in employment and self-employment of the indigenous population based on the mobilization of internal resources of households and communities, is the development of entrepreneurship in the service sector and tourism, the creation of small-scale production, the development of artistic crafts, including the production of traditional products, traditional types of environmental management, processing of agricultural products. However, the factors listed above determine the low competitiveness of goods, works and services of indigenous peoples and pose a threat to their livelihoods.

The goals of state support for the traditional economic activities of indigenous peoples are to create conditions for increasing the competitiveness of goods, works and services produced within its framework and to form a sustainable basis for the

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development of indigenous peoples. To achieve these goals, it is necessary to ensure:

creation and development of industrial and technological infrastructure for traditional economic activities of indigenous peoples;

promotion to domestic and foreign markets of goods, works and services produced within the framework of the traditional economic activities of indigenous peoples;

development of the tourism industry in places of traditional economic activity of indigenous peoples;

training of personnel to carry out traditional economic activities of indigenous peoples;

modernization of local generation facilities, expansion of the use of renewable energy sources, liquefied natural gas and local fuel in places where traditional economic activities of indigenous peoples are carried out;

popularization of entrepreneurial activity among indigenous peoples.

The main mechanisms of state support for the traditional economic activities of indigenous peoples, namely:

development of industrial and technological infrastructure of traditional economic activities of indigenous peoples.

The extremely limited investment potential of the traditional economic activities of indigenous peoples does not allow the corresponding small and medium-sized businesses, agricultural producers (carrying out traditional economic activities) to ensure a high level of technological development of production.

As a result, in the vast majority of cases, the depth of processing of the main types of products of indigenous peoples - livestock products, fur farming, fishing, hunting and gathering - remains low, the economic potential of the traditional economic activities of indigenous peoples has not yet been fully used to ensure their sustainable development.

In certain territories of the Arctic zone of the Russian Federation, positive experience has been gained in implementing measures to create trading posts - industrial and logistics complexes for accommodating business entities engaged in traditional economic activities of indigenous peoples, processing and storing their products, as well as those created by a legal entity and (or) individual entrepreneur in places of traditional residence and traditional economic activities of indigenous peoples, points intended to promote the livelihoods of people from among indigenous peoples leading a traditional way of life.

As part of the implementation of the program, in order to develop the industrial and technological infrastructure of the traditional economic activities of indigenous peoples, the following set of measures will be implemented, namely:

*development of standard designs of a trading post with a corresponding list of industrial and technological equipment for all types of traditional economic activities of indigenous people;

*small peoples on the territory of the Russian Federation; subsidizing part of the costs of small and medium-sized businesses, agricultural producers (carrying out traditional economic activities) with the participation of persons from among indigenous peoples for the creation of trading posts, subject to the use of a standard project;

*analysis and dissemination of best practices in the field of technological support for traditional economic activities of indigenous peoples;

development of a standard for nomadic housing for workers carrying out traditional economic activities of indigenous peoples of the Russian Federation;

conducting research in the field of using local resources to create health-saving, medicinal, cosmetic products, dietary supplements, food products for general, therapeutic and prophylactic purposes and special orientation;

development of state support measures aimed at providing small peoples in the places of their traditional residence and traditional economic activities with mobile sources of energy supply and means of communication;

subsidizing part of the costs of small and medium-sized businesses with the participation of individuals belonging to indigenous peoples for the acquisition and modernization of equipment for advanced processing of reindeer husbandry products, marine hunting, and fishing;

subsidizing part of the costs of small and medium-sized businesses, agricultural producers (carrying out traditional economic activities) with the participation of persons from among indigenous peoples for the modernization or creation of a modern material and technical base for the extraction and processing of aquatic biological resources; development of artistic crafts and creation of conditions for the growth of domestic and international product markets.

Promotion of goods, works and services produced within the framework of the traditional economic activities of indigenous peoples to the domestic and foreign markets.

At the federal level, there is no system for promoting goods, works and services produced within the framework of the traditional economic activities of indigenous peoples to the domestic and foreign markets, taking into account the specifics of such activities, within the framework of existing institutions and mechanisms for supporting production and exports.

Regional government bodies and export centers take separate, often personal measures to promote the

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production and export of products made by indigenous peoples.

As part of the implementation of the program, on the basis of a management company performing the functions of managing territories of rapid socio-economic development and state support for business activities in the Arctic zone of the Russian Federation (hereinafter referred to as the management company), a system will be formed to support the production and export of goods, works and services produced by within the framework of traditional economic activities of indigenous peoples, including, namely:

*maintaining a register of small and medium-sized businesses with the participation of individuals from among indigenous peoples producing goods, works and services, including export-oriented ones;

*conducting regular analyzes of domestic and foreign markets to assess the possibility of marketing products produced within the framework of the traditional economic activities of indigenous peoples;

*assistance to small and medium-sized businesses with the participation of individuals from among indigenous peoples in the preparation of marketing materials;

* assistance in holding exhibition events and business missions that ensure the promotion of products produced within the framework of the traditional economic activities of the indigenous peoples of the North of the Arctic zone of the Russian Federation to the domestic and foreign markets;

*consulting and educational support for small and medium-sized businesses with the participation of individuals from among indigenous peoples in the field of customs clearance, export and currency control, logistics, certification, patenting and licensing for export purposes;

*subsidizing part of the costs of small and medium-sized businesses with the participation of individuals from among indigenous peoples associated with organizing the export of their products.

Development of the tourism industry in places of traditional economic activity of indigenous peoples.

Tourism has become one of the largest global economic activities. The number of visitors to protected areas around the world is growing steadily. Indigenous peoples are taking an increasingly active part in the development of the tourism industry, especially ecotourism and ethno tourism. Eco-tourism routes include wildlife tours, visits to cultural attractions and other tourism services in traditional natural resource areas and protected natural areas. The culture and ancestral habitat of indigenous peoples are becoming a major attraction for tourists visiting wilderness areas. The fundamental principle of tourism support is non-interference in the life of indigenous peoples without their voluntary consent.

As part of the program, taking into account the main provisions of the Strategy for the Development

of Tourism in the Russian Federation for the period until 2035, approved by order of the Government of the Russian Federation, the following set of measures will be implemented to develop the tourism industry in places of traditional economic activity of indigenous peoples, namely:

*conducting an annual selection of projects in the field of development of the tourism industry in places of traditional economic activity of indigenous peoples with the aim of state support for their implementation;

*assisting the development of master plans for the development of tourist areas in places of traditional economic activity of indigenous peoples;

*subsidizing part of the costs of capital investments in infrastructure facilities necessary for the implementation of projects for the development of the tourism industry in places of traditional economic activity of indigenous peoples, as well as part of the costs of Russian credit institutions to compensate for lost income on loans issued for the implementation of such projects;

*subsidizing part of the costs of tour operators associated with receiving tourists in tourist areas in places of traditional economic activity of indigenous peoples in order to reduce the cost of relevant services during the low tourist season; development and implementation of a program to improve the quality of tourism services in places of traditional economic activity of indigenous peoples, including the implementation of programs to improve the qualifications of specialists in the field of tourism activities and representatives of indigenous peoples who receive tourists in traditional national dwellings;

*organizing and conducting campaigns to promote tourism services in places of traditional economic activity of indigenous peoples in the domestic and foreign markets, including posting information about them on national and regional information resources and digital services, for cultural and educational tourism.

Training of personnel for the implementation of traditional economic activities of indigenous peoples.

Currently, a system for training qualified and highly qualified personnel to carry out the traditional economic activities of indigenous peoples in the Russian Federation has not been formed. Separate educational programs in this area are implemented by the federal state autonomous educational institution of higher education "Northern (Arctic) Federal University named after M.V. Lomonosov", the federal state budgetary educational institution of higher education "Murmansk Arctic State University", the Institute of the Peoples of the North of the federal state budgetary educational institution of higher education "Russian State Pedagogical University named after A.I. Herzen", federal state autonomous educational institution of higher education "North-Eastern Federal University named after M.K. Ammosov", federal state

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budgetary educational institution of higher education "Arctic State Institute of Culture and Arts", the federal state budgetary educational institution of higher education "Arctic State Agrotechnological University", the Institute of the North and the Arctic of the federal state autonomous educational institution of higher education "Siberian Federal University".

In order to form a system for training qualified and highly qualified personnel for the implementation of traditional economic activities of indigenous peoples, within the framework of the program it is planned, namely:

*development of a unified procedure for generating and updating the forecast of the need for personnel in the traditional economic activities of indigenous peoples living in the Arctic zone of the Russian Federation, including methodological approaches and technological (software) tools for automatic generation, analysis and evaluation of forecasting results for the purpose of further formation of the corresponding tasks for the vocational education system; bringing the system of secondary vocational and higher education in the Arctic zone of the Russian Federation into line with the forecast of the need for traditional economic activities of indigenous peoples in personnel;

* modernization and renewal of the material and technical base of secondary vocational and higher education organizations that train personnel in the interests of developing the traditional economic activities of indigenous peoples, including on the basis of public-private partnerships;

*development of measures of state support for employers who have entered into targeted agreements for training personnel in order to carry out traditional economic activities of indigenous peoples; development of measures to improve the image of professions characteristic of the traditional economic activities of indigenous peoples; development of a federal state educational standard in the direction of "Northern Economy Specialist";

*development of state support measures aimed at providing additional scholarships to students from among indigenous peoples studying in professional educational organizations, subject to receiving education in professions (specialties, areas of training) related to the implementation of traditional economic activities of indigenous peoples;

*organization of continuous forms of training and retraining of personnel in specialties related to the implementation of traditional types of economic activities; implementation of a program of targeted annual training of personnel from among small-numbered peoples in specialties related to traditional types of economic activities, crafts of small-numbered peoples, including processing of agricultural products, production of arts and crafts, including mammoth ivory;

*establishment of additional budget places in educational organizations that open up new areas of training for conducting traditional economic activities of indigenous peoples ("Reindeer Herder-Mechanist", "Huntsman", "Taxidermist", "Commercial Hunter", "Mistress of the Plague", "Wood Carver", bones and horns", "Souvenir maker", "Dock", "Marine mechanic", "Fish processor");

*development of state support measures for organizations in the real sector of the economy that provide financial support to vocational education organizations that provide training for traditional economic activities of indigenous peoples;

*development of state support measures in order to attract young personnel to carry out traditional economic activities in the form of subsidies for the purchase of housing at their place of residence;

*formation on the basis of the Institute of Peoples of the North of the federal state budgetary educational institution of higher education "Russian State Pedagogical University named after A.I. Herzen" of sufficient infrastructure to ensure the implementation of measures to support the education of indigenous peoples, including the creation of a preparatory school for students from among indigenous peoples departments of pre-university (grades 10, 11) and a scientific and educational center for the study of languages of indigenous peoples;

*conducting an analysis of the quality of general education received by representatives of indigenous peoples, as well as developing measures to improve the quality of general education in this area;

*monitoring the quality of teaching native languages provided to representatives of indigenous peoples, including analyzing the quality and availability of educational and methodological literature;

*conducting an analysis of the quality of training, advanced training and the system of additional professional education for teachers of the native language and literature of indigenous minorities, as well as developing measures to improve the quality of such training.

Main part

The Yamalo-Nenets Autonomous Okrug (Yamalo-Nenets Autonomous Okrug) is one of the constituent entities of the Russian Federation, whose territory occupies a central position in the Arctic zone of our country. More than half of the territory of the Yamalo-Nenets Autonomous Okrug is located beyond the Arctic Circle; the district is positioned as Russia's main outpost in the development of the Arctic. Today the Yamalo-Nenets Autonomous Okrug is the largest center of the gas production industry in Russia; the main oil and gas reserves of the country are concentrated in the district. According to the official website of the authorities of the Yamalo-Nenets Autonomous Okrug, gas production is carried out by

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36 enterprises at 96 fields, geological exploration work is carried out by 32 enterprises at 74 license areas. The largest volume of gas produced comes from subsidiaries of OJSC Gazprom. In addition to them, NOVATEK-Tarkosaleneftegaz LLC, NOVATEK-Yurkharovneftegaz LLC, LUKOIL - Western Siberia LLC and other companies operate in the gas industry of the district. Oil production is carried out by 17 enterprises in 59 fields, the main oil producing enterprises are OJSC Gazprom Neft, OJSC NK Rosneft, LLC LUKOIL - Western Siberia (including LLC Geoilbent), OJSC RITEK, LLC Gazprom Dobycha Urengoy. Condensate production is carried out by 23 enterprises at 30 fields. The leading positions are occupied by Gazprom Dobycha Urengoy LLC, as well as the following companies: Gazprom Dobycha Yamburg LLC, Rosneft Oil Company OJSC, NOVATEK-Tarkosaleneftegaz LLC, Northgas CJSC. Search, assessment and exploration work in the district are carried out by 36 enterprises in 65 licensed areas [Oil and Gas Complex of the Yamal-Nenets Autonomous Okrug 2015]. The biological diversity of its resources is significant for the district. More than 730 thousand animals are grazed in the tundra, which is about 44% of the total Russian number of domestic reindeer (in the Russian Federation - 1663 thousand). The total fishery fund of the Yamal-Nenets Autonomous Okrug totals 64 thousand sq. km. These are the shelf waters of the southern coast of the Kara Sea with bays cutting into the continent, as well as rivers flowing into these bays, with adjacent harsh systems and lakes connected by channels. water areas contain about 70% of the world's whitefish stocks (muksun, nelma, etc.) [Agricultural-industrial complex of the Yamal-Nenets Autonomous Okrug 2015]. Administratively, the Yamal-Nenets Autonomous Okrug includes seven municipal districts: Krasnoselkupsky, Nadymsky, Priuralsky, Purovsky, Tazovsky, Shuryshkarsky, Yamalsky. Two of them - Shuryshkarsky and Priuralsky - do not have significant oil and gas reserves; agricultural production is developing there. The remaining municipalities (Yamalsky, Tazovsky, Nadymsky, Purovsky, Krasnoselkupsky), in which industrial development is intensively underway, belong to areas of promising oil and gas production. By order of the Government of the Russian Federation, all municipal districts of the Yamal-Nenets Autonomous Okrug and the city district of Salekhard are classified as places of traditional residence and traditional economic activity of indigenous peoples of Russia [Government Order 2009]. The Yamalo-Nenets Autonomous Okrug is one of the multi-ethnic regions.

Conducted studies show an increase in the share of East Slavic peoples (Russians, Ukrainians, Belarusians) in the region over the past half century from 48.3 to 72.7%, which is explained by the influx of the so-called "visiting" population from different regions of the Russian Federation and neighboring

countries. The percentage of indigenous peoples of the North in the population structure during this period decreased from 17.2% (2018) to 7.9% (2022), while their total number increased by 44%. The number of Nenets in the district almost doubled, the Khanty increased by 37%, and the Selkup by 28%. It must be borne in mind that the total population of the district does not include the number of rotational workers who officially have a place of residence outside its borders, not only in Russia, but also in Ukraine and other CIS countries. They arrive in Yamal only for a shift period and are not counted either as part of the current population (as temporary residents), or even less as part of the permanent population (although many of them work in this mode for a long time). The number of these seemingly non-existent people in the Yamal North is tens of thousands of people. According to data for 2021, 142 thousand people live in rural areas of the Yamal-Nenets Autonomous Okrug, of which 40.8 thousand (29%) are indigenous minorities.

The most "aboriginal" is the Yamal district, where 66% of the population is classified as indigenous minorities, followed by Tazovsky - 52% and Shuryshkarsky - 50%, in the Priuralsky district the share of indigenous indigenous peoples is 38%, in Nadymsky - 11%, in Purovsky - 1% . The Yamalo-Nenets Autonomous Okrug is one of the most urbanized regions of Russia, which is associated with active gas and oil production. The proportion of the county's urban population was 77.9% in 1989 and has increased to 84.7% by 2021. The 2020 All-Russian Population Census showed that among the Nenets there are 21.4% of the urban population, including 17.2% in the Yamal-Nenets Autonomous Okrug. Among urban indigenous minorities, most are representatives of the so-called "ethnic intelligentsia" (teachers, doctors, cultural workers, scientists, politicians). At the same time, the village and city Nenets are closely connected with relatives in the tundra, with whom there is a constant exchange of fish and meat (venison). Against the background of active industrial development, which is carried out in the territories inhabited by small peoples of the North, large-scale processes of transformation of the traditional way of life of the aborigines are taking place. As a result, concern for the preservation of the identity of such peoples, which is closely connected with the development of traditional sectors of the economy (reindeer husbandry, fishing, hunting), acquires special importance. Many believe that for the peoples of the North, the inability to engage in traditional activities is not so much a loss of the material basis of their existence, but a loss of a way of life. The existence of the traditional culture of the Yamal aborigines is associated primarily with reindeer herding. It is the reindeer herders who are most committed to using in everyday life not only traditional means of transportation (reindeer sled), but also types of housing, clothing, utensils, and food.

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Among those groups of indigenous peoples of the North whose main occupations are fishing and hunting, the layer of traditional ethnic culture is preserved to a lesser extent. The aboriginal population living in towns and cities has largely lost their ethnocultural identity. A similar relationship is observed in the functioning of the native language. Nomadic reindeer herders preserve ethnic languages, while among the village population they have almost disappeared from use. Indigenous peoples and industrial development Industrial development of the region The Yamalo-Nenets Autonomous Okrug, as noted above, is the main natural gas production area in Russia. The gas industry, currently concentrated on the four largest fields in the central part of the district, will develop in the future due to the involvement in the development of deeper horizons at existing fields, the development of large facilities on the Yamal peninsulas (Bovanenkovskoye oil and gas condensate, Tambey group of fields), Gydan and their shelves in the eastern part of the district (Kruzenshternovskoye, Kharasaveyskoye, Leningradskoye, Rusanovskoye), and also through the introduction of advanced technologies for the production and transportation of hydrocarbons [Project "Strategy for the Development of the Arctic Zone of the Russian Federation" 2010, p. 78]. Eight priority development zones are being formed on the territory of the district - three large and five localized ones, within which both existing and new competitive regional economic activities will be developed - gas and oil production and processing, electric power, gas chemical and mining industries, the provision of transport and logistics services. The Yamal Peninsula priority development zone, specializing in the extraction of fuel and energy minerals - gas, oil and gas condensate, is located in the northern part of the Yamalo-Nenets Autonomous Okrug. The eastern margin includes the Ob Bay, the northern and western parts extend to the Kara Sea shelf and Baydaratskaya Bay. Its development is associated with the development of the Bovanenkovskoye gas field, with the construction of the Obskaya-Bovanenkovo railway and the Yamal-Ukhta-Europe gas pipeline, as well as with the production of liquefied natural gas based on the Tambey group of fields. Another priority development zone "Eastern slope of the Urals" occupies the western part of the Yamalo-Nenets Autonomous Okrug and includes the territory of the eastern slope of the Ural ridge and the northern part of the Ob-Nadym interfluvium, and its southern part is located in the west of the Khanty-Mansiysk Autonomous Okrug and the north of the Sverdlovsk region and belongs to areas of new economic development. The dynamic development of the zone is associated with the implementation of the mega project "Ural Industrial - Ural Polar" on the territory of the Ural Federal District, which involves the construction of the Polunochnoye-Obskaya, Obskaya-

Salekhard-Nadym railways, the Agirish-Salekhard highway, as well as the development of a significant number of solid mineral deposits. The main specialization of the zone will be the extraction of mineral resources and transport services. On the territory of the district, the indicated large priority development zone included two regional ones, proposed by the constituent entity of the Russian Federation: "Mining zone of the Polar Urals" and "Salekhard transport and logistics hub". The "Mining Zone of the Polar Urals" covers the territory of the eastern slope of the Polar Urals. The active development of this territory is associated with the development of solid mineral deposits using the advantages of the concentration of enterprises in the area of the village of Kharp (with the possible creation of a special form of spatial organization of the economy - the Kharp mining district). Within the specified zone in the territory of the district, it is planned to develop a new specialization for the region - the mining industry. The priority development zone "Salekhard transport and logistics hub" covers the territories adjacent to the cities of Salekhard and Labytnangi, and includes a number of transport infrastructure facilities - the Obskaya railway station, the Obskaya-Bovanenkovo, Polunochnoe-Obskaya and Nadym-Salekhard railways, a combined (railway and road) bridge across the river. Ob, Obskaya-Agirish, Kharp-Labytnangi and Salekhard-Aksarka highways, Salekhard and Labytnangi river ports, Salekhard airport. Its main field of specialization is transport and transport services. The West Siberian zone of advanced development is a strip stretching in the meridional direction from Yamburg in the north to the border with the Tyumen region in the south, and in the latitudinal direction - from Nadym to the Yuzhno-Russkoye field within the Yamalo-Nenets Autonomous Okrug, from the western part of the Nizhnevartovsk region to Khanty-Mansiysk. Despite the relatively high degree of development (manifested, among other things, in the depletion of a number of the largest gas fields), the territories included in this zone have good prospects for dynamic development through the development of new large deposits of hydrocarbon raw materials, deepening the degree of its processing and creating an energy sector. infrastructure. Projects to involve the development of peripheral and deep deposits of existing fields (Urengoyevskoye, Yamburgskoye), to modernize the gas transportation network, to build and reconstruct gas and condensate processing plants, to build Tarko-Salinskaya and Urengoyevskaya state district power plants are characterized by unconditional federal significance within this zone.

The Urengoy gas production area includes the territory of the Tazovskiy and Gydan'skiy peninsulas, the northern part of the Purovskiy and Nadym'skiy districts, the shelf of the Kara Sea, as well as the waters of the Ob and Taz bays. The main branch of

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specialization of the zone is the gas production industry. On its territory there are the Urengoykoye, Yamburgskoye and Medvezhye fields, where most of the Russian gas is currently produced. The rapid development of the zone is associated with the development of deep-lying deposits of the Achimov strata of the Urengoy deposit, as well as with the introduction into development of deposits of the Bolshekhetsk zone, and in the future - with the development of the southern part of the Gydan Peninsula. The South-Eastern oil production includes the territories of the Krasnoselkupsky, Purovsky and Nadymy districts of the Yamalo-Nenets Autonomous Okrug. Its specialization is the production of oil, gas and gas condensate. The economy of the South-Eastern oil-producing zone has good prerequisites for diversification in the direction of development of electric power and petrochemicals. The Purovsky condensate processing plant, Tarasovsky oil refinery, Gubkinsky and Muravlenkovsky gas processing plants operate on its territory. It is planned to expand energy capacity through the construction of the Tarko-Salinskaya State District Power Plant, as well as a number of smaller power plants. An important strategic role for the development of the South-Eastern oil-producing zone will be played by the implementation of the investment project "Construction of the main oil pipeline "Zapolyarye - the village of Purpe"", which will connect the Yamal fields with the oil pipeline "Eastern Siberia - the Pacific Ocean". The project involves the construction of a main oil pipeline with a length of 488 km and a capacity of 25 million tons per year with the possibility of subsequent expansion to 50 million tons per year. The Urengoy transport and logistics hub plays an important role for the successful functioning of the large West Siberian priority development zone. The specialization of this regional zone is the provision of transport services for the transportation of goods and passengers. The formation of the Urengoy hub (including the railways Surgut - Novy Urengoy, Novy Urengoy - Nadym, Novy Urengoy - Yamburg, the airport of Novy Urengoy, regional roads, a river port in the area of the Korotchaev node) is intended to unite the territory in the area of Novy Urengoy into a single center performing transport and logistics functions during the development of the Gydan Peninsula and the adjacent shelf, the commissioning of fields in the Bolshekhetskaya zone, and the development of deep-lying deposits of the Achimov formation of the Urengoy field. It will also help strengthen interregional ties with the Krasnoyarsk Territory. On the territory of the Yamalo-Nenets Autonomous Okrug, three agglomeration zones are emerging - Salekhard, based on the cities of Salekhard, Labytnangi, Kharp; Noyabrskaya - based on the cities of Noyabrsk, Muravlenko, Gubkinsky; Novy Urengoyko-Nadymskaya - based on the cities of

Novy Urengoy and Nadym. Each of them has a similar industrial structure, its own airport and ground transport hub. The development of agglomeration processes, intermunicipal cooperation and cooperation allows the deployment in these territories of a wide range of services (educational, socio-cultural, health, services, etc.), outside the agglomeration, available only in megacities. The priorities for the development of the district's mineral resource complex are related to the creation of the Kharp mining district for the effective development of deposits and the provision of raw materials to the industrial Urals and the country as a whole. To ensure socially and industrially significant air passenger transportation, it is planned to build airports on the Yamal Peninsula in the area of the Bovanenkovskoye field and in the area of Cape Drovyanoy with the ability to receive An-24 aircraft, the development of a large domestic hub airport Novy Urengoy, as well as the airports Salekhard, Nadym, Noyabrsk, Yamburg, Urai, Krasnoselkup, Tolka, Novy Port, reconstruction of the runway at Noyabrsk airport, expansion of air terminal complexes, replacement of facilities ensuring flight safety. In agriculture, resource-saving technologies will be disseminated, high-yielding varieties of crops and new breeds of animals will be introduced into production, mineral fertilizers and plant protection products from pests and diseases will be used, and a number of other relevant agrotechnical measures will be implemented. It is expected to provide a timely solution to the problems of stabilizing the number of reindeer in agricultural organizations, peasant (farm) farms and private reindeer herders, as well as to completely resolve the problem of the discrepancy between the capacity of reindeer pastures and the actual number of reindeer. Measures will be taken to transform old tundra pastures and restore reindeer migration routes. The basic development indicators of the district by 2020 will be: population growth to 600-670 thousand people; gas production - up to 600 billion cubic meters. meters per year; oil production - up to 80 million tons per year. Urai, Krasnoselkup, Tolka, Novy Port, reconstruction of the runway at Noyabrsk airport, expansion of air terminal complexes, replacement of facilities ensuring flight safety. In agriculture, resource-saving technologies will be disseminated, high-yielding varieties of crops and new breeds of animals will be introduced into production, mineral fertilizers and plant protection products from pests and diseases will be used, and a number of other relevant agrotechnical measures will be implemented. It is expected to provide a timely solution to the problems of stabilizing the number of reindeer in agricultural organizations, peasant (farm) farms and private reindeer herders, as well as to completely resolve the problem of the discrepancy between the capacity of reindeer pastures and the actual number of reindeer. Measures will be taken to

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The world community is concerned about the situation of indigenous peoples and is looking for ways to solve their problems, ensure free development in modern conditions, guarantee not only the preservation of cultures and languages, but also the full use by the aborigines of the achievements of modern society. This can be judged from a number of UN documents, numerous international conferences, and a large number of fundamental studies. The interests of industrial development of the Yamal North inevitably collide with the interests of traditional environmental management of indigenous peoples. In recent decades, many works have appeared in which special attention is paid to the problem of interaction between indigenous peoples of the North and industrial companies. Environmental issues continue to be the focus. The fragility and vulnerability of the ecological system of the polar region has already become a kind of talk of the town. The Concept of Sustainable Development of Indigenous Peoples of the North, Siberia and the Far East of the Russian Federation notes that intensive industrial development of natural resources in the northern territories of the Russian Federation has significantly reduced the possibilities of conducting traditional types of economic activities of indigenous peoples of the North. Significant areas of reindeer pastures and hunting grounds have been removed from traditional economic use. Some of the rivers and reservoirs previously used for traditional fisheries have lost their fishing significance due to environmental problems.

“Along with the accumulated problems of the last two decades, new challenges and risks are expected to arise in the coming years associated with the negative impact of rapid climate change on the traditional economy, pressure on the traditional way of life from new megaprojects on land and in the Arctic waters, threats of job losses in rural economy due to the rapid development of forms of electronic service. In this regard, active measures of state support for traditional economic sectors and way of life, as well as communities of indigenous peoples of the North, will be required in order to neutralize the impact of new threats.” Experience of social partnership The district has an extensive legal framework that guarantees the protection of the rights of indigenous peoples of the North. Thus, in the Charter of the Yamal-Nenets Autonomous Okrug (1998), approximately a fifth of the articles (or individual paragraphs) are devoted to the rights of indigenous peoples and the protection of their legitimate interests. In this fundamental document for the district, a special article regulates the protection of the rights of these peoples in the conditions of industrial development of natural resources. Here are excerpts from Article 30 of the Charter: “When providing land plots in cases provided for by federal legislation, in the territories of residence and traditional economic activity of indigenous peoples of the North, ethnic communities for purposes not related to traditional natural resource management, local government bodies find out their opinion at the local level referendum. Citizens from among the indigenous peoples of the North, ethnic communities, forced to leave their territories of residence and traditional economic activities in connection with industrial development, have the right to compensation for losses caused to them, damages and lost profits. Citizens from among the indigenous peoples of the North and ethnic communities are guaranteed the right to return to their territories of residence and traditional economic activities after land reclamation measures are carried out in these territories. Citizens from among the indigenous peoples of the North and ethnic communities permanently residing in the territory of the Autonomous Okrug have the right to receive part of the payments for the exploitation of subsoil in the territories of their residence and traditional economic activities.” The Law “On Local Referendum in the Yamalo-Nenets Autonomous Okrug” is of great importance for protecting the rights of indigenous peoples of the North to traditional use of natural resources and the preservation of territories in which they conduct traditional farming. According to this law, issues that can be submitted to a local referendum include: “... the provision of land plots in places of traditional residence and economic activity of indigenous peoples of the North, ethnic communities for purposes not related to their traditional economic activities and traditional crafts "(Clause "g" of Article

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7). This article guarantees the rights of indigenous peoples of the North to control the use of resources in the territories of their residence. In the Yamal-Nenets Autonomous Okrug, back in 1997, the Law “On the regulation of land relations in the places of residence and traditional economic activities of indigenous peoples of the North in the territory of the Yamal-Nenets Autonomous Okrug” was adopted. As noted by the Chairman of the Legislative Assembly of the Yamal-Nenets Autonomous Okrug S.N. Kharyuchi, fundamental to this law are the provisions on the trinity of land - as an object of nature, an object of traditional management (use), an object of property, as well as a combination of interests in the use of lands of indigenous peoples of the North and ethnic communities and the entire population of the Autonomous Okrug and the Russian Federation. The law defines the lands of traditional economic activity of the peoples of the North: lands “used for reindeer husbandry and traditional crafts, requiring a special legal regime, with historically established ways of life and forms of traditional economic way of life of indigenous peoples of the North and ethnic communities, which may include lands of various categories identified in land legislation for the main economic purpose, as well as water, forest and other renewable natural resources, which, along with land, are the basis of life and traditional economic activities of these residents.” There are a number of other laws in the district that protect the rights of indigenous peoples of the North. Among them:

The central place in the system of legal protection of indigenous peoples of the North of the Yamal-Nenets Autonomous Okrug is occupied by the Law “On the protection of the ancestral habitat and traditional way of life of indigenous peoples of the North in the Yamalo-Nenets Autonomous Okrug”. It formulates the main directions of state policy in the district, namely:

1) preservation of the original habitat and traditional way of life of the indigenous peoples of the North, including the protection of the natural environment;

2) ensuring the preservation and development of historically established methods of environmental management of indigenous peoples of the North;

3) creating conditions for the preservation and revival of the original social organization of the indigenous peoples of the North in order to support the development of the original culture of the indigenous peoples of the North, the preservation of their customs and beliefs (Article 5). According to this law, the powers of the executive bodies of state power of the Autonomous Okrug include “assistance in compensating for losses caused to indigenous peoples of the North, organizations engaged in traditional types of economic activities, as a result of damage to the ancestral habitat of indigenous peoples of the North by the economic activities of organizations of

all forms of ownership, as well as individuals, in accordance with federal legislation, the legislation of the Autonomous Okrug and other regulatory legal acts of the Autonomous Okrug” (clause 2.12 of Article 6). Particularly important for this study is Article 9 “Preservation of the ancestral habitat and traditional way of life of indigenous peoples of the North”:

A) VAutonomous Okrug creates conditions for the preservation of the original habitat and traditional way of life of the indigenous peoples of the North, including the protection of the natural environment.

b) PDistrict targeted programs are adopted on the issues of use and protection of lands of traditional residence and economic activities of indigenous peoples of the North.

4) In the Autonomous Okrug, conditions are created for mandatory assessment of the impact on the original habitat and traditional way of life of the indigenous peoples of the North. The procedure for assessing the impact on the ancestral habitat and traditional way of life of the indigenous peoples of the North is determined by the law of the Autonomous Okrug. Specialized laws, especially “On reindeer husbandry,” are important for the preservation and development of traditional environmental management of indigenous peoples in the district, due to the lack of federal regulation in this area. The district law contains a definition of reindeer husbandry as a traditionally established ethnically preserving type of economic activity of indigenous peoples of the North, aimed at preserving, breeding and using domestic reindeer. It should also be noted that according to the Yamalo-Nenets Autonomous Okrug Law, the traditions and customs of the indigenous peoples of the North are recognized as a regulator of relations in the field of reindeer husbandry, along with laws. The objectives of the law are stated as follows:

a) state protectionism, aimed at creating in the Autonomous Okrug for the indigenous peoples of the North and ethnic communities, the population of the Autonomous Okrug, preferential conditions for the development of reindeer herding activities to meet state needs for reindeer herding products;

b) establishment of a gentle regime of environmental management, taking into account the vulnerability of northern nature and ensuring the rational use of natural resources;

c) providing guarantees and compensation to indigenous peoples of the North and ethnic communities to reimburse additional costs for carrying out reindeer herding activities in the natural and climatic conditions of the North. The Yamalo-Nenets Autonomous Okrug Law “On Reindeer Husbandry” significantly expands the scope of protection of the rights of indigenous peoples in the district compared to federal legislation. Article 16 of the law notes: “the basic requirements for preventing the death of deer during production processes, as well

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as during the operation of transport highways, pipelines, communication and power lines in the territory of the Autonomous Okrug and measures of liability for their failure to comply are established by the executive authority of the Autonomous Okrug in agreement with the authorities local self-government and public organizations of indigenous peoples of the North and ethnic communities.” As a result of the activities of the Legislative Assembly of the Yamalo-Nenets Autonomous Okrug, the legal foundations have been laid for establishing a coordinated policy regarding the indigenous peoples of the North, but even more work is required to improve them in order to create real protection of the environment, socio-economic and cultural rights of these peoples, and to increase the level of their lives, their adaptation to the processes of industrial development. The Yamal-Nenets Autonomous Okrug has accumulated some experience in cooperation between government authorities and civil society institutions representing the interests of indigenous minorities. The fundamental document regulating cooperation between the region and the largest company Gazprom is the General Agreement signed in 1996. To develop this document, additional agreements, treaties, and a memorandum of cooperation are signed. The district administration and OJSC Gazprom stipulate in agreements the terms of bilateral cooperation and establish mutual obligations in the field of tax, price and social policy, development and stimulation of investment and innovation projects, energy saving and environmental management, in the field of transport, capital construction and land and property relations . These documents also include measures to support the indigenous peoples of the North. Thus, in the 2011 Agreement, the parties agreed on proposals on the procedure, timing and form of participation of Gazprom subsidiaries in financing the activities of the district administration carried out within the framework of regional programs to support indigenous peoples of the North and develop traditional economic sectors. These are the district target programs “Development of the agro-industrial complex”, “Providing housing for citizens from among the indigenous peoples of the North”, “Culture, language, traditional way of life of the indigenous peoples of the North”, providing housing for specialists in rural areas. They also include events to support national communities, events of the Second International Decade of the World's Indigenous People in the Yamal-Nenets Autonomous Okrug. The 2014 Agreement states, that Gazprom's subsidiaries will hire qualified specialists from among the residents of the region, including representatives of indigenous peoples who have specialized education in professions and specialties in demand in the company. It is planned to hold competitions for Gazprom scholarships among students of professional and higher educational institutions studying in Gazprom-

specific specialties. The company will assist in providing transport for reindeer herding and fishing teams. An important provision is that the parties recommend that the subsidiaries of OJSC Gazprom, when carrying out production activities in the Yamalo-Nenets Autonomous Okrug, provide support and consider it a priority to work with the indigenous peoples of the North and ethnic villages. In turn, the district administration will help the gas concern in ensuring a simplified procedure and a uniform approach when selecting land plots for survey work and construction projects. Broad cooperation in the field of social policy, charitable, information and other activities is provided for in the Cooperation Agreement for 2014 between the government of the Yamal-Nenets Autonomous Okrug and OJSC Gazprom. “The Gazprom company is our strategic partner. Yamal is our common home,” said Dmitry Kobylkin, Governor of the Yamal-Nenets Autonomous Okrug, at the signing ceremony of the Agreement. — Thanks to the company, many economic and social programs are being implemented in the region. Social facilities and roads that people need are being built, and sports and cultural events are being held.” Chairman of the Board of OJSC Gazprom Alexey Miller, in turn, noted: “Yamal is our real storehouse. 80% of Gazprom's production is produced here. At the same time, we understand that this is a long-term perspective: Yamal's resources will last for a very long time. Moreover, we have taken a serious and significant step for the country into the Arctic - we have started production at the Bovanenkovskoye field. We created a new gas production center in Russia.” The Agreement, in particular, provides for the continuation of work to ensure the organization and implementation of events to inform company employees and contractors about the standards of behavior in the places of traditional residence and economic activity of indigenous peoples. At Gazprom enterprises, lectures are organized and conducted, videos are shown, and publications are distributed that describe the norms of behavior at cultural heritage sites of indigenous northerners (family and ancestral burial sites; family, ancestral and national memorials, sacred and religious places). Gazprom's subsidiaries enter into agreements with the administrations of the regions in which industrial activities are carried out. They stipulate the basic conditions for the activities of enterprises and the obligations of the parties. These documents directly relate to the life of the indigenous peoples of the North. Let us give examples from such documents for the Yamal and Tazovsky districts of the Yamal-Nenets Autonomous Okrug. In the General Agreement between the administration of the municipal formation (MU) Yamal region and Nadymgazprom LLC in 2007, the following areas are named as priorities: - rational use of subsoil areas and lands located on the territory of the municipality in the

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interests of the development of the “Society” and the population of the Yamal region; — creating conditions for the sustainable development of traditional sectors of agriculture and life of the small peoples of the North; — preservation of traditional branches of agriculture based on the recognition and determination of the habitats of the indigenous peoples of the North; — compensation for complex damage caused to the natural resources and ecology of the municipality by Nadymgazprom during the construction and operation of facilities in the licensed areas granted to it, in accordance with the current legislation of the Russian Federation. In addition, the Agreement establishes the amount of funds allocated to finance social activities in the district and the list of activities to which these funds are allocated. The document specifies the Company’s obligations to pay taxes, rent, comply with terms of use and delivery schedules for reclaimed lands. It talks about coordinating with the administration of the Moscow Region activities that could lead to environmental and other consequences affecting the interests of people living in the area. It is envisaged that Nadymgazprom will participate in the implementation of plans and programs for the comprehensive socio-economic development of the region, in social support of indigenous peoples of the North, in solving the statutory tasks of the public movement of indigenous minorities "Yamal", as well as providing assistance in transport provision for the nomadic population, reindeer herding and fishing teams agro-industrial complex enterprises, allocation of air transport to a commission for the acceptance of reclaimed lands. In turn, the administration of the Yamal region undertakes to facilitate the rapid approval of land inventory materials, registration of land allotments and other permitting enterprises and obligations of the parties. These documents directly relate to the life of the indigenous peoples of the North. Let us give examples from such documents for the Yamal and Tazovsky districts of the Yamal-Nenets Autonomous Okrug. In the General Agreement between the administration of the municipal formation (MU) Yamal region and Nadymgazprom LLC in 2007, the following areas are named as priorities: - rational use of subsoil areas and lands located on the territory of the municipality in the interests of the development of the “Society” and the population of the Yamal region; — creating conditions for the sustainable development of traditional sectors of agriculture and life of the small peoples of the North; — preservation of traditional branches of agriculture based on the recognition and determination of the habitats of the indigenous peoples of the North; — compensation for complex damage caused to the natural resources and ecology of the municipality by Nadymgazprom during the construction and operation of facilities in the licensed areas granted to it, in accordance with the current legislation of the Russian Federation. In

addition, the Agreement establishes the amount of funds allocated to finance social activities in the district and the list of activities to which these funds are allocated. The document specifies the Company’s obligations to pay taxes, rent, comply with terms of use and delivery schedules for reclaimed lands. It talks about coordinating with the administration of the Moscow Region activities that could lead to environmental and other consequences affecting the interests of people living in the area. It is envisaged that Nadymgazprom will participate in the implementation of plans and programs for the comprehensive socio-economic development of the region, in social support of indigenous peoples of the North, in solving the statutory tasks of the public movement of indigenous minorities "Yamal", as well as providing assistance in transport provision for the nomadic population, reindeer herding and fishing teams agro-industrial complex enterprises, allocation of air transport to a commission for the acceptance of reclaimed lands. In turn, the administration of the Yamal region undertakes to facilitate the rapid approval of land inventory materials, registration of land allotments and other permits. NOVATEK has signed three official agreements with local authorities: two in the Nadym region and one in the Tazovsky region. According to them, NOVATEK provides payment for the use of subsoil, and also pays compensation to agricultural enterprises for loss of income as a result of the work performed. Compensation payments are calculated based on compensation standards established by Russian legislation, as well as negotiations between interested parties. The signature of enterprises on land use documents is mandatory. In addition, companies provide assistance to the indigenous population on various everyday issues: food supply, transport services, etc. The adviser to the general director for regional policy (a representative of the Nenets people and an indigenous resident of the Tazovsky region) is the contact person responsible for assigning assistance. He reports directly to the head of the company and is responsible for all activities related to indigenous peoples. In the framework of the relationship between NOVATEK and indigenous peoples, the main documents regulating the flow of aid, including the annual budget and agreements with oil and gas companies. The agreements specify assistance not only in monetary form, but also in physical terms (for example, apartments or helicopter flight hours). It is these agreements, along with the local budget, that are the most important documents from the point of view of representatives of indigenous peoples. The company coordinates all assistance provided directly to indigenous peoples with municipal authorities. The Nadymsky and Tazovsky districts are large objects of local taxation due to the work of oil and gas companies on their

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territory; they make a certain contribution to the district budget.

On the territory of the district there are public organizations of small peoples: Association of Indigenous Peoples of the North of the Yamalo-Nenets Autonomous Okrug “Yamal for Descendants!”, Union of Reindeer Herders of the Yamalo-Nenets Autonomous Okrug, national-cultural autonomy of the Khanty “Pulgavat”; Union of commercial fishermen and hunters. In 2002, an Agreement was concluded between the administration of the Yamalo-Nenets Autonomous Okrug and the Association “Yamal for Descendants!” The parties agreed to cooperate in the preparation and conduct of joint events aimed at solving the problems of indigenous peoples of the North of the Okrug, the preparation of regulations that ensure the socio-economic and cultural development of indigenous peoples of the North of the Autonomous Okrug, the preservation of traditional types of economic activities, and the protection of rights on self-government, habitat, culture and language, assistance from authorities in carrying out the organizational activities of the association. There is also an Agreement on cooperation between the administration of the Yamalo-Nenets Autonomous Okrug and the Association of Indigenous Peoples of the North, Siberia and the Far East of the Russian Federation for the sustainable development of the indigenous population of the North and the Arctic, the implementation of projects and programs with the participation of intergovernmental and non-governmental international organizations on the problems of the indigenous population of the North and the Arctic, providing methodological and informational support to the association from the administration. In order to identify and support initiatives of public organizations of indigenous peoples of the North to solve problems at the local level, to help establish social partnerships, meetings are organized with representatives of fuel and energy enterprises, the agro-industrial complex, executive bodies of state power and heads of local government bodies. Public hearings are held in municipalities, tripartite agreements are concluded between municipalities, the association “Yamal for Descendants!” and fuel and energy companies. Such agreements contain a list of measures to overcome the negative consequences of the development of natural resources of the Autonomous Okrug. In general, according to the former director of the Department for the Affairs of Indigenous Peoples of the North of the Yamalo-Nenets Autonomous Okrug L.P. Vallo, in the Yamalo-Nenets Autonomous Okrug there has been a positive practice of solving social problems on the basis of concluding agreements, agreements on cooperation between government bodies and local self-government of the Autonomous Okrug, enterprises of the agro-industrial and fuel and energy

complexes: “Measures are being taken to ensure parity in industrial development, preservation of ecology, the environment, the traditional way of life of indigenous peoples of the North, to minimize factors that have a negative impact on the living conditions of the indigenous population and the environment. On the basis of these agreements and treaties, compensation and environmental measures are carried out aimed at preserving the Yamal ecosystem and the socio-economic development of the territories inhabited by indigenous peoples of the North. Oil and gas companies in the territory of their production activities contribute to the development of social, cultural and domestic facilities, solve issues of employment of the unemployed population, including representatives of the indigenous peoples of the North who have switched to a sedentary lifestyle. Enterprises provide assistance in training and internships to university and college students.” Currently, much attention is paid to international cooperation in the development of the riches of the Arctic while preserving the fragile ecology. In 2008, the international project “Environmental co-management of resource-extracting companies, authorities and indigenous peoples of the North” was implemented on the territory of the Autonomous Okrug. One of its results was the creation of an Ethno-Ecological Council in the Yamal region of the Autonomous Okrug, whose tasks include making proposals to local governments to improve the legal framework in the field of regulation of land legal relations, environmental protection, natural resource management and subsoil use in the territory of the municipality. Enterprises of industrial companies are recommended to strictly comply with current environmental legislation through cooperation with public organizations and with indigenous peoples of the North, to strengthen control over employees’ compliance with environmental legislation, providing for appropriate provisions when concluding employment contracts with them. Despite the accumulated positive experience, in interaction with fuel and energy enterprises there are the problems noted above, which, in particular, are associated with the lack of a mechanism in federal regulatory legal acts that allows them to fully defend the interests of the indigenous peoples of the North. In the public opinion of the Yamalo-Nenets Autonomous Okrug, there is also a point of view about the insufficiently active position of aboriginal activists in defending the interests of indigenous peoples. This is evidenced, for example, by the following statements by experts: ““Yamal for descendants!” plays a politically calming role, including in communication with land developers. There are people loyal to the authorities there.” Practice of interaction between indigenous peoples and industrial companies. In practice, the relationship between companies and indigenous peoples begins with the provision of land for industrial

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activities, which is often the territory where indigenous peoples live and where agricultural enterprises conduct economic activities, as well as indigenous communities and their families. The problem of land is key for the indigenous peoples of the North. First of all, this is due to the fact that for them, who live from reindeer herding, fishing, and hunting, the land is the basis of a unique culture of livelihood. It is no coincidence that among the “ethnic laws” relating to the life of indigenous peoples, the leading place at both the federal and regional levels belongs to those that regulate land use rights and the use of natural resources. District administrations have the right to provide land plots for construction and industrial needs. It is in them that the person interested in land allotment (applicant) applies for the provision of a land plot. After this, the approval procedure begins. The Department of Property and Land Relations prepares documents for selecting a land plot. To provide it, the applicant needs positive conclusions from: - state environmental impact assessment; — bodies responsible for the protection of aquatic biological resources and the protection of wildlife (fishery supervision, hunting supervision); — Veterinary Department of the Yamal-Nenets Autonomous Okrug; - owner, land user, tenant of the land plot; — district branch of the Association of Indigenous Peoples’ Peoples “Yamal for Descendants!”; — territorial (interdistrict) department of the Rosnedvizhimost Administration for the Yamal-Nenets Autonomous Okrug; — historical and cultural expertise. The district administrations of the Yamal-Nenets Autonomous Okrug annually adopt Resolutions “On the procedure for making decisions on the provision of land plots for survey work and construction projects in the intersettlement territory of the municipality.” They determine the procedure for selecting land plots for survey work and construction projects, the procedure for providing land plots for lease, the procedure for compensation for losses, lost profits, the procedure for accepting and transferring reclaimed and (or) undisturbed land plots, as well as the procedure for re-registering the right of permanent (perpetual) use of land plots for the right to lease and extension of the period of use of the land plot under lease terms. The act of selecting a land plot takes place with the participation of many interested parties, including the regional branch of the Association of Indigenous Minorities of the North “Yamal for Descendants!” This “Decision-making procedure...” includes an article on compensation for damages, lost profits and losses of agricultural production. Calculations are made by economists of agro-industrial complex enterprises or indigenous indigenous communities in accordance with the “Methodology for calculating losses of land users and losses of agricultural production (reindeer husbandry) and related trades in the event of seizure, unauthorized seizure and damage to land in areas of traditional

environmental management of the Yamal-Nenets Autonomous Okrug,” approved by the governor’s decree on June 30, 2004. Thus, when withdrawing reindeer pastures, the data for calculating lost profits are the size of the withdrawn area, the period of restoration of disrupted production taking into account the development of new pastures, the required area for grazing one reindeer, the average live weight of one reindeer, the price per 1 kg of reindeer meat, income from sales per deer heads, deer population, inflation index. The enterprise compensates losses to the land user by transferring funds to the current account. It is important to note, that in cases of provision of land plots in places of traditional residence and economic activity of indigenous minorities, a gathering of citizens (public hearings) must be held. The provisions on the gathering were approved by the district councils. It involves citizens over 18 years of age and is convened by the head of the district or an initiative group. The head of the district notifies the population about the time and place of the meeting, issues submitted for its consideration, and forms the agenda. The powers of the gathering include issues of seizure, including redemption, of land plots for municipal needs and the provision of sites for the construction of facilities, the placement of which affects the legitimate interests of indigenous peoples of the North. The meeting makes a decision by open voting with a simple majority of votes, which must be made public. Thus, the basis for interaction between industrial companies and indigenous peoples of the North in the Yamal-Nenets Autonomous Okrug are the principles of coordination and compensation for losses. However, fuel and energy complex enterprises coordinate with reindeer herding farms the designed routes and options for laying pipelines at the final stage of work, when it is impossible to make adjustments. This means that there is no opportunity to take into account the suggestions and comments of those people who will be directly affected by a particular project. In addition, industrial projects do not take into account the presence of private reindeer herders on the territory, whose use of the land is not legally formalized (it is recorded only on the basis of customary law). Representatives of the indigenous population engaged in traditional sectors of the economy (primarily reindeer herders) are very distrustful of the existing practice of holding public hearings. They are outraged by the timing and order of their conduct. Gatherings are usually organized in large villages, therefore, shepherds and fishermen are often physically unable to take part in the discussion, since most of the time they are in the tundra, and the designed industrial facility concerns not only their economic, but also vital interests. Therefore, the issue of oil or gas development is often decided by village aborigines, who are often far from the pressing problems of tundra dwellers. A typical statement on this matter: “People who are in the tundra do not

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attend hearings at all. We can't leave the deer and go. Yes, sometimes they don't inform us about hearings. But this is important to us - what and where they will build. The hearings take place in the village; villagers can come, but they don't come because they are not interested. They're village people, what difference does it make to them." Many of the reindeer herders and fishermen interviewed expressed dissatisfaction with the lack of openness and availability of information on public hearings and their results. Local residents are also dissatisfied with the discrepancy between the proposed design options for the work of fuel and energy enterprises and what is being implemented in practice. Assessing the experience of interaction between industrial companies and indigenous peoples of the North in the Yamal-Nenets Autonomous Okrug:

1. Interaction is based on a fairly extensive regulatory framework. Existing federal and regional laws guarantee the indigenous peoples of the North the right to engage in traditional economic activities and maintain a traditional way of life. The legislation protects the ancestral habitat of the indigenous peoples of the North and provides for control over compliance with environmental measures. They provide for compensation for damage to the environment, ancestral habitats and places of traditional crafts of indigenous peoples.

2. The policy of district and local authorities with industrial enterprises is based on coordinating the interests of industrial development of the region with the preservation of traditional types of economic activities for indigenous minorities. To minimize the negative consequences of the influence of fuel and energy enterprises on the traditional activities of the peoples of the North, meetings with subsoil users and public hearings are held on the territory of municipalities where intensive industrial activity is carried out. There is a practice of compensating losses to agricultural enterprises in connection with damage to natural resources and the environment. In addition, industrial companies provide assistance to local authorities in supporting indigenous communities and providing transport to the nomadic population.

3. Industrial companies actively participate in financing district and regional events carried out within the framework of targeted programs ("Development of the agro-industrial complex", "Providing housing for citizens from among the indigenous peoples of the North", "Culture, language, traditional way of life of the indigenous peoples of the North").

4. As a result of intensive industrial development, significant financial resources are accumulated in the district, which are also spent on the needs of the indigenous population. In particular, modern infrastructure is being developed in the areas where the indigenous population lives and farms: roads are being built, modern means of

communication, energy, etc. are being developed, residential buildings and social and cultural facilities are being built, and technological re-equipment of agro-industrial enterprises is taking place. In addition, the activities of industrial enterprises potentially expand the scope of employment for the indigenous and local population; the increase in the number of migrants to the region contributes to the expansion of the market for the consumption of products of traditional sectors of the economy, which stimulates the development of these sectors of the aboriginal economy.

Among the problems associated with the industrial development of the North and affecting the traditional way of life and interests of the indigenous peoples of the North, we can name: - the lack of clear legislative regulation of the relationship between the indigenous peoples of the North and subsoil users; — unsettled issues of the status of indigenous peoples in relation to the lands of their ancestral residence and economic activity; — the absence of a clearly defined regulatory mechanism for protecting the socio-economic and cultural interests of indigenous peoples of the North, as well as a mechanism for exercising the powers of local governments and indigenous peoples in the field of environmental protection activities directly during the development of oil and gas fields; — the problem of carrying out ethnological examination of natural resource development projects based on the principles of international law, compliance with federal and regional legislation. There is an opinion that negative factors can be minimized if industrial development is carried out on the basis of more advanced technologies and environmentally sound feasibility studies and projects, if there is no desire to save money to the detriment of the environment. In speeches from various platforms and publications by specialists, the attention of government authorities and oil and gas enterprises is drawn to the need to allocate funds for the construction of housing in national settlements for the tundra population and resettlement from dilapidated housing of the 1960s. construction, creating conditions for employment of the indigenous population; construction of social, everyday and cultural infrastructure facilities (schools, boiler houses, power plants, bakeries, etc.); training persons from among the indigenous minorities, their hiring as a matter of priority; developing a network of mobile medical services for remote villages and nomadic populations, providing communications, sanatorium and resort treatment, increasing funding for medical aviation. Particularly noted is the need to strengthen efforts to amend the legislative and regulatory acts of the Russian Federation and the region, providing indigenous peoples of the North and their communities with priority use of fishing grounds and forest lands. Economic activity and social situation Due to the intensive industrial development of the

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region and the rapid development of market relations, which began almost simultaneously in the 1980-1990s, the indigenous communities of Yamal found themselves in new socio-economic conditions. By now we can already talk about the experience of social adaptation that indigenous peoples have. The Law of the Yamal-Nenets Autonomous Okrug "On the District Budget for 2022 and for the Planning Period of 2023 and 2024" includes traditional types of economy of indigenous peoples of the North among the list of priority types of economic activities that have important socio-economic importance for the development of the Autonomous Okrug. Traditional sectors of the economy of the indigenous population are included in the agro-industrial complex system of the district. In this structure, they are dealt with by agricultural enterprises and organizations (LLC, SPK, communities of indigenous peoples of the North), as well as private individuals (the so-called "private owners" or "personal owners"). In general, in the district, a third of the indigenous population living in rural areas are engaged in traditional economic activities.

Conducted research shows that among the Yamal-Nenets Autonomous Districts, Yamal holds the lead in terms of employment in traditional types of economic activity - about half of the number of indigenous peoples living in rural areas. In the Priuralsky, Tazovsky, and Nadymy regions, about a third of the aboriginal population works in the traditional sector of the economy. The largest gap from these indicators is observed among the indigenous population of the Shuryshkar region - only every tenth person there works in traditional industries. It should be noted that the absolute majority of those engaged in traditional economic activities (79%) are nomadic people. In the rural settlements of the district live 24,610 indigenous peoples (60% of the total number of indigenous peoples of the district), of which only 2,826 (11.5%) are engaged in traditional economic activities. It is obvious that the indigenous population, due to its heterogeneity, experiences the influence of industrial development and globalization processes differently and evaluates their consequences differently.

Maintaining large herds of reindeer has been the main feature of the Nenets economy for more than three centuries. It is the increase in the number of reindeer, and not obtaining income or meat products from them, that is the main goal of Nenets reindeer husbandry. "We can say that, unlike other reindeer-herding peoples of Russia, the Nenets live in order to raise reindeer, and do not breed reindeer in order to live." Particularly worth mentioning is that in the Yamalo-Nenets Autonomous Okrug, nomadic reindeer herding is preserved and developed among indigenous peoples; 60% of the country's nomadic population lives there. According to K. B. Klovov, the level of nomadism in the district is the

highest in the country, it is 41.8%, and in the Yamal and Tazovsky districts - 51.6 and 80.4%, respectively. Among the nomadic population in Taimyr, the level of nomadism is 14.6%, in Chukotka - less than 5%, in Yakutia and Evenkia - less than 1%. The Yamalo-Nenets Autonomous Okrug occupies a leading position not only in Russia, but also in the world in terms of the number of domestic reindeer. For many years, the district has seen an increase in reindeer husbandry, while the number of animals has decreased in other reindeer herding regions of Russia. It is important that reindeer husbandry is the main branch of the traditional economy of the Nenets, the titular people of the district, and it determines many features of their unique culture. Although in our country reindeer herding is not the exclusive right of indigenous minorities, they absolutely predominate among reindeer herders. In addition to the Nenets, the Khanty and Selkups are employed in this industry in the Yamal-Nenets Autonomous Okrug. Reindeer herders move throughout the tundra with their herds year-round and are counted in official documents as a "nomadic population." The Nenets consider reindeer herding more prestigious than the work of a fisherman or hunter. This is the opinion of most of the informants with whom I spoke. "It is more honorable to be a reindeer herder than a fisherman", "Being a reindeer herder is more prestigious than fishing" [PMM]. To this we can add the widespread opinion among the Khanty that marrying a daughter to a Nenets reindeer herder is a great success. Traditional reindeer husbandry. The characteristic features of tundra Nenets reindeer herding were: large herds (from several hundred to several thousand heads); year-round transport use of reindeer; the use of herding reindeer dogs for guarding and driving herds; seasonal migrations following herds of deer. The routes of the reindeer herders ran through the same places from year to year. At the same time, there were different options for movement in order to restore used pastures. Reindeer herders had not only certain pastures, but also places for crossing rivers, parking and storing household items, and areas for fishing and hunting. The direction of movement of nomads with large herds was meridional - from south to north (from the northern border of forests to the tundra zone) and back with an amplitude of movements of up to 1000 km. With a small herd size, migrations could be latitudinal (west-east) or in the direction of the bed of large rivers. The pace of movement depended on the size of the herd - the larger the herd, the more often it moved. The annual cycle of Nenets tundra reindeer herders, starting in spring, was as follows. Calving of reindeer in April-May was one of the most critical stages, since the number of calves surviving during this period and the strength of their health largely determined the overall outcome of the annual work cycle. For calving, special areas of pastures were selected, which at other times they tried not to touch.

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Usually these were ravine tracts in the upper reaches of rivers, on the southern slopes of which thawed patches with protruding reindeer moss appeared first, where vazhenkas with calves could find shelter from spring snowstorms. The reindeer herders and their herd stayed in one place for about a month and a half. While the calves were growing up, people were busy drying winter clothes and other fur products, repairing winter sleds, repairing and making harnesses. In mid-June, with the appearance of mosquitoes, the reindeer herders began to move with their herds to the north, winter things were left for storage on sledges in a certain elevated place, from which they took the summer set - clothes, canvas tires for chum, light summer sledges, etc. During migrations they adhered to windy places near small rivers and lakes, where there is a lot of grass and bushes (the latter helped the animals to hide from mosquitoes). During this period, several small herds were often united, since in a large herd the deer scattered less. They stayed on summer pastures until the second half of August. In August, with the gradual disappearance of mosquitoes and midges, the establishment of cool weather and the appearance of mushrooms, the most difficult period for grazing began. The deer constantly scattered in search of mushrooms; some of the females could leave with the bulls of the wild deer. For this reason, reindeer herders tried in the autumn to select pastures for grazing that were limited by natural obstacles - large rivers and lakes (for example, capes formed by the confluence of rivers). At the beginning of autumn, the Nenets slaughtered a small part of the calves for sewing clothes, and carried out selective castration of bull deer. In September October, the deer mated. As cold weather approached, the reindeer herders began their return journey to the south. They planned their path so that by the time the snow cover had established, they would reach the parking lot of the winter sledges with fur clothes. From the end of autumn it was necessary to protect the deer from possible attacks by wolves, since with the cold weather the predators often began to follow the herd. In December, the herds approached the forest border. For grazing, pastures protected from the wind with an abundance of plant food were selected. The snow in such places remained loose, thanks to which the deer easily reached the vegetation. An important factor for the choice of pasture was the presence of nearby fishing lakes. In general, the conditions of winter pastures allowed reindeer herders to graze their herds in one place for a long time. At that time they themselves were engaged in harvesting wood for fuel and the production of sledges, tent poles, and other household items, They were actively involved in hunting and fishing, and went to visit neighbors. At the end of winter, training of young reindeer to walk in a harness began. In the forest-tundra zone, the Khanty, Selkup, and Nenets had significantly smaller reindeer herds, and fishing played a significant role in

their life support system. During the summer, reindeer herds were moved to the Polar Urals. The movement to the northwest began in April, before the opening of the Ob River. May is calving time, for which a quiet place, often swampy, was specially chosen. The herd was united after about a month, when the fawns had grown a little. Reindeer herders spent the summer on the spurs of the Polar Urals. The return movement to the southeast began in October; in November the herds were driven across the Ob. In winter they wandered along the right bank of the Ob. During the Soviet period, reindeer husbandry underwent changes, primarily in organizational terms. Rich, that is, large-reindeer herders were dispossessed, and collective farms were created on the basis of their herds. The reorganization of reindeer herding activities was manifested in the establishment of veterinary services (including vaccination of animals), the establishment of a system of strict registration of livestock, and optimal regulation of the structure of the herd. Changes occurred in the organization of work: the team method and shift grazing were introduced. Along with collective and state farms, private reindeer remained in significant numbers in the tundra zone, including those of shepherds working in brigades, although the state strictly limited the maximum permissible number of private reindeer. Since the 1950s A campaign was carried out in the country to transfer reindeer herders to a sedentary lifestyle, the result of which was a reduction in the number of reindeer herders and an increase in the group of sedentary fishermen and hunters, and the formation of permanent settlements. Currently, in organizational terms, the industry is represented by three management systems - enterprises, communities and personal (family) farms. Reindeer herding enterprises. Currently there are twelve reindeer herding enterprises in Yamal. Most of them arose on the basis of Soviet state farms, which in 1990-2000. were transformed either into joint-stock companies, or into municipal enterprises, or into cooperatives while maintaining the organizational structure of the reindeer herding farm. In everyday life they are still called "state farms". Each includes several reindeer herding brigades, corresponding to the number of reindeer herds. The enterprise assigns certain pastures, buildings, technical means and equipment to them. The teams are led by foremen who resolve issues related to the organization of work and life in conditions of migration, as well as personnel issues. In many ways, the same principle of staffing teams remains the same. Families working within them maintain traditions of division and organization of labor between family members. Reindeer herds at enterprises number 1000-2000 heads, and after calving they increase to 2000-2700 heads. In addition, each herd has personal reindeer belonging to the families of the shepherds and their relatives. Typically, herds contain 800-1500 personal reindeer,

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which are grazed in the same herd with “public” ones. The number of shepherds in teams varies from 5 to 12 people, depending on the number of reindeer. The normal load for 1 shepherd is 270 heads. In addition to shepherds, the brigade includes plague workers. Young people from the age of 16 are accepted to work in reindeer herding; for the first 1-2 years they are listed as assistant shepherds, and as they gain experience they are transferred to shepherds. Each team annually receives a plan-task for the main indicators: delivery of meat, gross yield of meat per 100 January deer, taking into account its quality, safety of the adult reindeer population, business yield of calves per 100 January deer, yield of the main livestock at the end of the year. Payment for labor is made for delivered products and for servicing the reindeer. On average, shepherds in brigades receive about 23 thousand rubles. monthly (data for 2022).

District enterprises have deer slaughter and meat processing workshops. Thus, pedigree reindeer herding farms have been created on the basis of the Yarsalinskoye MNP and Nydinskoye CJSC. Four farms have workshops for the production of sausages and meat delicacies. At a number of enterprises of the agro-industrial complex (MUOP "State Farm "Yarsalinsky"" and OGUP "State Farm "Yamal"", SEC "State Farm "Panaevsky""), new technologies for processing reindeer herding products are being introduced: the construction of modern slaughter-refrigeration complexes, workshops for deep processing of meat deer, antlers and other endocrine-enzyme raw materials, for the production of venison delicacies. At the present stage, the main activity of reindeer herding enterprises should be the processing of raw materials, which requires increasing the processing of reindeer meat and skins, fish products, and furs. The creation of mini-factories, workshops, workshops, and sewing studios should be the task of a special program for the development of the agro-industrial complex of the district. Reindeer husbandry in the Yamalo-Nenets Okrug is sometimes called “ethnic” because it is the main area of employment for indigenous peoples. At reindeer herding enterprises, representatives of indigenous peoples, mainly Nenets, are employed as shepherds and plague workers. Today there is a problem in the industry - an excess of shepherds, and hence the prospect of job cuts. Enterprises cannot increase the number of reindeer due to a lack of pasture, therefore, they do not need to increase the number of workers. Community reindeer herding. At the end of the 1990s. In the Yamalo-Nenets Autonomous Okrug, indigenous indigenous peoples' communal farms appeared. Most of them were created with the support of local authorities. Community herds do not migrate as far as herds from enterprises, but move within one natural zone, without leaving the borders of their regions; the amplitude of migration is hundreds of kilometers. Often, community herds exist nominally, because grazing is

carried out by individual families. Often families of community members unite their herds only for the summer, “mosquito” period, and in the remaining seasons they graze the reindeer with separate families. An example is the Syadei-Yakhinskaya community of the Tazovsky district, which grazes deer in the Antipayutinskaya and Gydanskaya tundras in the summer, and its members spend the winter in the river basin. Messo. The community became the founder of a slaughter complex to which anyone can donate deer. In 2011, 5 thousand heads of deer from families of community members and “private people” passed through it. The chairman of the community, S.V. Vanuito, says: “In Tazovskoye we sell meat only in winter, and then we will expand the range. Process and sell in different forms. There is already trade in other cities. We sell for 170-180 rubles. per kg per meat on the bone. This is also a solution to the employment problem; up to 40 people work there. If there are many such points, the herd will shrink, since now there are twice as many deer as can feed on our pastures. Thanks to this, the number of bulls will be reduced, the bulls will trample more. Meat costs 150 rubles. per kg of venison in slaughter weight. If the price for meat is good, then the herd will not grow much, there will be enough feed. There are 12 thousand deer in the community. Income is distributed depending on the contribution. The community saves us from difficult situations. The herd is growing in the community. If people (and deer) weren’t happy with this, they would leave. The community’s income is 200 thousand a year, from this amount they pay taxes and contributions to the Pension Fund.” Communities can become viable farms, and their members will be less dependent on government subsidies and various benefits. When people earn well, they can buy or build their own housing and provide their children with an education. Many community members see this as the meaning of unification. Modern reindeer herders also want to make their farms sustainable because they perceive life with reindeer as comfortable and interesting, and we have also heard such statements from young educated Nenets: “We have our own traditions in clans and even in families. The Nenets really preserve everything more than other peoples. What’s good about reindeer herding is that for 365 days a person with his wife and children does not leave them anywhere.” In recent years, community reindeer husbandry has been developing. According to data for 2014, there are 90 communities in the district. They receive subsidies from the district budget: for the maintenance of deer (at an annually established rate per head based on the availability of livestock on January 1 of the current financial year), as well as for deer meat and its processed products (at an annually established rate per ton of products sold) . In addition, subsidies are allocated to procurement organizations to compensate for the costs of purchasing venison from indigenous communities and private reindeer

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herders. Community workers are paid wages for delivered products and their work experience is counted. From a financial point of view, membership in the community is less profitable than working at a reindeer herding enterprise: "There is no big salary or income in the community." The informants consider the established system of accepting reindeer meat and accrual of work experience to be positive aspects of joining the community. The Nenets regard membership in the community as the need to annually hand over a certain amount of reindeer herding products. "If there are deer, we must turn in at least two deer heads. Maybe one for the report. We get money for this." Personal (private) reindeer herding. In the district, more than 1.3 thousand families own reindeer herds; they are called "private owners" or "private owners." In the early 1990s, in accordance with the Decree of the President of the Russian Federation on the reorganization of agricultural enterprises, hundreds of thousands of reindeer were transferred to the families of reindeer herders. In the 1990s. There was an almost uncontrolled growth of personal livestock due to the redistribution (a kind of "privatization") of state farm herds; as a result of this transformation, the "state farm worker" of the Soviet era became the owner of deer. Since then, the district has seen a constant increase in the number of deer, especially in three districts - Priuralsky, Yamalsky and Tazovsky. The largest number of private owners is in the Priuralsky region - 82% of farms, 85% of the nomadic population. There are many personal reindeer herding farms in the Tazovsky (49% of farms and 50% of the nomadic population) and Yamal (36% of farms and 38% of the nomadic population) regions. In the district as a whole, the share of "private owners" among reindeer herders is 47% of the number of nomads (45% of nomadic farms). The preservation and development of private reindeer husbandry in the region was influenced by several factors. First of all, as A.V. Golovnev noted, this is "a powerful private economic potential preserved in the culture of tundra nomads." It should be noted that private reindeer herding in Yamal has never disappeared, despite all the plans for the total nationalization of the reindeer herding industry, carried out during the 1930-1980s. The Nenets maintained their livestock, resorting to various tricks to hide the true number of animals in their own herds from socialist accounting: they drove their own reindeer further into the tundra during campaigns to count them, told officials the number that was allowed by the "law," etc.

By yourself, it's better to live this way. We don't want to be in the brigade, because we have to constantly caste, and we have nine children, it's hard to caste with them. We have 250 of our own reindeer. We have enough. We sell meat, fish and horns. We have enough"; "I have been a private owner since 1993. I don't want to go to a state farm. I have a lot of deer, more than 400 heads. In winter I rent out 20

heads." Informants often emphasize that private owners are more free compared to reindeer herders-herders working in teams: "You go with your reindeer wherever you want. You are your own boss", "Private owners do not obey anyone. They are free," "Orders in the brigade are stricter. There is a work schedule, you need to be on duty often," "It's better than at the state farm. I don't want to go to the state farm. I want to have more deer. As a shepherd on a state farm, you have to roam anywhere. And so I choose the place myself. I'm used to living in the tundra." It is known that in the past (in the 18th-19th centuries and up to the 40s of the 20th century) the inhabitants of the tundra repeatedly resisted any attempts at subjugation by the authorities. The desire for independence was and remains an important psychological feature of reindeer herders. Private reindeer herders receive cash income from selling venison, antlers, selling fish, grazing other people's reindeer, and social benefits. At the same time, they are practically not socially protected, since they are not officially employed and, therefore, do not receive wages, they are not accrued seniority, which does not allow them to count on pension payments, they do not have the opportunity to receive loans or subsidies. The number of deer on the territory of the Yamalo-Nenets Autonomous Okrug is limited by the availability of feed and pastures. Since there is an excess of reindeer herds, the problem of pastures for private reindeer herders is acute. Only reindeer herding enterprises and indigenous communities have legally recognized rights to reindeer pastures. Families of "private owners" - and they own three times more reindeer than enterprises - have practically no official rights to pastures. They are grazing, essentially, illegally: "We don't have pastures. They are all at the state farm," "Our livestock is stagnant. We cannot increase it, since conditions do not allow it. There are no pastures." The law "On Reindeer Herding" in force in the Yamal-Nenets Autonomous Okrug is aimed primarily at supporting large reindeer herding enterprises. The resolution adopted in 2000 by the district governor "On bringing the reindeer population into line with the feeding capacity of pastures in the Yamalo-Nenets Autonomous Okrug" reflects the conflict that arose due to the shortage of pastures between the management of reindeer herding enterprises and families owning private reindeer. This document introduced a limit on the number of reindeer only for families of reindeer herders, but not for enterprises, so many private owners complain about the lack of grazing areas, which is why they cannot increase the number of herds. Reindeer husbandry and industrial development. According to reindeer herders, the biggest problem they will face in the near future is the lack of pastures, which are being taken over for industrial needs: "There will be no pastures - there is no place for reindeer to graze. They will have to be slaughtered. If there are no deer, how will people live

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in the tundra? It will be bad." According to experts, reindeer pastures are the most vulnerable and difficult to renew resources necessary for traditional economic activities. Since the 1980s In Yamal, there is a significant reduction in pastures and their quality deterioration, which is due to the construction and activities of fuel and energy complex enterprises. During the construction of roads, pipelines, drilling rigs, etc., part of the land is withdrawn from the agricultural turnover of agro-industrial enterprises and communities. In addition, reindeer herders suffer damage, losing areas that are fenced off by pipelines, as well as lands adjacent to winter roads, undismantled drilling stations, and contaminated with industrial waste. Reindeer herders are forced to avoid such areas when migrating because they are dangerous for the animals. There is another point of view on the critical state of pastures on the Yamal Peninsula. According to biologists, "large-scale transhumance reindeer husbandry has become the most powerful factor influencing tundra ecosystems." The problem of lack of territory for grazing and feed "is largely created by the reindeer herders themselves, who endlessly increase the number of their herds. Industrial development certainly aggravates the problem, but is not the main cause." Overgrazing caused by one reason or another leads to the destruction of fragile vegetation cover in the tundra and a decrease in the productivity of pasture lands. With shrinking pasture areas, reindeer herders have to repeatedly use the same lands and roam along the same routes, which negatively affects the state of food resources. In addition, increasing industrial penetration into the tundra leads to a shortage of fish lakes, and reindeer herding farms cannot do without fishing, since fish is not only the most important food product for people, but also serves as the main food for dogs, without which reindeer herding is impossible. Reindeer herders are particularly concerned about environmental pollution. Unfortunately, cases of leaks at drilling stations are not uncommon. Such situations are alarming because many chemicals have a salty taste that deer like: "Deer run for salty things. They lick moss with chemicals, and then get sick and die. The important ones then give birth to weak fawns, and dogs or mosquitoes can eat a weak calf and it will die." Reindeer herders are forced to change migration routes and camping sites: "We try to stay away from the drilling sites... We don't go where the drilling sites are, because the reindeer will run there and eat up all sorts of chemicals. Then they will die." In addition to the disaster from pollution, sand begins to spread across the tundra due to poor soil reclamation, and moss forests are shrinking: "After the gas workers, sand quarries remain. Sand scatters across the tundra. Reindeer eat reindeer moss with sand, which damages their teeth and then their stomach. And the deer are dying." Reindeer herders experience inconvenience when migrating due to pipelines laid

across the tundra. The fact is that the pipe raised on supports, animals cannot overcome either from below (deer have high antlers, and they are not able to bend their heads to pass under it) or from above (the pipe is not covered with snow). Therefore, the Nenets consider it advisable to lay pipelines underground, since only in this case they will not serve as an insurmountable obstacle to the passage of reindeer herds. People speak with apprehension about the prospects of combining gas and oil production in the same territory with the development of reindeer husbandry. Many believe that sooner or later they will still have to move to the village. To do this you need to have housing and work. Both the first and second are acute social problems in the region. Reindeer herders have a low level of education: most young women have 8-9 grades of education, and men have even less - 6-7 grades. With such a low level of education, it is very difficult to find a job in the village. Knowing this problem, people say that integration into a modern community should begin with education. Today, the future of the reindeer herding industry is seen in "nomadic dynasties." To become a good reindeer herder, you need to grow up in a reindeer herding family. This point of view is shared by the reindeer herders themselves, scientists, and government officials. In reindeer herding families, by the age of 6-7, boys can fish in a small river, by the age of 8-9 they can drive a reindeer team, and by the age of 14 they can herd a herd. If a child spends most of his time from the age of 6 in the village, studying at a boarding school, then he moves away from the traditional way of life and loses the experience gained in his early years. Having become accustomed to village life, living in boarding schools supported by the state, where there is electricity, heating, running water, students are fed, clothed and entertained, teenagers do not want to return to a complex and uncomfortable nomadic life. Often, after boarding school, graduates cannot find their place in life, which leads to the marginalization of part of the indigenous population. Despite the existing problems, reindeer husbandry in the Yamalo-Nenets Autonomous Okrug continues to develop. This is manifested, first of all, in the growth of the number of deer in all categories of farms. The indigenous inhabitants of Yamal need reindeer for food, movement across the tundra, making winter clothing, winter tires for tents, traditional exchange of gifts (primarily during marriages), and for performing religious ceremonies. The need to preserve reindeer husbandry is dictated by the fact that it is an ethnically preserving and ethnically formative sector of the economy. Reindeer husbandry and globalization processes. The development of reindeer husbandry in Yamal poses the problem of adaptation of both the industry and the way of life of the indigenous population to the processes of globalization. Note that the adaptive abilities of reindeer husbandry are

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evidenced by the experience of former collective farmers and state farm workers, many of whom became “private reindeer herders” in the early 1990s, as they were able to maintain and even increase their personal livestock. They created family farms either on the basis of their personal reindeer, or by uniting herds of relatives. In modern conditions, reindeer herding enterprises in the district are interested in increasing sales of products and achieve this through the development of modern infrastructure for their processing. A big role in this is played by slaughter complexes with refrigeration units, built and under construction in the district. They make it possible to slaughter more animals for meat during the period of their greatest fatness, and to preserve blood, endocrine, enzyme and hide raw materials. Of course, increasing the economic efficiency of reindeer husbandry contributes not only to increasing the income of workers, but also to increasing the prestige of reindeer herding farms. Processing of reindeer herding products is carried out: in the Priuralsky region, CJSC State Farm "Baidaratsky" (production of sausages); In the Purovsky district, state farms process reindeer fur and skin, as well as procure reindeer antlers for the production of medicinal preparations. In 2002 in the village. In Yar-Sale, Yamal region, a modern high-tech complex for the slaughter of deer was built with a capacity of 360 heads of deer per day, or slaughter of 20,000 heads of deer per season. To service it, the municipal enterprise “Yamal Deer” was created in the same year. This enterprise is the largest and only slaughter complex for deep processing of venison in the Yamalo-Nenets Autonomous Okrug. The enterprise has workshops for slaughtering deer, processing and freezing carcasses; for processing and cooling offal; for the production of semi-finished products, sausages and dumplings. Today, the Yamal Reindeer Enterprise is equipped with modern high-tech equipment; it produces over 500 tons per year of high-quality meat and semi-finished products from reindeer meat for sale on the consumer market in the Yamal-Nenets Autonomous Okrug and abroad. The production capacity allows us to service the majority of reindeer herding farms operating on the territory of the Yamal Peninsula. The company produces more than 60 types of delicacy products made from venison meat, which has high dietary qualities. The Yamal Deer products - smoked meats, sausages, stews - have already been repeatedly presented at Russian and international competitions and exhibitions and fairs, where they have received honorary awards. In order to create mechanisms for sustainable development for communities of indigenous peoples of the North and introduce the Canadian experience of social partnership, the State Institution “Association for the Economic Development of Indigenous Peoples of the North” was created in 2003 in Salekhard. Since that time, the “community movement” in the Yamal-Nenets Autonomous Okrug has been actively

developing. Thus, in 1998, 4 communities were created, in 2000 - 7, in 2004 there were 23, and in 2013 - 90. Now there are two types of indigenous communities - family-tribal and territorial-neighborhood. The main activity of the communities is reindeer husbandry (this type of activity is indicated as the leading activity when registering most communities), followed by fishing, hunting, manufacturing of souvenirs, and the development of ethno tourism. In 2018, the share of communities in the delivery of reindeer herding products was about 60%. About half of the registered communities are developing successfully.

“The Association for the Economic Development of Indigenous Peoples of the North” helps indigenous communities and small enterprises in the development and implementation of business projects, provides consulting services on accounting and tax issues, organizes seminars and meetings, conducts training and advanced training courses for entrepreneurs and communities of peoples North. Due to intensive industrial development, the district is experiencing a significant increase in population, which increases the demand for reindeer herding and fish products. The district authorities see the prospect of increasing the efficiency of the traditional sector of the economy in optimizing transport costs for delivering raw materials to processing points, and final products to consumers. An important role in this is given to trading posts - specialized enterprises that are created in places of traditional economic activity and residence of indigenous peoples. At the trading posts, reception, storage, primary processing, and preparation for transportation of products from traditional sectors of the economy are carried out. Today, trading posts conduct mainly trade, purchasing and procurement activities, and in the future they should become cultural and economic centers. A priority direction in the development of the district's agro-industrial complex is the modernization of the network of trading posts. It is expected that social and domestic services, primarily medical care, will be provided there. It is planned to organize mini repair workshops, purchase equipment for veterinary services for reindeer, and arrange hotel-type rooms for short-term stays of reindeer herders. It is planned to build mini-workshops and refrigeration units for processing products from reindeer husbandry, fishing, hunting and wild plant collection. Such workshops will be engaged in primary processing, packaging and preparation for storage of products, with their subsequent export to large populated areas during periods of delivery of goods to trading posts. Private reindeer herders in the district have long been involved and continue to be actively involved in market relations. They slaughter deer “for meat” and hand them over to slaughter stations. The proceeds go to meet the needs of the family. With a population of 200 reindeer or more, the reindeer herder allocates

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about 10% of the total number of animals for his own consumption and for “commercial” slaughter. In a herd of 100 to 150 heads, 5-6 deer are slaughtered for sale, but only when absolutely necessary. This usually happens when funds are urgently needed to purchase products for the new season or to purchase expensive equipment (for example, a snowmobile). “If I need money, I’ll kill a couple of deer. You can return it for 160 rubles. per kilogram, even better - 200 rubles. sell to private owners. A deer gives 50-60 kg of meat, which means you earn 8-10 thousand. I killed two deer - 20 thousand, and maybe more if I sell it well. So I bought some goods.” For their own consumption, they usually slaughter 2-3 deer in winter and another 2-3 deer in autumn (the Nenets need autumn reindeer skins for sewing clothes). There are certain “schedules” for slaughtering animals for meat consumption and making winter clothes for family members “in turns” - one person per year. To purchase expensive equipment (snowmobiles), a larger number of reindeer are slaughtered “for sale.” Meat and antlers are sold to enterprises, trading posts, shops, etc. Purchase prices for venison are low, in 2011-2012. meat was accepted at a price of 140-150 rubles. for 1 kg. Product processing could significantly increase the profitability of private farms. But there is an intractable problem: in order to increase income from reindeer husbandry, it is necessary to process the products, and for “private owners” this is difficult due to the lack of many necessary conditions (capital, sales market, appropriate infrastructure and vehicles). Nowadays, private trade relations between reindeer herders and representatives of industrial enterprises operating in places of traditional residence and economic activity are inevitable and have become an important component of their lives. Tundra dwellers have established periodic contacts with workers - they sell or barter fish, reindeer meat from them for food or gasoline. Such transactions are illegal, but they are widespread in the tundra. One of our informants noted: “Nowadays every chum has its own shift worker.” Informal trade with “gas workers” and “oil workers” is carried out regularly and brings significant income to reindeer herding families. On the one hand, they are interested in expanding the sales market by increasing the influx of newcomers to the area, on the other hand, they express concern about the growing industrial development. In the conditions of the development of this kind of free enterprise in the tundra, many reindeer herders began to consider reindeer as reliable capital that ensures the well-being of the family: “For us, reindeer are a savings book.” It can be said that the Nenets have convincingly demonstrated their readiness to integrate into market relations at the level of small trade, and the ability to adapt to the elements of the market. It is important to understand that the future of traditional industries is impossible without educated Aboriginal people. Today you need to not only herd deer and fish, but also

have knowledge of management, marketing, and be legally literate. So far there are very few such specialists from indigenous peoples in the region. This is one of the reasons why indigenous communities cannot develop successfully while constantly facing financial reporting problems. The district has identified ways to solve the problem of “staff retention” in traditional industries. Much attention is paid to career guidance work specifically in the field of traditional economics. Thus, boarding schools purchase tents to teach children the basics of reindeer husbandry. Boys acquire skills in caring for deer and making traditional tools, while girls are introduced to the profession of plague workers and gain basic medical knowledge. In the future, boarding schools should become centers of ethnocultural education. According to the head of the regional development department of the Department of Education of the Yamal-Nenets Autonomous Okrug G.V. Lymar, in the future boarding schools should provide training in the basics of accounting, which is so necessary not only for the future founders of indigenous communities, but also for their members: “Already at school it is necessary to orient students towards the needs of developing framework mechanisms in traditional sectors of the economy” [PMM, PMN]. Another aspect of the adaptation of reindeer herders in the modern world of globalization is “technical modifications” in the economy, culture and life. Despite the slow changes in technology in the reindeer herding industry, technological progress has not bypassed it. The presence of snowmobiles, power plants and household appliances has long been common in the tundra. It is considered prestigious among reindeer herders to own foreign models of Yamaha and Scandic snowmobiles. In winter, reindeer herders use reindeer teams mainly when migrating, and for inspecting the herd and long trips they often use Buranas. The image of a “real” Nenets tundra dweller in a malitsa and on a snowmobile instead of a traditional sled no longer surprises anyone. We were told a case when young shepherds successfully established their commercial reindeer herding: “They are successfully running. They donate meat, antlers, and not only from their own deer, but they buy them from others. They live well - they work and earn money. They know where and how much to sell. Communicate via the Internet. They go on vacation to Turkey.” It is impossible to imagine the modern life of nomads without the use of household appliances, in particular cell and satellite phones, portable gasoline power stations, televisions, DVD players, etc. All this is used mainly in winter, since it is difficult to transport power stations on light summer sleds, and without electricity the devices don't work. Not only young people, but also representatives of the middle generation of reindeer herders positively perceive such household “new items” as a mobile phone, camera, DVD, and use them in everyday life.

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According to our respondents, new videos and popular music are spreading across the tundra “from chum to chum” at high speed. Over the past two or three decades, the material culture of reindeer herders has changed significantly. A limited number of traditional things and tools are preserved in everyday life, mainly items related to handicrafts (sewing bags, sinew threads, sewing boards, etc.) and reindeer herding (lasso, trochee, tools for making sleds, etc.). Store-bought dishes, toilet paper, and diapers are widely used. Some reindeer herding families strive to equip the tent like a house: they make a window, buy foam mattresses and pillows. Traditional (Nenets, Khanty) clothing exists only in winter, and only outerwear (malitsa, soviki, yagushki, hats, belts, fur shoes), which is explained by its optimal compliance with harsh natural conditions. Men's underwear went out of use in the 1970s, women's in the 1990s. In the summer season, the Nenets and Khanty often wear clothes purchased in stores: anti-encephalitis suits, jackets and pants made of rubberized fabric, hats with mosquito nets, rubber boots, dresses, sweaters, trousers, jackets, jackets, hats, etc. Reindeer herders believe that spending money on purchasing clothes is a business prestigious: “It is especially prestigious to spend money on clothes for children. Parents make sure that their children do not wear second-hand clothes to the boarding school. If you are dressed in your own clothes, bought by your parents, you are well dressed. If parents bought clothes, this is an indicator of wealth.” The diet of reindeer herders has become much more diverse due to the expansion of the range of purchased products. Nomads, if they have the opportunity to “shop” in the village or from gas workers, buy not only bread, cereals, butter, sweets, but also cheese, vegetables (onions, carrots, potatoes, cabbage), and fruits. In the tundra, young housewives strive to prepare dishes “like in the city”: cutlets, pancakes, pilaf, using a variety of seasonings: “It is prestigious to spend money on a rich table, eat different foods, not just meat and fish. Someone who lives on meat and fish can be said to be poor.” Fishing, along with reindeer husbandry, is the leading branch of the agro-industrial complex of the Yamal-Nenets Autonomous Okrug. It serves as a vital occupation that supports the traditional diet of indigenous peoples.

Since ancient times, Nenets fishing has developed in inextricable connection with reindeer herding: impoverished shepherds became fishermen in order to accumulate funds to restore the herd. Owners of medium and small herds have always been actively involved in fishing. In addition, the aborigines had an established exchange of products between fishermen and reindeer herders. The fisherman's traditional “calendar” was formed taking into account the patterns of migratory behavior of fish; the annual fishing cycle was and is based on this knowledge. In the annual fishing cycle of the natives

of the Yamal-Nenets Autonomous Okrug, two periods are distinguished: summer and winter. Summer fishing began in June, after the ice had passed, and lasted until September, until the rivers froze. It was in the summer that fishing was most intensive; fish were caught for storage and for sale. In winter they fished only for their own consumption. The main fishing was carried out on the Ob and Taz Bays, on the Ob and along the lakes. The main fishing gear was set nets, seines, and hook gear. It should be noted that fishing methods had their own local characteristics, which depended on the conditions of the reservoir. In the summer, they fished with string seines several hundred meters long using heavy seine boats. The fishing was timed to coincide with the spring (vonzev) mass migration of semi-anadromous fish. Subsequently, fishermen switched to fishing for sand fish on the sands using semi-nets and self-catchers, finishing it by September. Fish caught in the summer was preserved by drying and smoking; in the fall, salting was more often used. The largest fish stocks were made in winter, when the catch was simply frozen. A significant part of the fish caught was intended for personal consumption and as food for sled dogs. Those fishermen who gave their few reindeer to pasture to reindeer herders paid the latter with their catch. The rest of the fish was exchanged and sold. Collectivization among fishermen began with the creation of simple production associations (SPO) or simple production partnerships (PPT), which were based on the seasonal association of fishing tools (without their socialization) and the joint labor of related and unrelated families. Collective fishing was carried out using seines and nets, common constipations were built, etc. Since the 1930s. Collective farms began to be formed, and then state farms. The fishing industry was significantly re-equipped with new fishing gear. In addition, the policy for the development of fisheries was expressed in the construction of stationary fishing settlements, storage and processing points for fish products, and the organization of transport services for the industry. The current state of fisheries. The district's fish resources allow us to characterize fishing as an industry of great importance for the livelihoods of the indigenous population of the Yamal-Nenets Autonomous Okrug. Fishing is carried out by fish factories, joint stock companies or municipal enterprises (created on the basis of former state farms) and indigenous communities. Below is a list of such enterprises and organizations in the district.

Fishing enterprises. The largest enterprises are fish factories. The fishing industry employs many indigenous people. Thus, in fishing brigades the share of indigenous peoples is about 100%, in the processing, net planting and fur sewing workshops it is 70-80%, in other departments representatives of different nations work. The directorate of enterprises provides fishermen with transport, fishing gear and

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protective clothing. Workers receive components for fishing gear, and each team adapts and improves the nets themselves. The same applies to clothing—women sew “Nenets” winter clothes and shoes. In the autumn-winter period, fishermen prefer to fish in traditional clothes. It is important to note that in industrial fishing, some traditional principles are still preserved not only in the fishing methods themselves (the use of nets, seines), but also in its organization - fishermen go to fishing grounds (primarily summer) with their families, where many live in tents. At the same time, family ties and traditions of family life are maintained: the distribution of responsibilities, gender and age roles, which has a beneficial effect on the psychological situation in the family, raising children, and passing on traditions from older generations to younger ones. For some representatives of the indigenous population involved in fishing, fish factories provide only seasonal employment in the summer and autumn, since there is a limit on fish catching and the factories cannot provide work for everyone. About half of the fishermen with reindeer go to the tundra for the winter. Most fishermen lead a semi-sedentary lifestyle, changing their place of residence 3-4 times a year. They do not have permanent dwellings; they live in tents or beams that they make themselves. The work of fishermen remains predominantly manual: they catch fish with seines, fixed nets and attic-type net traps. Technical devices include motor boats and mechanical winches that pull the seine rope. Industries processing fishery products are developed in a number of areas of the Yamal-Nenets Autonomous Okrug. For example, the Purovsky Fish Processing Plant produces smoked, fresh-frozen, dried and salted fish. The Salekhard fish factory has a wide range of products. Due to the decline in whitefish stocks in the Ob River, there are enterprises in the district that are willing and trying to engage in fish farming. There are such “pioneers” in the Purovsky district (Samburg village) - State Farm Verkhnepurovsky LLC. According to General Director L. Bunyaev, the enterprise can grow 30 tons of marketable muksun. Another similar plant, according to experts, should appear in the Krasnoselkupsky district on the Taz River. It is planned to breed fish not only in artificial, but also in natural reservoirs. In addition to large enterprises, fishing is carried out by indigenous indigenous communities. Their work organization is individual-family. Local authorities provide economic assistance to communities. Representatives of the indigenous and local population living in rural areas of the Yamal-Nenets Autonomous Okrug constantly fish for their own needs. People do not have any legal rights to fish; they must have permits to fish legally. Those fishermen who enter into agreements with fish factories against enterprise quotas and sell fish to them are working “according to the law,” but there are very few of them. Fisheries and industrial development.

Just like reindeer herders, fishermen are concerned about the prospects for industrial development of the region.

Not only representatives of indigenous peoples, but also all local residents are sounding the alarm about the threat of pollution of water bodies; people fear the depletion of fish stocks. Due to the engineering and technical structures under construction and construction along the banks of rivers and lakes, the indigenous population cannot fish, as access to fishing grounds is difficult. People are concerned about disruptions to the hydrological, temperature and biological regimes of ecosystems due to the crossing of rivers and lakes by large linear structures (pipelines) and highways. Many informants talk about the fear of losing the main and only source of income from the sale of fish. They do not believe in the possibility of minimizing damage, much less that fuel and energy enterprises can operate without dangerous environmental consequences. One of the Nenets fishermen noted: “Because they started extracting gas, “the places broke down.” I had to change the place. The fish are leaving because of the noise at the construction site.” Visiting workers are temporarily or permanently based in the area of construction and operational work, along transport communications, and there are often cases when they carry out uncontrolled (including illegal) fishing on a large scale. This leads not only to a reduction in fish stocks, but also creates conflict situations between visitors and the indigenous population. During ethnological examinations in the Tazovsky region, it turned out that the population was very concerned about the negative consequences of laying a siphon (pressure pipeline) through the Tazovskaya Bay. People are afraid that the strong vibration and hum emanating from the pipeline will scare away the fish rising to spawn, making it difficult and even delaying their passage along the river. Taz. Fishermen testify that fish begin to move en masse along the river above the pipeline only when there is a north wind, when the water level in Tazovskaya Bay rises significantly. Many residents of Yamal are concerned about the significant reduction in fish stocks in the reservoirs of the Tazovsky region. It is said that fish production targets for the fish factory and communities were previously achieved with much less effort because there was more fish. The population is also concerned about the fact that on the river. Poor, the bed of which was crossed by a pipeline several years ago, the semi-anadromous fish stopped coming up to spawn. It is significant that many northerners working in the fishing industry associate the future of their children with the presence of fish in rivers and lakes, so their concern about the decrease in the number of fish in rivers and lakes is understandable. According to fishermen, the fishing industry is more vulnerable than reindeer husbandry, since it directly depends on fish resources, the condition of which they cannot

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influence: “Reindeer herding may still have a future. As long as the deer is alive, the Nenets will live, as they say. But the fisherman probably has no future. The fish will run out, and the fisherman - where will he go? The fisherman probably has no future. Of course, there will be no fish at this rate of development. I think natural resources are running out.” Fisheries and modernization. Fishing enterprises of the Yamal-Nenets Autonomous Okrug have fishing and transport vessels, ice drilling units and motorized winches operate in the winter fishing season, modern vehicles are widely used, including non-self-propelled refrigerated vessels, cars, crawler tractors, all-terrain vehicles, snowmobiles, etc. The use of floating refrigerators in summer and autumn poutine, capable of processing 12-13 tons of fish per day, significantly increases not only the volume of fish received, but also improves its quality, increases the efficiency of the industry, since the downtime of fishermen associated with the export of the catch is reduced. In the income of fishermen employed at enterprises, the main thing is wages. It depends on the volume of fish caught and delivered. As an example, we provide data for Tazovsky Agro-Industrial Fishing Enterprise LLC (“Tazagroprom”) in the Tazovsky district. In 2012, the average salary of a fisherman was about 18.5 thousand rubles. (in 2007 this figure was about 8.3 thousand rubles). It should be taken into account that many fishermen are employed and fish in the summer and autumn periods or only in the autumn. Someone, having worked three fishing seasons in one year (summer, autumn, winter), then moves on to another job. In general, the roster of fishermen at the enterprise is characterized by turnover. The share of those constantly employed in all seasons for several years in a row is small. Those fishermen who work at the enterprise seasonally receive their main income from independent illegal fish trade. The unemployed also live off this. Official acceptance of fish from private owners is carried out through the consumer cooperation system; it can be delivered to a fish factory. Purchasing prices are low, so many people sell fish through so-called “merchants” - visiting businessmen from the mainland. The peak of illegal trade turnover occurs in the winter, when there are “winter roads” through which heavy vehicles can reach the Yamal outback and export frozen fish. Often representatives of indigenous peoples travel independently on reindeer or snowmobiles to rotational camps, where they sell fish at prices acceptable to them. Many village aborigines (and not only them) say that without fishing they simply cannot survive in conditions of high unemployment, so the illegal sale of fish serves as the main source of income for many rural residents of the district. We can say that representatives of the indigenous population have succeeded in this type of “commerce” and have well-established regular contacts either with traders or with shift workers: “I have many friends’ phone numbers

in my mobile phone. They call me when they need fish,” “Now everyone has their own clientele. Direct trade is well established. We cannot live without this. There is no work. But they won’t take everyone to the fish factory, they have limits” [PMM, PMN]. A large influx of newcomers to the district increases the demand for fish and thereby stimulates indigenous residents to engage in this type of commercial activity. Settlement for such transactions occurs immediately, at the time of sale, and not after the end of the season, as in enterprises. Receiving “real money”, on the one hand, stimulates the intensification of trading activity, on the other hand, it makes it possible to immediately buy the necessary things. This changes traditional Aboriginal ideas about wealth. If earlier among the Nenets reindeer herders were considered rich, now some express the view that fishermen have become richer, since “they earn more than reindeer herders.” Ideas about the prestige of fishing work are also changing: “Previously, people were transferred from reindeer herders to fishermen as a punishment. But now it’s difficult to get a permanent job as a fisherman, since you can earn good money from fish if you don’t drink.” The life of fishermen is subject to greater “modernization” compared to reindeer herders. This can be explained by both constant cash income and a more sedentary lifestyle (as mentioned above, they roam 3-4 times a year, and some even less). Some families equip beams at their fishing grounds: they buy furniture and carpets. The presence of a well-maintained “in a modern style” beam is an indicator of the family’s wealth. Ten to twenty years ago, a fisherman’s dream was to buy an imported outboard motor, which was a measure of wealth and family prestige. Nowadays, imported motors are more common than domestic ones. It should also be noted that almost every family has a generator to generate electricity, a TV with a video player, not to mention mobile phones, cameras, and some use computers.

Traditional material culture among fishermen has practically ceased to exist. We can talk about the widespread use of traditional craft tools and means of transportation. They themselves make nets, gaggis, traps, nooses, axes, knives, skis, sleds, boats, oars, sleighs, etc. If the family lives in the fishing grounds, homemade wooden utensils are regularly used, including spatulas, ladle, containers for storing things and products. Traditional clothing and jewelry are worn only by representatives of the older generation, and only sporadically. Fishermen's families have a varied diet, which, due to purchased products, is close to the village diet. Fishermen, compared to reindeer herders, are less committed to following ethnic traditions and rituals in everyday life. Many of them do not regularly, but occasionally visit places of worship and perform religious rituals. Since the lifestyle of semi-nomadic fishermen is close to that of a village, they are psychologically more ready to change their lifestyle from semi-nomadic to sedentary.

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This group of the indigenous population of Yamal has a higher level of education than the reindeer herders: the majority have incomplete secondary education. Because of this, they can expect to find work in other areas of employment. Hunting On the territory of the Yamalo-Nenets Autonomous Okrug, the main objects of hunting have traditionally been arctic fox, hare, squirrel, partridge and waterfowl. Wolverines, foxes, stoats and other small fur-bearing animals were hunted in smaller numbers. In addition, in the tundra areas the Nenets sometimes hunted for wild deer and even elk, and on the sea coast for seals and beluga whales. The most intensive hunting activities were carried out by reindeer herders who owned small and medium-sized herds. Fishermen were the next most active group; large families paid less attention to hunting. In the 1970s and early 1980s. The average annual figures for Arctic fox production in the district reached 13 thousand units per year. Since 1991, all field fur harvests in the district have sharply decreased. This was due to both the deterioration of the fishing situation (a decrease in the number of Arctic foxes and the deepening disorganization of the fishery) and a sharp drop in fur prices. Due to the lack of a market, hunting has become an unprofitable sector of the northern economy and is currently experiencing a period of decline. Nowadays, only a few organizations accept furs, including some trading posts and communities that receive district subsidies for the harvested products. Amateur hunting (mainly for the sake of obtaining meat food) has always been preserved and continues to exist among the indigenous population of Yamal. In winter, partridges are hunted quite actively, and in spring, ducks and other migratory birds are hunted. It is much less common to catch Arctic foxes in traps. Their skins are used to decorate traditional clothes. In contrast to fishing, most of the population hunts sporadically, trying to at least somehow diversify the family's diet. They say that hunting does not bring income to the family, so they devote little time to it, so as not to damage the more profitable fishing and reindeer herding industries. At the same time, given the increase in demand for fur, hunting enthusiasts are ready to hunt animals in larger quantities. It should be noted that engaging in familiar activities helps the native resident of Yamal not only survive physically, but also feel comfortable psychologically. In addition, reindeer herding and fishing allow these people to be precisely "indigenous", that is, they feel a close connection with their native land, continue the traditions of their ancestors and realize their uniqueness in relation to representatives of other peoples of Yamal, which is very significant for their identity. Employment in non-traditional sectors of the economy High rates of industrial development in the Yamalo-Nenets Autonomous Okrug inevitably entail a reduction in the resource base of traditional sectors of the economy of indigenous peoples of the North, so the question arises

about the prospects for their employment in other sectors of the economy. Given the high unemployment rate in northern towns, this will lead to even greater competition in the labor market. Intensive industrial development, it would seem, creates ample employment opportunities at enterprises of the fuel and energy complex, but in reality only a few indigenous peoples, as well as the local population of the district, are employed there.

Research shows that among the indigenous indigenous peoples of the district, only 40 people are employed in the mining sector (0.2% of the number of employees). Cases when one of them manages to get a job in the gas industry are rare. Employment workers say that there are Aboriginal people who want to work there, but they are not hired. Moreover, this applies not only to Aboriginal representatives, but to the entire local population. New developing industries are primarily staffed by migrants, specially brought by companies and arriving independently. In terms of qualifications and training opportunities, indigenous people cannot compete with them. Representatives of indigenous peoples are not hired even for positions that do not require education. Cleaners, watchmen, dishwashers, and laborers work in rotational camps, but they, like most other fuel and energy workers, fly in from the mainland, and there is no talk of competition with the local population in these positions. In non-traditional industries, the largest number of indigenous peoples are employed in education - 1,771 people (8.9%); followed by healthcare - 612 people (3.1%); public administration and military security, compulsory social security - 243 people (1.2%); provision of other communal, social and personal services - 210 people (1%). You need to understand that the employment sector in small northern villages is represented mainly by budget rates in schools, kindergartens, first-aid posts (hospitals), cultural centers, and rural administrations. Most often, representatives of indigenous peoples work as laborers, cleaners, watchmen, nurses, etc., that is, they occupy positions that do not require qualifications or education. Given this employment structure, their wages are extremely low. Social situation Unemployment. During Soviet times, the vast majority of the working-age population from among indigenous peoples was employed. Many, working on collective and state farms, were engaged in traditional types of economic activity - reindeer husbandry, fishing, hunting, and many representatives of indigenous peoples worked in the fields of education, culture, and health care. At the same time, the Soviet social and professional structure of the peoples of the North cannot be called optimal. Experts drew attention to unfavorable trends in the employment of indigenous peoples of the North: with a reduction in the number of workers in traditional industries, the proportion of people employed in unskilled physical labor in low-paid positions (cleaners, loaders, stokers,

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auxiliary workers) increased. This process of lumpenization gave rise to many other social problems that ethnographers wrote about. The transition to a market economy led to the collapse of former state enterprises (state farms) and collective farms, and a sharp reduction in the total number of jobs. In rural areas of the Yamal-Nenets Autonomous Okrug, many enterprises were closed, which led to mass unemployment. Thus, in the villages where the indigenous population lived, the level of employment in the late 1990s. reached 50%. To date, the situation has changed for the better, although the problem of unemployment among indigenous peoples cannot be considered solved. The “Strategy for the socio-economic development of the Yamal-Nenets Autonomous Okrug until 2020”, adopted in 2011 by the Legislative Assembly of the Yamal-Nenets Autonomous Okrug, provides the following data on the situation in the region: “The population settlement in the district is characterized by high urbanization. The demand and supply of the labor market in urban and rural areas have a structural imbalance. In cities there are many jobs but few labor resources; in rural areas the opposite situation is observed.” The official unemployment rate recorded in the Yamalo-Nenets Autonomous Okrug in 2022 was only 1.13%. The data show that there are 2,459 people (12.4%) among the aboriginal population “undistributed by type of activity”. This indicates high unemployment among Aboriginal people. Unfortunately, we have to admit that the problem of employment remains one of the main ones for representatives of indigenous peoples. Research has shown that the majority of citizens who applied to the employment service were in Shuryshkarsky. Tazovsky and Yamal regions, that is, in those where there is a large proportion of the indigenous population. It must be borne in mind that real unemployment among the rural indigenous population is higher than official data.

Over the past two years, about 9% of the total working-age population among the indigenous indigenous peoples of the region turned to the employment center. In terms of social status, workers predominated among them (46% in 2021 and 41% in 2022). The number of school leavers looking for work has almost doubled in 2022 (6% in 2021, 10% in 2022). Of particular concern is the large proportion of young people - 46% in 2021 and 36% in 2022. In 2022, there were more unemployed people with higher education - 6 people (in 2021 - 2). Among those who applied to the employment center, about a third (32% in 2021 and 28% in 2022) do not have complete secondary education (graduated from 9 grades of secondary school), which makes it difficult for them to find employment. A positive trend that emerged in 2022 is a higher percentage of employment: in 2021, 19% of those who applied were employed, in 2022 - 32%. Large corporations such as Gazprom and its subsidiaries NOVATEK and LUKOIL undertake

obligations to employ the local, including indigenous, population. However, these clauses in the agreements turn out to be nothing more than declarative statements. In reality, there is no employment for unemployed representatives of the indigenous indigenous peoples: “When gas was opened, they said that they would hire workers from the locals. And now very few people work there. There was an agreement with Yamburggas production and the administration, it was written there. But there’s no point. Now I don’t trust anyone”; “LUKOIL” promised to give me a job, but they didn’t hire me, they said I had no experience. Although they were trained. Formally, they fulfilled their obligations: they recruited a group and trained them. And they employed people from the land, it’s more profitable for them - they don’t have to pay northern bonuses. “Transneft” promised the same thing, but did not do it.” The leitmotif of this kind of statement is the words “They say one thing, do another.” Through the employment center, the unemployed are offered training in blue-collar jobs: boiler room operators, gas welders, oil and gas production operators, construction trades, and for women - cooks, hairdressers. Problems with retraining arise due to the fact that when people are sent for retraining, they are not immediately paid for travel to their place of study and accommodation, the employment center transfers money only for training, and people must travel at their own expense and live for three months in Novy Urengoy or Salekhard at your own expense. Representatives of indigenous peoples do not have such funds. According to employment service workers, psychological problems also arise: “Indigenous people cannot live for long without traditional food, without family. Not everyone agrees to go to study. There are other problems too. Employers have a lot of negative reviews. The indigenous people have a free attitude to life. They don’t work according to schedule. For example, they hire nurses to the hospital, and that’s what they usually say, but not the natives. Very low level of preparation and self-organization” [PMM, PMN]. According to experts, the low educational level is unlikely to allow many of the unemployed indigenous residents of the district to undergo retraining and obtain a specialty. The involvement of representatives of indigenous minorities in modern spheres of the economy is hampered not only by their insufficient education, but also by their psychological unpreparedness for this type of activity. Representatives of indigenous peoples say that they want to work at fuel and energy companies, but they are not hired: “Oil and gas companies that work here are registered in Moscow, Tyumen, Urengoy. They do not hire such trained people. They want to find workers for vacancies too quickly. And they don’t tell us what kind of specialists they need for the future. These companies are impossible to reach. Our people cannot find jobs. Vocational training is not a matter of money, we get

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it. There is no agreement at our level that these people will be employed.” It seems that representatives of the indigenous peoples of the North can occupy their niche in the fuel and energy sector. Industrial companies operating in the area have or should have people responsible for interacting with indigenous peoples. Such positions could be occupied by aborigines who have received ethnographic, cultural and historical education. Wider involvement of the indigenous population of the district in the activities of industrial enterprises and the internal life of companies can become one of the channels for reducing tensions, creating new jobs, improving living standards, creating a favorable climate and closer interaction between industrial companies and indigenous peoples.

Special mention should be made of unemployment among women. In the traditional society of the Nenets, Khanty, and Selkups, women were engaged in housekeeping and raising children. During the years of Soviet power, women living in the villages were employed, although the majority worked in low-prestige positions - cleaners, dishwashers, etc. At the same time, many of them achieved a higher level of education than men and became teachers and doctors. In collective and state farm reindeer husbandry, the profession of “plague worker” was considered female, but there were few such positions, so many were employed for part of the rate. Today in “state farm” herds the situation is similar: women have 0.25-0.5 of the rate of a lower-class reindeer herder. At the same time, you need to keep in mind that women in the tundra “win” over men in terms of education (if among men the majority completed 6-7 grades, then women completed 8-9 grades). Employment problems for indigenous peoples must be resolved by creating favorable conditions for the development of reindeer husbandry, fishing, and hunting, primarily through expanding the market for the products of traditional industries. It is necessary to establish a level of purchase prices that justifies production costs and ensures a rate of profit sufficient to support the livelihoods of the aborigines. It is also necessary to ensure an acceptable level of wages for people employed in traditional industries; in this regard, it is necessary to revise the wage scale for workers in traditional industries. One of the ways to involve Aboriginal people in modern employment is the development of ecological, ethnographic tourism and the production of souvenirs. This is due to the presentation of traditional culture, so some propose to consider such areas of activity of indigenous peoples as a modern direction of traditional economy. The authorities of the Yamal-Nenets Autonomous Okrug attach great importance to the development of this type of activity through the active involvement of indigenous peoples, primarily through their communities, in the tourism business. The director of the State Institution “Association for the Economic

Development of Indigenous Peoples of the North” believes that if indigenous peoples themselves are involved in tourism business development projects, this will be a guarantee of the sustainability of their development. Also, this activity makes it possible to solve financial issues and the problem of employment of the indigenous population. Housing provision. In the past, when indigenous peoples led a traditional way of life, they did not have a housing problem, since they built and equipped their own homes. For the Nenets, it was a portable tent, optimally adapted to the conditions of nomadic life in the tundra. The chum has a conical shape, is resistant to snowstorms and winds, snow rolls off its surface without stopping, and when moving, it can be easily disassembled and assembled in 50-60 minutes. The Khanty and Selkups, leading a sedentary lifestyle, built log huts. In the middle of the twentieth century, during the campaign to transfer nomadic reindeer herders to a sedentary lifestyle, in the newly created settlements, the construction of houses began with public funds. It was then that the housing problem arose, since the pace of construction did not meet the housing needs of the population of the North. In the 1990s, this problem has worsened and is now one of the most pressing and intractable. Despite the fact that in recent years there has been active housing construction in the district's villages where indigenous people live, the average housing supply remains low. It must also be said that the housing stock, which was built mainly in the 1950-1960s, does not meet modern requirements of sanitary and hygienic standards and has a significant degree of wear and tear. In most northern villages there is no water supply, sewerage, not to mention hot water supply. Private construction is developing, but it is not affordable for most indigenous residents due to high prices.

The greatest number of people in need of housing was recorded in the Yamal and Tazovsky districts, in which the share of indigenous minorities is the highest in the district (in Yamalsky - 66% of the total population, in Tazovsky - 53%). The housing situation in the northern “oil” and “gas” cities is much better than in areas where the indigenous population lives. Let us separately dwell on the state of the housing problem in the village. Nakhodka of the Tazovsky district, where representatives of the peoples of the North make up 98% of the population (1206 people out of 1236 according to data for 2021). The electoral passport of the settlement contains data on the housing stock. According to official data, on average there is 3.36 m2 of living space per village resident, which is negligible. This indicator indicates the state of the housing problem in the village of Nakhodka. According to the passport, 114 people (10% of the population) live in dilapidated and dilapidated housing, but reality shows otherwise. In the village, people live in premises that can only with a stretch be classified as residential - these are trailers,

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barrels, sheds. One of the apartment buildings went deep into the ground to the level of the windows, and 6 families with children live in it. Those who have a permanent job can buy beams for housing, the cost of which is 150-200 thousand rubles. According to the same passport, the average salary in 2020 was 27,449 rubles; with high food prices, not everyone can find the money even to purchase beams. More than half of the families in Nakhodka are on the waiting list for housing - 53%; the same number are hoping to improve their living conditions. An indirect confirmation of the problem with the housing issue in Nakhodka can be the fact that when in September 2022 our expedition group announced a plan to go and work in the village, it took a very long time to resolve the issue of where we could be accommodated and where we could work with informants. In the immediate vicinity of the village, people live in tents. These are low-reindeer Nenets who cannot roam because they do not have enough livestock to do so. The situation in one of these families, A.V. Yadna (born in 1961), is indicative. After the death of her husband in 2004, the woman was left alone with five children. There are only 20 deer in the family, so they cannot roam; they have to set up a tent on the outskirts of the village so that they can go to the store for groceries. The two youngest children study at a boarding school in Tazovsky, the elders continue their education (one daughter studies in Nadym at a branch of Tyumen University with a degree in Municipal Administration as a correspondence student, the other in Tobolsk as a full-time student at the Faculty of History and Law). The middle son returned home after graduating from the Tarko-Salinsky School with a degree in motor mechanic. None of the grown children can get a job in Nakhodka, since there are no vacancies. The eldest daughter, Tatyana, was promised a job at a boarding school, but was not hired due to the lack of specialized education. Son Timofey wants to work at the Nakhodkinskoye field, but is afraid that they won't take him there. The family exists on the mother's pension and the survivor's pension for the younger children; this money is only enough for the bare necessities. The mother earns money tanning hides, but this is a small amount that is spent on food. The family does not have a boat, which means there is no opportunity to fish even for food, there is no "Buran", which does not make it possible to reach relatives who wander in the tundra, where the reindeer graze. The head of the family applies to the social protection department for financial assistance; it is provided only once a year. The family lives on the brink of poverty. But there are no parasites in it; children realize the value of education and continue to study. The owner is in line to receive housing, but does not believe in the imminent prospect of moving from the tent, since first of all, fishermen employed at Tazagroybprom receive apartments. During a survey of the population, another pressing problem became

obvious - the lack of toilets, even street ones (there is no sewage system in the village). Those who do not have enough money to purchase dry toilets use buckets. The housing issue and the state of the housing stock in the village are the basis for social tension among the population. Informants say that when in the early 2000s. The development of the Nakhodka oil and gas condensate field began, a citizens' meeting was held, at which representatives of the companies promised a lot - to bring gas to the village, to hire residents, etc., but they did little. Hence the distrust of representatives of the fuel and energy complex and authorities at all levels: "In Nakhodka, when the pipe was laid, there were public hearings. The population was promised a lot of things, so they agreed. Every year they promised to build 2 apartment buildings, a free scheduled helicopter, everyone was given gifts, tarpaulins, material, ropes for the reindeer herders. They gave everything away for 2 years, then they left, and that's it. Houses are being built, but materials are difficult to import." To be fair, it should be noted that housing construction in the village has begun and is ongoing. Every year, several apartment buildings are rented out, comfortable according to Nakhodka standards - with central heating, but without sewerage and water. Residents still take water from Tazovskaya Bay. But the pace of construction in such an acute state of the housing problem is very slow. As positive changes in the social sphere, we will name the renovated heating mains, a power plant, a club, a bakery, a new premises for a post office, a first aid station, and an installed automatic telephone exchange that allows Nakhodka residents to call not only the regional center, but also to any other city. A separate social problem in the district is providing housing for the nomadic population. Among the nomadic reindeer herders, the vast majority do not have any permanent housing, for example, from six families of brigade No. 4 of the Tazovsky agricultural production complex, housing in the village. Tazovsky has only one (the foreman), and out of the six families of brigade No. 2 and the five families of brigade No. 5, none. Informants unanimously say what they would like to have in the village. Tazovsky apartment or other housing, since during their short stay in the village in the fall and spring they are too burdensome for their relatives, who already live in cramped living conditions. Many people like the idea of organizing a House of Reindeer Herders, where families of tundra dwellers could stay for several days for a fee corresponding to their financial situation. Young people from reindeer herding families would like to live in the village, but they understand that two serious obstacles stand in the way of realizing this desire - lack of housing and work. In order to change the situation with the provision of housing for indigenous peoples in the Yamal-Nenets Autonomous Okrug, the "Housing" program is operating, within the framework of which the subprogram "Providing

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housing for citizens from among the indigenous peoples of the North” is being implemented. To implement it, residential buildings are being built in areas of the district. In general, it should be noted that the natives are pessimistic about obtaining or purchasing housing in the villages. They do not believe in the prospect of resolving the housing issue, so many (especially among reindeer herders) do not even stand in line, since in order to register they need to collect documents, which many are unable to do. Social politics. Work with the indigenous population is carried out by the Department for the Affairs of Indigenous Minorities of the North of the Yamal-Nenets Autonomous Okrug. The district has a well-functioning mechanism for helping low-income families, and several regional programs are being implemented to support indigenous peoples of the North and develop traditional economic sectors. These are the target programs: “Development of the agro-industrial complex”, “Providing housing for citizens from among the indigenous peoples of the North”, “Culture, language, traditional way of life of the indigenous peoples of the North”. Poor nomadic families are regularly supplied with “components” for tents (tarpaulin, stoves, cloth, lamp glass). Private reindeer herders and communities are provided with transport while protecting their herds from predators. In addition, the district authorities plan to provide satellite communications to the entire nomadic population. Unemployed persons from among indigenous peoples leading a nomadic lifestyle over the age of 14 receive monthly social payments of 2,000 rubles. (nomadic reindeer herders) and 600 rubles. (semi-nomads - fishermen) per person. This form of compensation is popularly known as “Neyolovsky”, since payments were introduced during the governorship of Yu. F. Neyolov in the Yamal-Nenets Autonomous Okrug. Low-income and large families receive additional payments in accordance with existing social norms. Families whose children do not go to kindergarten are entitled to compensation. However, representatives of indigenous peoples consider the payments inadequate to the losses caused by oil and gas development. The amount of compensation is negligible compared to the average salary in the region (more than 70,000 rubles). Compensation in the amount of 2000 rubles. are perceived by indigenous residents as insignificant. In general, the district is doing a lot of work to support indigenous peoples, which has a positive impact on their level of well-being. At the same time, we must not forget that that the protectionist policy of the authorities negatively affects the indigenous population, setting them up for a consumerist, dependent line of behavior, reducing their motivation for independent activity. Many note that it would be better to replace all these “benefits” with employment, so that people can earn money and respect themselves. Medical services for the indigenous population of

Yamal are provided by district hospitals (they also have outpatient departments) and paramedic and obstetric centers. The district has a system of free medicines for indigenous peoples, including the nomadic population. During traditional holidays (Reindeer Herder Days), residents of the tundra receive free baby food for children under 2 years of age and free first aid kits with a set of first aid medications. Speaking about medical care, it is necessary to understand that indigenous people, especially nomadic ones, are in a worse position in terms of access to it than the population permanently residing in villages, and even more so in cities. The situation with the availability of qualified doctors is acute even in regional centers, not to mention small villages where there are practically no specialized specialists. Despite the relatively favorable indicators of the provision of the entire population of the district with outpatient clinics and hospital beds, the scale of provision of medical and preventive services, their accessibility, especially for the nomadic population, remains very low. Today, it is difficult for residents of the tundra to even receive general therapeutic care and almost impossible to receive specialized care. To provide emergency medical care to the nomadic population, air ambulance flights are carried out annually. But there is a problem of mobile communication between the tundra population and medical institutions. Many reindeer herders use cell phones, but the instability of signal transmission cannot solve the problems, and walkie-talkies in agricultural organizations do not reach everyone in need. Satellite communications could solve the problem, but there are no satellites capable of providing a signal to territories located north of the 70th parallel. Ethnocultural sphere Mechanisms for implementing ethnocultural policy In the Yamalo-Nenets Autonomous Okrug, a serious legal framework has been created that affects the rights and interests of indigenous peoples of the North. One of the fundamental regulatory documents is the “Concept of sustainable development of indigenous peoples of the North of the Yamalo-Nenets Autonomous Okrug.” Comprehensive action plan for the implementation of the Concept for 2010-2015. in the block "Preservation and promotion of cultural heritage and development of traditional culture of indigenous peoples of the North" provides, in particular, for work related to the identification, certification and placement for state protection of cultural heritage sites of indigenous peoples of the North of the Yamalo-Nenets Autonomous Okrug. It is planned to enter information about the cultural heritage objects of the indigenous minorities of the Yamal-Nenets Autonomous Okrug into the Register of Cultural Heritage Objects, post this information on the website, and promote the popularization of the cultural heritage objects of indigenous peoples of the North in the media. Relations in the field of preservation, use,

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popularization and state protection of cultural heritage sites (historical and cultural monuments) are regulated by the Law of the Yamal-Nenets Autonomous Okrug. Of great importance for the preservation of the ethnocultural heritage of Yamal is the Law “On the folklore of indigenous peoples of the North in the Yamal-Nenets Autonomous Okrug,” which introduces the concept of “catalog of objects of intangible cultural heritage of the Autonomous Okrug.” In order to implement this law, a resolution of the government of the Yamal-Nenets Autonomous Okrug “On the legal regime of objects of intangible cultural heritage of indigenous peoples of the North of the Yamalo-Nenets Autonomous Okrug” was adopted, which regulates relations arising in connection with determining the status, use, protection, storage of objects of intangible cultural heritage of indigenous peoples of the North Autonomous Okrug. The Law of the Autonomous Okrug “On the Native Languages of the Indigenous Minorities of the North on the Territory of the Yamalo-Nenets Autonomous Okrug” regulates the cooperation of the Autonomous Okrug in the development and protection of native languages, the procedure for their use in the media, and provides for programs for the preservation, study, development and use of native languages. Moreover, this law guarantees the possibility of obtaining information from official sources of state and municipal authorities of the Autonomous Okrug in their native languages, including ensuring the translation of laws and other regulatory legal acts of the Autonomous Okrug related to the rights of indigenous peoples of the North into their native languages. The law also provides for the conduct of official records in the native languages of the indigenous peoples of the North in their places of traditional residence. Currently, the practice of developing targeted programs for the development of the peoples of the North has become widespread. Along with a set of measures to ensure the livelihoods of the peoples of the North (construction of schools, kindergartens, hospitals, supplying them with equipment, purchase of hunting equipment and various types of equipment, material support for the population, etc.), these programs include measures aimed at preserving and developing languages and cultures of indigenous peoples of the Yamal-Nenets Autonomous Okrug. Next, we will consider some of the most significant programs related to the ethnocultural sphere. In 2003-2011 the long-term district target program “Culture, language, traditional way of life of indigenous peoples of the North of the Yamalo-Nenets Autonomous Okrug” was implemented in the district (implementation stages: 2003-2007, 2008-2011 and 2018 - 2021), aimed at the sustainable development of indigenous minorities based on “a comprehensive solution to the problems of spiritual and national-cultural development,

strengthening traditional livelihoods and promoting employment.” To achieve this goal, the following tasks were envisaged, namely:

- *implement a set of measures aimed at preserving and reviving the traditions and culture of indigenous peoples of the North;

- *preserve the originality of the culture and language of the indigenous peoples of the North;

- *mitigate social tensions and ensure social protection of indigenous peoples of the North;

- *increase the level of education among people from among the indigenous peoples of the North, improve the financial situation of students from families leading a nomadic lifestyle;

- *contribute to the preservation of the health of indigenous peoples of the North;

- *improve the living conditions of the indigenous peoples of the North.

As part of the program, the regional authorities of the Yamal-Nenets Autonomous Okrug provided funding for various holidays, exhibitions, competitions, festivals, congresses and the participation of representatives of indigenous peoples in ethnocultural events; organization of publishing activities (production of booklets, advertising products); purchasing stage costumes for folklore groups, works of decorative and applied art, exhibits for ethnographic museums of the Autonomous Okrug, etc. Among the important events was the provision of satellite communications to traveling paramedics and the nomadic population of the district, the supply of low-income nomadic families with “components” for tents (tarpaulins, stoves, cloth, lamp glass), providing private reindeer herders and communities with transport while protecting herds from predators. Since 2012, the Yamalo-Nenets Autonomous Okrug has had a long-term district target program “Preservation of the traditional way of life, culture and language of the indigenous peoples of the North of the Yamalo-Nenets Autonomous Okrug for 2018-2035.” Its fundamental difference from previously existing programs in the field of preservation and development of the culture of indigenous peoples of the North of the Autonomous Okrug is that it provides for measures aimed at introducing new information technologies in order to preserve and develop the traditional culture of indigenous peoples of the North (creation of an Internet portal about indigenous minorities with information in their languages; placement of scientific, educational materials and artistic and journalistic works on electronic media); It is also expected to conduct scientific research in the field of ethnic traditions, culture, and language of the indigenous peoples of the North. Since 2002, the Yamal-Nenets Autonomous Okrug has been implementing the regional target program “Culture of Yamal”. The current stage of implementation is 2018-2035. It includes events and projects whose goal is to popularize the traditions of arts and crafts and crafts

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of the peoples of the North. The range of such events is quite diverse - from conducting large-scale exhibition projects for audiences of different ages to improving the professional level of the subjects of these types of activities. Along with district target programs, individual municipalities of the Yamal-Nenets Autonomous Okrug have adopted them. An example of such a program is "Preservation of the traditional way of life of indigenous peoples of the North in the territory of the Ovgortskoye municipal formation for 2018-2035." It, in particular, notes that the socio-economic development of indigenous peoples of the North is impossible without the preservation and development of their original culture, knowledge of language and traditions, and it is planned to implement a set of measures aimed at preserving and popularizing the culture of indigenous peoples, including: "identifying monuments of ethnic culture, their registration as cultural monuments at the state level, preserving the folklore of the indigenous peoples of Yamal, promoting cultural values, including through folklore and ethnic festivals, holidays, competitions at the municipal and district level, as well as providing targeted support to amateur and professional folklore groups in order to create conditions for participation in events at the all-Russian and international level." One of the most effective measures to protect the traditional way of life of the indigenous population of a given municipality in the conditions of industrial development of the region is considered to be "carrying out work to revive places of worship, legislatively consolidate the protective legal status of ritual places and territories associated with manifestations of the traditional culture and customs of indigenous peoples." North." The program provides for reimbursement of expenses "for ritual ceremonies and national holiday events of indigenous peoples of the North of the Ovgortskoye municipal formation. According to some representatives of the ethnic political elite, the program-target method "is one of the main tools that ensures the unification of the efforts of executive authorities and local governments of the Autonomous Okrug in achieving a common goal - improving the quality of life, satisfying the ethnocultural needs of the indigenous population." It can be assumed that the programs adopted and implemented contain a certain scenario vision, the most probable version of the prospects for the development of indigenous peoples (according to the program developers). At the same time, some researchers note that from the perspective of scenario analysis, many questions arise regarding the reality and effectiveness of these programs. How does the subject of programming emerge from a structured set of possible development options for the peoples of the North? How favorable is the development option for the subject of programming and for the peoples of the North themselves? Does the system of program activities present one possible development option or

a range of alternative, divergent options? The texts of targeted comprehensive programs, as a rule, are extremely concise in relation to the questions posed. It should be noted that the analysis carried out by these authors of more than 30 concepts and 80 programs (international, federal, regional, corporate, etc.) devoted to various aspects of the development of the indigenous peoples of the Russian North, made it possible to draw attention to the factor of external determination for the development of the peoples of the North. Concepts and programs are developed and adopted by social actors other than the indigenous peoples of the North. The orientation of these documents towards assistance, support and protection of the peoples of the North expresses a tendency towards the formation of an external source and basis for their development. Further, in the overwhelming majority of programs, the indigenous peoples of the North are presented as a single ethnocultural conglomerate, an enlarged object of external control influence (that is, without taking into account modern social differentiation). To this we can add the opinion of our experts about the lack of awareness of the indigenous population about the adopted regulatory documents: "Laws, programs... no one read them further than the Department." Experts highlight the following most significant types of state support for indigenous minorities in the Yamalo-Nenets Autonomous Okrug: support for traditional types of economic activities and organizations engaged in traditional economic activities (including communities), provision of housing, support and improvement of the level of education and culture. Since 2009, the system of providing state support for the economic and social development of small peoples at the expense of the federal budget has been changed: there has been a refusal to implement the activities of the federal target program in favor of targeted subsidies sent from the federal budget to the budgets of the constituent entities of the Russian Federation on the territory of which these people live peoples. According to the Department for Indigenous Minority Affairs of the Yamal-Nenets Autonomous Okrug, in 2011, 240 million rubles were allocated in the federal budget for the provision of subsidies for these purposes. Fuel and energy companies play a significant role in financing various cultural, educational and other projects of indigenous minorities. Thus, the Cooperation Agreement for 2022 - 2035 between the government of the Yamal-Nenets Autonomous Okrug and OJSC Gazprom states that Gazprom has traditionally taken part in supporting the activities of the government of the Yamalo-Nenets Autonomous Okrug, carried out within the framework of district target programs to support indigenous northerners, including the program "Preservation of the traditional way of life, culture and language of the indigenous minorities of the Yamal-Nenets Autonomous Okrug for 2018-2035." In 1995,

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competitions of reindeer herders in traditional sports were held for the first time in Nadym for prizes from Nadymgazprom LLC. Currently, similar competitions, festivals, and holidays, in addition to Nadym, are also held in Novy Urengoy, Muravlenko, Salekhard, Labytnangi, and in rural areas of the district. Financial support is provided to the folklore activities of indigenous peoples of the district. For example, in order to preserve and study objects of the intangible cultural heritage of the peoples of Yamal, at the expense of the ODSF "Culture of Yamal", the Department of Culture of the Autonomous Okrug is implementing a long-term project "Golden Fund of Folk Culture of Yamal", which includes the organization and conduct of folklore expeditions. In 2011, as part of the project, an expedition took place to the Shuryshkarsky district, during which specialists from the District Center for National Cultures recorded 57 units of folklore material: fairy tales, songs, rituals, customs, legends, riddles. In addition, information was received about the settlements of the Kunovat land, the terminology of kinship relations among the Khanty, traditional medicine, etc. In 2022, a similar expedition was carried out to the Krasnoselkup region. In 2023, the winner of the district competition for state support for the folklore activities of indigenous peoples of the North in the Yamalo-Nenets Autonomous Okrug (grant in the amount of 125,000 rubles.) became a project to publish the book "Tales of the Northern Land" of the municipal cultural institution "Priural Regional Museum of Local Lore". During field research in the village. Zeleny Yar of the Priuralsky district by expedition participants studying in the creative association "Researcher" of the Municipal Educational Institution of Children's Educational Institution "Center for Children's Creative Association of the village. Aksarka", under the guidance of N.P. Shusharina, a researcher at the Municipal Institution "Priural Regional Local History Museum", five fairy tales were recorded in the Khanty language of the Priural dialect. Illustrations for fairy tales were made by children from the creative association "Art Workshop" of the Municipal Educational Institution of Children's Educational Institution "Center for Children's Creative Association". A group of children also translated fairy tales into Russian, German and English. Workers of culture and art of the Yamalo-Nenets Autonomous Okrug are encouraged by the badges "Silver Loon", "Master of Decorative and Applied Arts and Crafts of the Yamal-Nenets Autonomous Okrug" (more than 20 masters have such a badge in the Yamal-Nenets Autonomous Okrug), a special award from the Governor of the Autonomous Okrug "For success in the creation, preservation and propaganda of cultural values of indigenous peoples of the North." In general, it should be noted that the purposeful policy of the state in the field of legislative and program activities

related to ethnic culture, folk art, and the preservation of objects of traditional culture is of great importance for the full ethnocultural development of indigenous peoples of the North. At the same time, their future largely depends on the initiative of the people themselves, who are not indifferent to the problems of preserving and developing their cultures. Infrastructure support for ethnocultural policy in the system of executive authorities of the Yamalo-Nenets Autonomous Okrug, in order to protect the interests and rights of indigenous peoples of the North, in 2015 the Department for the Affairs of Indigenous Peoples of the North was created. Among its many functions, the following areas of activity related to the support of ethnic cultures and languages of the indigenous peoples of the Yamal-Nenets Autonomous Okrug can be identified: - ensuring the preservation and development of the native languages of the indigenous peoples of the North, supporting the study of national languages and other subjects of ethnocultural orientation in educational institutions; — creating conditions for identifying, recording, studying, preserving and popularizing the folklore of indigenous peoples of the North; — organization and coordination of scientific research in the field of ethnic traditions, culture, language of indigenous peoples of the North, preservation of their cultural heritage; — creation of information systems in the established field of activity; — ensuring the development and implementation of scientific, scientific-technical and innovative programs and projects, financed from the district budget, in the established field of activity; — providing state support to subjects of folklore of indigenous peoples of the North when they carry out creative activities, aimed at preserving and developing cultural and national identity; — organization and implementation of targeted training for indigenous peoples of the North; — assistance in the preservation of their traditions by the indigenous peoples of the North, ensuring the maintenance and protection of sacred, religious places and burial places of the indigenous peoples of the North [see: Resolution of the Government of the Yamal-Nenets Autonomous Okrug 2010]. Activities aimed at preserving, developing and promoting the cultural heritage of the indigenous peoples of the North are also under the jurisdiction of the Department of Culture of the Yamal-Nenets Autonomous Okrug, state and municipal cultural institutions of the Autonomous Okrug. The network of state and municipal cultural institutions includes cultural and leisure institutions, museums (ethnographic and local history), libraries, centers and houses of crafts, workshops, etc. According to the Department of Information and Public Relations of the Yamal-Nenets Autonomous Okrug, there are more than 220 cultural institutions in Yamal, among which there are about 80 municipal libraries, more than 80 cultural and leisure institutions - these are centers of

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national cultures, houses of culture, youth houses, houses of crafts and others, as well as about 40 educational institutions of culture and art and about 20 museums. As of July 1, 2013, there were 756 cultural heritage sites in the region under state protection and registration. Of these, 33 are historical and cultural monuments, and 723 have the status of identified objects of cultural heritage: 550 are archaeological objects, 169 are objects of ethnic culture, 4 are historical objects. A special role in the structure of cultural and leisure institutions belongs to the structure that emerged in the 1990s. in the wake of the processes of “ethnic revival”, the system of centers of national cultures (hereinafter referred to as NCC), performing diverse functions¹. The leader in the activities of the Central Cultural Center of the district is the State Autonomous Institution of the Yamal-Nenets Autonomous Okrug “District Center of National Cultures” (hereinafter referred to as the OCNC). Until recently, its structure included the Center for the Culture of the Peoples of the North, which until 2004 was headed by Inna Vasilievna Sotrueva. With her direct participation, ideas arose for holding a district festival of folklore of the peoples of the North, a district festival of children's artistic creativity of the peoples of the North “The Sun in the Palm”, Finno-Ugric meetings and other events that have not lost their relevance today. Amateur folk art groups of various genres work on the basis of cultural and leisure institutions. Thus, since 2015, the Khanty vocal group “Sorni Tutye” (“Golden Light”) has been operating under the OCSC, in which ethnic intelligentsia and students of secondary educational institutions of the city participate. The repertoire includes Khanty folk and original songs, songs with lyrics by Prokopiý Saltykov, Roman Rugin, Mikul Shulgin and music by Sergei Kondygin and Leonid Longortov. The group is a repeated participant in folklore festivals of the peoples of the North and other events. As part of the implementation of the district program “Cultural Services for the Nomadic Population,” the group regularly travels with concert programs to reindeer herding brigades. In 2010, the Khanty folk group “Opal Tutye” (“Northern Lights”) was created in Salekhard. This team includes students from the Yamal Multidisciplinary College, the Yamal Polar Agro-Economic College, and representatives of the Khanty intelligentsia. In October 2010, team member Elisey Nakov became a laureate of the district festival “The Sun in the Palm” and the city festival of applied arts in Salekhard. Professional groups have become unique calling cards of the Yamalo-Nenets Autonomous Okrug - the dance ensemble “Syra-Sev” and the national song ensemble “Syotei Yamal”. The teams of these ensembles take an active part in various events in the district, other regions of Russia and abroad, introducing the wide masses of spectators to examples of folk art of the indigenous peoples of the North. The importance of such folklore groups is

evidenced by an excerpt from one interview we received in the Shuryshkarsky district of the Yamal-Nenets Autonomous Okrug (village of Muzhi): “We have a specific region, so almost every settlement has its own folklore groups. If in 2011 we had 4 Khanty folklore groups, then by 2022 there were already 12 of them. The national intelligentsia is coming to the realization that it is not only necessary to grab money. There are eternal things that will, of course, bring dividends over time. But today we have to work hard. There are authors who write and sing their own songs, there are authors who take the Soviet stage, translate it into the Khanty language and sing. But in principle, all this is welcome, because it popularizes culture. Today we are “running for songs,” because there are very few Khanty songs.” Currently, the OCSC collections contain recordings of epics, tales, ancient songs, and descriptions of rituals. An effective way to disseminate this information was the publication of information and methodological materials. Among such publications: the calendar “Folk Art of Yamal”, a collection of folklore materials of the peoples of the North “Wise Word”, a collection of Nenets folk songs by T. Lar “Let’s love our land”, as well as catalogs of materials on the folklore of the Nenets and Selkups. In recent years, the following have also been published: a collection of “Ancient and modern songs of the Khanty people”, a collection of songs by the Yamal composer S. Nyaruya “The Sun over the Tundra”, a collection of songs by the author and performer of Nenets songs T. Lar “Neti syo” (Songs of Neti). Much work to preserve and develop folk crafts and decorative and applied arts of the peoples of Yamal is carried out by the State Budgetary Institution of Culture of the Yamalo-Nenets Autonomous Okrug “District House of Crafts” (GBUK Yamalo-Nenets Autonomous Okrug “ODR”), as well as municipal institutions - the City Center of Crafts (Noyabrsk), District House of Crafts (village Krasnoselkup), House of Crafts (village Tolka, Krasnoselkup district). The District House of Crafts is organizational and methodological, an exhibition and training and production center designed to contribute to the implementation of the following directions of the cultural policy of the district: - revival, development and preservation of traditional arts and crafts and all types of applied creativity - as part of the cultural heritage of the peoples living in the territory of the autonomous district; — regional support for folk craftsmen and craftsmen; — realization of the right of citizens to all types of creative activity in accordance with their interests and abilities, expression of personal cultural identity¹. Specialists of the District House of Crafts develop and compile methodological manuals and recommendations on various types of folk artistic crafts, are engaged in the formation of a data bank on the work of artists and craftsmen, on the fine and applied arts of the district, create photographic materials and video recordings of

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ongoing events (department of applied arts methodology); are engaged in the creation of standard samples of souvenir products that reflect the cultural and historical values of the peoples of the district, organize master classes, creative laboratories and seminars; provide creative methodological assistance to craftsmen of the district, focusing them on observing traditions in the production of folk arts and crafts (the department of artistic and applied creativity together with the sector for the development of souvenir products); organize and conduct exhibitions at various levels (department of traveling exhibitions and gallery work). In an article for the 10th anniversary of the District House of Crafts, Z. V. Khudi writes that this institution has created a special cultural space around itself: "It is here that work is concentrated on creating conditions for the development of creativity of Yamal artists; for the exchange of experience and promotion of fine and decorative arts of the district at the interregional, national and international levels; to preserve the continuity of artistic crafts. For this purpose, exhibitions and festivals, competitions and seminars are held, methodological manuals are published and master classes are organized." When organizing events of district, interregional, and international significance, the District House of Crafts enjoys the support of the Department of Culture, the Department of International and Interregional Relations, the Department of Labor and Social Protection of the Population of the Yamal-Nenets Autonomous Okrug. Many events are held on the basis and with the participation of the Museum and Exhibition Complex named after I. S. Shemanovsky. It should be noted the serious role of museums and libraries of the Autonomous Okrug in the preservation and popularization of the culture and life of the indigenous peoples of the North. During the period of operation of the ODCP "Culture of Yamal", a number of large innovative museum and exhibition projects were implemented. First of all, these are the traveling exchange exhibitions "Through the Ages" (Museum of Fine Arts, Novy Urengoy) and "Necklace of Yamal" (Museum of History and Archeology, Nadym), as well as anthropological projects "Technology for self-documentation of a small ethnic group" and " Neighbours. Intercultural dialogue" (Museum of Northern Development, Gubkinsky), environmental and local history projects "Antiquities of Sugmut", "Ecological Trail" (Ecological and Local History Museum, Muravlenko), interactive educational project "Children's play calendar". In the village Since 2018, Khanty-Muzhi Shuryshkarsky district has been holding a museum festival of traditional crafts "Artisanal Land". Certified and unknown master craftsmen from the Shuryshkar district and other areas of the district are invited to participate in it. The main directions of the festival correspond to the competitive nominations: building

traditions, forgotten craft, traditional sculpture, traditional souvenir. Ethnocultural events The district hosts many events aimed at preserving, developing and popularizing the ethnocultural heritage of the indigenous peoples of Yamal. Thus, only in 2019, at the expense of the district target program "Culture, language, traditional way of life of indigenous peoples of the North of the Yamalo-Nenets Autonomous Okrug for 2018-2035," according to the Department for Indigenous Peoples Affairs of the Yamal-Nenets Autonomous Okrug, in the municipalities of the autonomous district, the following events of regional and district significance were organized and held: - events dedicated to the 92nd anniversary of I. G. Istomin (February, Salekhard); Lapsuev readings dedicated to the 77th anniversary of the poet's birth (March, Salekhard); Open competitions of reindeer herders for the Governor's Cup of the Yamalo-Nenets Autonomous Okrug (March, Nadym); — festival "Holiday of the Peoples of the North" (March, Novy Urengoy); — annual seminar-meeting with leaders of communities of indigenous peoples of the North of the Autonomous Okrug (April, December, Salekhard); — holiday of the Khanty people "Raven Day" (April, Salekhard, Pelvozh village, Labytnangi), etc. Among the major projects implemented by the District House of Crafts is the interregional exhibition of bone-carving art "Soul of the North". This is one of the significant events to present and support the Yamal school of bone carving, which in recent years has become famous and recognized among bone carving centers in Russia (six master bone carvers are members of the All-Russian creative public organization "Union of Artists of Russia"). The exhibition "World of Wood" is dedicated to the development of the art of artistic wood carving, presenting products of the traditional culture of the peoples of the district, as well as works of modern masters. Another major project is the District Exhibition of Contemporary Fine Art "Art-Yamal", which united painters, graphic artists, masters of decorative and applied arts of the district and is aimed at the popularization and development of contemporary fine art in the region. In the Yamal-Nenets Autonomous Okrug there is a regional creative laboratory "Yamal Souvenir". This name in the district was given to a set of events aimed at presenting work experience and creative achievements in the field of souvenir production. Masters, folk craftsmen, creative teams, Houses of crafts, private enterprises of the district working in the field of artistic crafts and decorative arts. Among the promising areas are: organizing advanced training courses for artists and craftsmen of the Yamalo-Nenets Autonomous Okrug from among the indigenous peoples of the North on the production of souvenir products, as well as on the basics of working as individual entrepreneurs in the sale of souvenir artistic products; attracting unemployed citizens from among the indigenous

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peoples of the North of the Yamalo-Nenets Autonomous Okrug to participate in events to organize self-employment in the production of souvenir artistic products. Such activities are an innovation for Nenets culture, as E. T. Pushkareva writes: “For many years now, workers in culture, and in recent years in the tourism business, have been struggling to find and create a Yamal souvenir. It is very difficult to create a unique, easily recognizable, inexpensive (which is very important), easily transportable Yamal souvenir due to the multiplicity of techniques, materials, tastes, traditions, and also because the peoples of the North of Yamal do not have a souvenir as such in their traditional life. Indigenous peoples had gifts given for one occasion or another and were designated by various terms, but not souvenirs. Currently, the production of souvenirs has become a subject of concern and discussion for the Department of Culture, Art and Cinematography, the Department of International and Interregional Relations, the Department for Indigenous Peoples of the North of the Yamal-Nenets Autonomous Okrug, the Tourism Agency, the Department of Youth Policy, and municipal authorities, and many other interested organizations and individuals.” Yamal craftsmen had the opportunity to get acquainted with the experience of this type of activity of their foreign colleagues as part of the activities of the Canadian-Russian cooperation program for the development of the northern territories NORDEP (since 2017). The project “Yamal - Northern Territories of Canada: cooperation in the development of artists’ creativity, the arts and crafts industry” was implemented, aimed at developing the production of souvenirs and artistic products and activating the creative potential of the district’s craftsmen. Representatives of Yamal visited the Yukon to study experience in working in the field of marketing, and in 2008 Salekhard hosted Canadian craftsmen and artists. A series of seminars, master classes and a joint exhibition of Yamal and Yukon craftsmen “Inspired by Nature” were held at the Art Center of the District House of Crafts. The website of the Department for Indigenous Peoples’ Affairs of the Yamal-Nenets Autonomous Okrug contains a fairly impressive list of other international events of an ethnocultural nature, in which representatives of the district took part. Only in 2019 these are: - XV International Festival-Competition “Christmas Carousel” (January, Sochi); —XIV World Congress of Reindeer Herders of the World (April, Kautokeino, Norway); — Fourth International Exhibition-Fair “Northern Civilization - 2009” (April, Moscow); — International scientific and practical conference “The role of education in the formation of ethnic and interfaith tolerance” (May, St. Petersburg); — concert tour of Great Britain by the artist of the State Institution “District Center of National Cultures” T. N. Lar (July); — IX Congress of the Youth Association of Finno-Ugric Peoples (August, Petrozavodsk,

Republic of Karelia); — I International Ethnic Festival “Krutushka” (August, Kazan, Republic of Tatarstan); — VII International Festival-Competition of Young Performers “Union of Talents of Russia” (October, Sochi, Krasnodar Territory); — I International Socio-Economic Forum of Finno-Ugric Youth (October, Perm); — XV Anniversary international competition (amateur and professional) for children and youth creativity “Wind Rose 2009” (November, Moscow) (information from the Department for the Ministry of Taxes). As an example, we can name such projects implemented in the Yamal-Nenets Autonomous Okrug as the international festival of park sculpture “Legends of the North”, the interregional exhibition of bone-carving art “Soul of the North”, as well as the participation of Yamal craftsmen in the international festival of crafts of the Finno-Ugric peoples “Yugra” (Khanty-Ugra). Mansi Autonomous Okrug). The district is implementing a set of activities aimed at professional artistic training, spiritual, moral and aesthetic education of the younger generation. Thus, within the framework of the ODCP “Children of Yamal”, since 2008, employees of the Yamalo-Nenets Autonomous Okrug “District House of Crafts” have been implementing the socio-cultural project “The Art of Yamal for Children”, the central events of which are master classes for children on beading, working with cloth and fur, carving on bone and wood, artistic painting of fabric, linocut, sewing from cloth and chintz, including the production of products of traditional types of crafts and decorative arts. Similar work is being carried out locally. interregional exhibition of bone-carving art “Soul of the North”, as well as participation of Yamal craftsmen in the international festival of crafts of Finno-Ugric peoples “Ugra” (Khanty-Mansi Autonomous Okrug). The district is implementing a set of activities aimed at professional artistic training, spiritual, moral and aesthetic education of the younger generation. Thus, within the framework of the ODCP “Children of Yamal”, since 2008, employees of the Yamalo-Nenets Autonomous Okrug “District House of Crafts” have been implementing the socio-cultural project “The Art of Yamal for Children”, the central events of which are master classes for children on beading, working with cloth and fur, carving on bone and wood, artistic painting of fabric, linocut, sewing from cloth and chintz, including the production of products of traditional types of crafts and decorative arts. Similar work is being carried out locally. interregional exhibition of bone-carving art “Soul of the North”, as well as participation of Yamal craftsmen in the international festival of crafts of Finno-Ugric peoples “Ugra” (Khanty-Mansi Autonomous Okrug). The district is implementing a set of activities aimed at professional artistic training, spiritual, moral and aesthetic education of the younger generation. Thus, within the framework of the ODCP “Children of

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Yamal”, since 2008, employees of the Yamalo-Nenets Autonomous Okrug “District House of Crafts” have been implementing the socio-cultural project “The Art of Yamal for Children”, the central events of which are master classes for children on beading, working with cloth and fur, carving on bone and wood, artistic painting of fabric, linocut, sewing from cloth and chintz, including the production of products of traditional types of crafts and decorative arts. Similar work is being carried out locally.

For example, in 2019, the natural-ethnographic park-museum “Zhivun” (Shuryshkarsky district) became a platform for the implementation of the international project “Masters of the Tundra”, which was carried out under the auspices of the Russian-Canadian cooperation program NORDEP. As part of the project, a unique training seminar “Master's School” was held, organized by specialists from Canada and Russia (Moscow, Salekhard) with the participation of masters of decorative and applied arts from the Shuryshkarsky district. During the seminar, beginning “apprentices” mastered practical skills in processing and using traditional materials and learned the basics of “souvenir” science. The result was more than 70 souvenirs made of birch bark, wood, bone, sedge, fur, beads and cloth. A major project aimed at developing children's creativity, forming the continuity of traditions of folk artistic crafts, as well as creating conditions for the realization of the creative abilities of children and adolescents, is the district exhibition-competition of children's arts and crafts “Yamalchik”. As part of activities to support gifted children and youth in the Yamalo-Nenets Autonomous Okrug, a target project “Participation of gifted children of the Yamalo-Nenets Autonomous Okrug in the program of the Interregional Charitable Public Foundation “New Names”” was implemented. Particularly noteworthy are the innovative forms of activity aimed at introducing the younger generation to the culture of the indigenous peoples of the North (interactive, educational and educational projects “Folklore Lessons”, “Living Motives of the Northern Land”, “Be in the Plus!”, etc.). Examples of work aimed at reviving and preserving the native language of the indigenous peoples of the North are the Lapsuev readings and holiday programs dedicated to the calendar holidays of the indigenous peoples of the North. A regional Olympiad in local history and native languages is held annually in Salekhard (in 2021 it received interregional status). The winners of the Olympiad become candidates for the award of the President of the Russian Federation and the Governor of the Yamalo-Nenets Autonomous Okrug, which is an example of supporting talented youth as part of the implementation of the priority national project “Education”. Among the ethnocultural events held in the Yamalo-Nenets Autonomous Okrug, special mention should be made of the following holidays: Reindeer Herder's Day, Fisherman's Day (in some

municipalities, the Khanty folk festivals Bear Games, Crow Day, Midsummer Festival have become regular). The program of official holidays, various festivals and other events includes sports competitions, exhibitions and sales of souvenirs, concerts of folklore groups, fashion shows in “ethnic style”, seminars of masters of decorative and applied arts and much more. These events are of great significance both for representatives of the indigenous peoples of the North and for all residents of the district, being an important factor in the formation of regional identity and interethnic solidarity. We received an assessment of such events in the Shuryshkarsky district of the Yamalo-Nenets Autonomous Okrug: “We celebrate two Khanty holidays - Crow Day (April 7) and the Midsummer Festival (August 2). In the small villages of Vorna, the Khatl Khanty are also celebrated, but there with minimal support from the administration. We do this en masse. By and large, this is a theatricalization of the holiday. These holidays are date specific. There is no attached - Bear holiday. We celebrate it seriously. There are, of course, which is not entirely correct, theatrical events (but all this is done on a real hunted bear)... Sometimes with the inclusion of outsiders, so that young people, representatives of not only the Khanty people, are present. To see it, remember it and save it somewhere. To give not a new sound, but to be able to introduce the rest of the people to it, because this holiday is very original, very interesting. We are trying to preserve at least the external attributes of this culture, I'm not talking about the spiritual direction of this holiday, it is much deeper than that what we show. At least preserve the external one so that people have an understanding. What is important today? Tolerance. Yes, we say, we do not hide the fact that we are different. But on the same day, both we and you celebrate the same holiday. This means that we have more in common than what separates and divides us.” Our experts also expressed their opinion on the importance of ethnocultural events for introducing the younger generation to their language. For example, sharing the experience of holding the Bear Festival in the Shuryshkarsky district, the head of the department of culture and youth policy of the district administration, A. A. Khudoley, noted: “There are very few young people, of course, who believe in this. In large villages, if they live here, they have already torn themselves away from their roots. Because boarding school life completely tears people away from their roots. Moreover, in the herds they speak their native language, in small villages they speak, but in our big villages, everyone has almost no language. The language is preserved in this way, too, and the language sounds from the stage. Although, since there are many people present, we have it in two languages, so that it is clear what we are talking about. But I always say from the stage that I envy the indigenous people. They speak two languages, they are twice as

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rich.” We join the opinion of our experts who believe: “The forms of culture that are reproduced in clubs, centers of national cultures - songs, dances of all kinds - are performing arts. This goes in parallel, an invented culture. But she is also needed. The more they see and listen to it, the stronger the understanding arises: “They are the same people, they are not strangers, they are familiar to us.”” It should be said that in the scientific community there is no single point of view on the significance of such events for ethnic development, about which For example, the following statements indicate: “behind the gloss of festivals, holidays and ceremonial events, serious problems are hidden”; “the triad “holidays-conferences-festivals” - this “manifest ethnicity”, of course, is associated with the cultural appearance of ethnic communities, but is far from the real problems of these communities.” However, most researchers see great positive potential for measures aimed at making small nations feel comfortable in the multi-ethnic Russian state. It is also important to note that indigenous peoples and their ethnic culture are today a kind of core around which the formation and strengthening of regional identity takes place. In the regional symbols of the Yamal-Nenets Autonomous Okrug, there are widespread themes associated with elements of the traditional culture of indigenous peoples: the decoration of premises for official events with the “reindeer horns” ornament, the use of reindeer herding themes in printed materials of the district, the presentation of gifts to officials and honored guests in the form of traditional clothes of reindeer herders, etc. With regard to ethnic tradition, it should be recognized that the holidays currently held demonstrate a significant departure from the “classical” norms of Nenets culture. For example, some rituals and sacrifices are performed, which in traditional conditions, according to G.P. Kharyucha, “are intimate, family or tribal.” A study of traditions and innovations in Nenets culture led her to the conclusion that today “the traditional sphere of life of the northern people is acquiring the character of a spectacular performance, which is observed by dozens and hundreds of those present or television viewers; Thanks to mass communication, it becomes open to the external environment. This is a completely new phenomenon in the ethnic history of the Nenets.”

Innovative forms of activity in preserving the historical and cultural heritage of the Yamal-Nenets Autonomous Okrug today rely heavily on modern technologies. One of the evidence is the initiative supported by the district government to create a special electronic resource that covered more than 150,000 pages (500 publications) and contained a significant amount of information about the Russian North in general and Yamal in particular, stored in paper (analogue) form in different geographical locations of Russia. Well-known Russian book depositories took part in the creation of the resource

base of the “Governor's Electronic Library”: Sverdlovsk Regional Universal Scientific Library named after. V. G. Belinsky, District Library of Ugra, Scientific Library of the Yamalo-Nenets District Museum and Exhibition Complex named after. I. S. Shemanovsky, Tyumen Regional Scientific Library named after. D.I. Mendeleev and Kazan University. Thanks to this large-scale project, rare books on history, geography, ethnography, and the economy of the region have now become available to a wide range of readers: Russians, foreign scientists, students and schoolchildren, business people and simply lovers of the North (in June 2013, a presentation of this project took place in St. St. Petersburg in the Presidential Library named after B. N. Yeltsin). In accordance with the “Concept for the preservation and development of the intangible cultural heritage of the peoples of the Russian Federation for 2018-2035”, in order to preserve, study, use and popularize folklore, the “Golden Fund of Folk Culture of Yamal” project has been implemented in the district since 2011, within the framework of which it is provided creation of an electronic catalog (register) of the Folklore Fund (purchase of a program for recording and storing ethnographic materials, training of employees in this program, equipping the storage facility with special equipment, etc.). It is planned that in the future the electronic catalog of intangible cultural heritage of the peoples of Yamal will become the basis for the transition to the creation of an electronic multimedia collection of objects of intangible cultural heritage and an integral part of the Catalog of objects of intangible cultural heritage of the peoples of the Russian Federation. Work is underway to place a bank of folklore materials on the information and library portal (website address: libraries-yanao.ru). One of the proactive measures to assess the environmental and social consequences of intensive industrial development is the creation of an electronic database of sacred places of worship of indigenous peoples. Recently, work has intensified to create websites covering the work of authorities and institutions of the Yamal-Nenets Autonomous Okrug. Thus, in order to promptly notify cultural specialists and residents of the Autonomous Okrug about the main directions of cultural policy, as well as about the most significant cultural projects carried out in the Okrug and beyond, the Department of Culture maintains an official website. In 2010, a new service was added to this site - consideration of citizens' appeals through an online reception. The site has been supplemented with a new section “Cultural Map of Yamal” with information about the cultural identity of the municipalities of the district. In order to expand the use of feedback forms between executive authorities and citizens, the Department of Culture began operating a “Hotline” and “Helpline”. The State Budgetary Institution of the Yamal-Nenets Autonomous Okrug "District House of Crafts" is working on creating electronic catalogs

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containing information about the craftsmen and artists of the district. To restore and preserve lost craft skills, step-by-step descriptions of technological processes for manufacturing decorative and applied products are compiled, which are published in a series of teaching aids “Lessons in Craftsmanship” (the authors of the master classes are experts and bearers of the traditional culture of the indigenous peoples of Yamal). Text information is accompanied by relevant illustrative materials. From 2018 to 2022, 8 teaching aids in this series were published, all of them are posted on the website of the District House of Crafts. The experience of publishing such manuals indicates the need to continue such work. Development of ecological and ethnographic tourism Activities in the field of tourism are also innovative for the small peoples of the North. Due to the fact that in recent years their ethnocultural potential has been increasingly used in the tourism business, the question arises about what ethnotourism is for the aborigines today: the basis of socio-economic development, income-generating work, a means of preserving and presenting their culture, meaningless fun ?

Issues of tourism development are actively discussed in the media. Here is an excerpt from one article on this topic: At first glance, the idea of developing tourism in Russia beyond the Arctic Circle looks frankly futuristic - even in the central zone of the country, with all its beauty, not a single region can boast of stable tourist flows. But the basis of the tourism business as a separate direction in the development of the economy of the Yamal-Nenets Autonomous Okrug is the idea of natural northern exoticism with its vast expanses untouched by civilization (the territory of Yamal is one and a half times larger than France), fish in crystal clear rivers, melt-in-your-mouth salted vodka, fresh snow in June and even temperatures of minus 50 in winter. This has not happened for a long time and will never happen again in Europe, where you have to measure every fish you catch with a ruler in order to meet the size specified in the recreational fishing permit, and the eyes of deer have long gone dark because they are fed with compound feed. Therefore, both our extreme sports enthusiasts and Europeans spoiled by comfort will find a place in Yamal. Moreover, in preparation for receiving tourists, the regional authorities stocked up on authoritative paper - the conclusion of the international audit agency Kohl & Partner that the organization of polar tourism in the Yamal-Nenets Autonomous Okrug complies with the strictest European standards of comfort, safety, etc. And this is a combination of natural uniqueness and targeted efforts to promote it are bearing fruit. If in 2021 a little more than five thousand people visited the district for tourism purposes, then in just nine months of this year 21.4 thousand tourists have already come to Yamal, more than half of whom are foreigners. “Foreign guests are most interested in a “freaky” vacation,

when people get the opportunity to deeply immerse themselves in another reality of life, when they, together with the indigenous northerners, can fish, catch deer, sleep on a fur bed in a real plague. Compatriots return to Yamal for “fruitful” hunting and fishing,” says First Deputy Head of the Department of Tourism of the Yamal-Nenets Autonomous Okrug Stepan Demidenko. Yamal authorities have developed more than 60 tourist routes. These are ethno- and ecotourism, historical tourism, hunting and fishing, ski holidays, rafting on mountain rivers. Now in Yamal, together with the Finnish consortium Sofi, a Polar Tourism Center is being created, designed for 50-60 thousand tourists per year. It will include comfortable hotels and cottages for a thousand people, restaurants, an entertainment complex, open-air swimming pools, a helipad, the residence of the younger brother of the Russian Father Frost - Yamal Iri and other facilities worth about six billion rubles. The Finns took upon themselves the obligation to attract investment resources, design and build the Center, and the Yamal residents - to provide land plots with the necessary infrastructure and provide tax preferences. But, according to the head of the analytical research department of the UNIVER Institute, Dmitry Alexandrov, the success of this venture will still depend more not on the infrastructure, but on how fully tourists will be able to touch the “pristine” nature of these places. “The sphere of eco- and ethno-tourism could become extremely attractive for the development of the region, and at the administration level there is an understanding of this fact. However, it is wrong to think that in such climatic conditions it is possible to quickly create massive flows of tourists from different countries - this is a problem not only of infrastructure, but also of a very specific climate, which is not favorable for humans to the same extent as the climate of Thailand, Egypt or even Finland and Karelia. This means that in order to attract large masses of tourists, it is necessary to reformat the attitude of tourists themselves to such a vacation, creating an attractive image of overcoming difficulties and getting to know the harsh nature and, in the case of an ethnic destination, the difficult conditions of ancient living conditions,” Dmitry assessed the prospects for the development of polar tourism in the Yamal-Nenets Autonomous Okrug. Alexandrov. In Yamal they understand this very well. Therefore, at the end of November an exhibition dedicated to the culture and history of the district opened in Moscow. It includes a real Nenets chum, household items that the Nenets used in the old days and continue to use now, samples of national art, works of local masters of painting and the famous English photographer Brian Alexander, who first visited Yamal in 1993. The formal reason for the exhibition was the 80th anniversary of the Yamal-Nenets Autonomous Okrug. But it was not located in some Moscow museum or exhibition hall, but on the

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territory of terminal “D” of Sheremetyevo airport. Therefore, in the next three months, more than 3 million potential tourists who will pass through Sheremetyevo-3 will be able to get acquainted with the specifics of the district. And in Yamal itself at this time the first group of tourists from Japan will be received. Not afraid of the polar frosts, residents of the Land of the Rising Sun expressed a desire to visit the Yamal-Nenets Autonomous Okrug in February to get acquainted with the unique culture of the indigenous people of the Far North. It should be noted that the authorities of the Yamalo-Nenets Autonomous Okrug attach great importance to the development of this type of activity. As of January 1, 2021, the Yamal tourism industry system consisted of 1,115 tourism industry entities and tourism resources (as of January 1, 2018 - 977 units). An increase in the number of tourism industry entities and tourism resources in the industry by 14.1% at the end of 2022 was achieved by clarifying the data on the materials of tourist passports of municipalities (an increase in public catering outlets, hotels, travel agencies). Despite the increase in the number of travel agencies, there are clearly not enough of them in hard-to-reach municipalities. Current departmental target programs provide for the involvement of small and medium-sized enterprises in the tourism sector, carrying out methodological work in this area, etc. For the successful development of tourism, the following tasks are expected to be solved: — increasing the investment attractiveness of the industry through government support and attracting extra-budgetary sources to the industry; — changing the consumer properties of Yamal tourism products through the introduction of departmental standards for services provided in the tourism industry; — use of the opportunities of the inbound and domestic tourism market by local governments in their territories in order to improve the standard of living of the population of the municipality. In 2006, with the aim of developing tourism in Yamal, the State Budgetary Institution of the Yamal-Nenets Autonomous Okrug “Yamaltur” was created. This institution organizes tours of various types and directions: ethnographic tours; excursion and event tours; hunting and fishing tours; weekend tours; active tours: hiking, skiing, skiing, water (rafting and river travel). “Yamaltur” contributes to the formation of a positive image of the region: “If you visually imagine a map of Yamal, then it can be compared to a deer skin, on which lies the silent tundra with reindeer pastures and berry meadows, countless calm lakes and noisy rivers, mountain ranges of the Polar Urals and foothills, diversity of flora and fauna in forest-tundra and taiga areas. This is a mysterious northern land with a set of natural, historical and cultural values that are unusual and incompatible for the common man. For example, the northern lights and solar eclipse, Mount Chernaya in the white snows of the Polar Urals, skiing in July. So miracles can be seen and observed at the “end of

the earth,” because this is how Yamal is translated from the Nenets language. This is a protected corner of the Russian Arctic, full of myths and legends, a land of fascinating northern nature, a region with the richest historical and cultural potential, unique history and ancient traditions.” Foreign and domestic tourists are offered ethnographic tours of Yamal, promising an acquaintance with the traditional way of life and the original culture of the indigenous people. The Department of Youth Policy and Tourism of the Yamal-Nenets Autonomous Okrug cooperates with representatives of communities of indigenous peoples of the North (on the issues of conducting routes in the territories of their traditional environmental management, the development and implementation of joint projects for the development of eco-ethnic tourism in Yamal). According to him, 5 communities are officially involved in the tourism sector, on whose ancestral lands year-round reception of tourists is organized, 13 communities have experience in receiving tourists on the basis of ethno-camps. According to the State Budgetary Institution of the Yamal-Nenets Autonomous Okrug “Yamaltur”, the largest number of tourists over the past three years have been received by the communities of the Yamal, Shuryshkarsky and Priuralsky districts of the Autonomous Okrug. The following have had positive reception experience: Minuruy LLC (Yamal district), Nokhrashch (Shuryshkarsky district), the ancestral camp of Anatoly Venyango (46 km from Salekhard near the village of Kharsaim, Priuralsky district), the national community “Kanashch ex” (Priuralsky district), Nenets family of reindeer herders Alexey and Svetlana Serotetto (Porsyyakha trading post, Yamal district), national community “Nessemdavy-il” (Priuralsky district), a camp of Taishin reindeer herders (in the area of the Bolshaya Paipudyna River, Priuralsky district), etc. According to optimistic forecasts of the Department, “every year the number of established indigenous communities ready to engage in tourism business is growing the basis for creating organizational mechanisms and models for the effective development of ecotourism by indigenous peoples, in close cooperation with travel agencies and government agencies in the region.” The State Institution “Association for the Economic Development of Indigenous Peoples of the North” is involved in the involvement of indigenous peoples, primarily through their communities, in the tourism business. The Association’s employees provide assistance to representatives of indigenous minorities in the development of tourism services, in particular in the development and implementation of business projects. The website of the State Budgetary Institution “Association for the Economic Development of Indigenous Minorities of the North” contains information that communities annually receive tourists and provide them with services in the field of ecological and ethnographic tourism (citizens

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from France, Slovakia, the USA, Canada, Finland, as well as from cities Russia - Yekaterinburg, Tyumen, Omsk, St. Petersburg). However, the opinion that tourism provides an opportunity to solve financial issues and the problem of employment of the indigenous population is not shared by all experts. Here are statements on this topic: "The attitude towards tourism is good, but it has nothing to do with the employment sector, since a minimum of people are directly involved in the organization. Accommodation, services, etc. are not an area of employment, but an auxiliary opportunity to obtain some funds and resources (like fishing for reindeer herders). Localized as: as an organizer, a person and several families of friends and relatives more or less close to him, who bring people under some conditions. It is, perhaps, impossible to develop on a large scale, since either those who are engaged in this constantly must appear, then we can talk about tourism as an area of employment, or the status quo will remain, that is, one-time arrangements for some visits. The city is closer here, so they do it more here. Again, "Dmaltur" is concentrated here. In the future, as an area of employment - it's unlikely. People come to fish, people go to hunt, foreigners come who want to experience this nomadic way of life. But this is not massive, it is just a few. And the transport scheme here is different than in Khanty. Again, a restricted access zone," "For the development of ethno tourism, it is necessary to create the appropriate infrastructure provided by the tourism industry as a whole. So far, for the most part, communities have neither the necessary equipment, nor specialists, nor advertising." When analyzing the interaction between industrial companies and indigenous peoples of the North of the Yamal-Nenets Autonomous Okrug, one should recognize the absolute necessity of their coexistence. The importance of the work of fuel and energy enterprises in the district and the obligations of the Russian Federation to the indigenous peoples of the North are an imperative to establish partnerships between them. The high pace of industrial development in Yamal inevitably entails a reduction in the resource base of traditional sectors of the economy, as pastures are withdrawn and the tundra and water bodies are polluted. This negatively affects the prospects for the successful development of reindeer husbandry, fishing, and hunting. Therefore, the issue of employment opportunities for indigenous peoples in other sectors of the economy is becoming increasingly pressing. The existing education system today has little focus on providing Aboriginal people with higher education. In many places, the situation persists in which young people find themselves unprepared to study at universities and, having entered there, cannot become certified specialists. And some of them, having received higher education, sometimes cannot get a job due to the lack of vacancies, as well as due to the impossibility of obtaining housing in a

city or town. Indigenous peoples primarily expect new jobs from the work of industrial companies in the northern regions. The activities of fuel and energy enterprises bring huge funds to the region, which are used, among other things, to finance targeted programs for indigenous peoples, assistance to agricultural enterprises, support for communities, compensation for losses caused by development, etc. This practice is of great importance for more successful social adaptation of these peoples in the context of globalization and industrial development. In general, this cannot but have a positive effect on the growth of the well-being of the local population. However, representatives of the Aboriginal people still have an income level below the average for the district, among them there is a higher unemployment rate, poor provision of not only comfortable, but generally housing. These circumstances influence the formation of the image of industrial companies and their representatives among the indigenous population. There are certain doubts about the compliance of the compensation policy with the goals of sustainable development of indigenous peoples. In recent years, the prevailing belief among researchers and among the indigenous peoples themselves is that state policy should be based not on one-time assistance to indigenous peoples, but on a system of measures of state protectionism and active cooperation with them. Neither compensation, nor subsidies, nor sponsorship can solve the problem of sustainable development of the indigenous population. Targeted programs should be aimed primarily at creating conditions for the independent development of traditional economic sectors and culture of the nomadic population. We can also talk about the divergence of interests in the perception and assessment of the consequences of the industrial development of the North among different groups of the indigenous population. "Village" Nenets, compared to others, feel the positive consequences of industrial development more: housing is being built in the villages, modern infrastructure is being developed. Semi-nomadic fishermen are mainly concerned about the environmental consequences of industrial development due to fears of pollution of water bodies and decline in fish stocks. The most vulnerable group is the nomadic reindeer herders, who receive the minimum "dividends" from the arrival of industrial companies and experience the greatest negative consequences from their activities. The results of the study showed that in the Yamalo-Nenets Autonomous Okrug there is active activity aimed at supporting traditional cultural values and reviving endangered forms of culture of indigenous peoples. At the same time, the task of both preserving and restoring the historical and cultural heritage of the indigenous peoples of the North, as well as supplementing it with modern technologies and elements of targeted training, including the use of "inauthentic"

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mechanisms, is becoming more and more clearly understood.

Conclusion

In the process of globalization, large-scale changes are taking place in the economic activities and lifestyle of the indigenous inhabitants of the Arctic. Today, Aboriginal people choose different development strategies, but for most of them, industrial development has become the most important factor in modern life. The activities of enterprises bring huge amounts of money to regional budgets, part of which goes to finance targeted development programs for indigenous peoples of the North, to help the agro-industrial complex, to support indigenous communities, and to compensate for losses caused during the development of territories. Overall, this has a positive impact on the well-being of indigenous and local populations. Modern infrastructure is developing in the Arctic: roads are being built, modern means of communication and energy are being used, residential buildings and social and cultural facilities are being built. This creates conditions so that indigenous peoples do not feel outside the “benefits of civilization” and receive comparable access to education, medical care and culture as residents of other regions of Russia. The process of interaction between indigenous peoples and mining companies is regulated by federal and regional laws. In addition, the districts have developed the practice of concluding agreements and agreements between communities and industrial enterprises. Of particular note is the unique experience of the Yamal-Nenets Autonomous Okrug in the creation of an Ethno-Ecological Council, whose tasks include making proposals to local governments to improve the legal framework in the field of regulation of land legal relations, environmental protection, environmental management and subsoil use. It is advisable to apply this experience in other regions. The policies of industrial companies in the North of Russia have been gradually changing for the better in recent years. Their managers and employees come to the realization that they are not pioneers of the northern and Arctic territories, that their activities must not only be carried out within the framework of the legal, primarily environmental, field, but also comply with moral standards. And since industrial development of the Arctic began before the adoption of modern environmental and socially oriented legal standards, companies should use compensatory measures and actively cooperate with local and indigenous populations in the areas of their operations. The management of many enterprises is aware of their responsibility and adopts documents and regulations that define the principles of activity and rules of behavior of employees, especially in places of traditional residence and traditional economic activities of indigenous peoples. Against the

background of the material well-being of the visiting population employed in the mining industry, the social problems of the aborigines are especially visible. In addition to the fact that the level of wages in fishing, reindeer husbandry, and marine hunting is an order of magnitude lower than in industry, The high level of unemployment among indigenous peoples poses a serious threat to social stability. As a rule, industrial enterprises refuse to hire indigenous people due to low qualifications, and there are no reserves for increasing employment in traditional industries. In the reindeer herding industry of the Yamal-Nenets Autonomous Okrug there is even a problem of “oversupply” of deer and shepherds, aggravated by the depletion of food resources. In Chukotka reindeer husbandry, there are other concerns - a shortage of reindeer herders and livestock workers; the desired increase in livestock is not happening, and therefore, the scope of employment is not expanding. The authorities associate the prospects for reducing unemployment and developing the traditional sector of the economy of the North with the development of communities and processing of products from traditional sectors of the economy. Traditional forms of economic management of the Arctic peoples are increasingly involved in the regional economy, and ethnocultural heritage is recognized as an important resource for the vitality of society, which not only needs to be preserved, but also modern forms of working with it must be found. Particular attention in our study is paid to the education of indigenous peoples of the North as the most important mechanism of adaptation. In the educational process, the educational potential of the basic means of the ethnic culture of the northern peoples is widely used (oral folk art, arts and crafts, folk games and toys, traditional physical competitions, festive and gaming folklore). It is probably worth considering the possibility of creating new forms of educational structures that are more adequate to the ethnic needs of northerners, as well as paying more attention to the targeted training of pedagogical specialists in the field of ethnocultural traditions of education. In the context of increasing industrial development, today there is an obvious lack of resources for traditional environmental management. The reduction of pastures and the pollution of water bodies lead to the need to search for new ways of social adaptation in the context of the curtailment of traditional forms of management. Many Aboriginal families see a solution in young people receiving vocational education and specialties that are in demand in the labor market. At the same time, many experts express thoughts about the need for more flexible forms - perhaps nomadic, primarily primary - education for children of reindeer herders in order to mitigate the stress that is inevitable for younger schoolchildren when parting with their parents and during the first years of life and study in a boarding school. It is also important to understand that further

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development of traditional sectors of the economy is impossible without a sufficient number of Aboriginal people who have received both basic and professional special education. Today you need not only to herd deer, fish, hunt animals, but also have knowledge of management, marketing, accounting, and be economically and legally literate. So far in the North there are very few such specialists among indigenous peoples. After all, one of the reasons that communities cannot develop successfully is associated with financial reporting issues. A useful measure could be closer interaction between industrial companies and educational institutions in cities and boarding schools. Familiarity and constant communication between the indigenous and visiting populations are of great importance. Their rapprochement would contribute to the establishment of a favorable psychological climate and would help graduates of boarding schools find their place in the future, including in industrial enterprises. In Russia and the world there are examples of successful participation of industrial companies in educational programs for indigenous and local populations in the Arctic and training programs for activists of indigenous social movements, which would be useful to be widely covered in the media. Measures of targeted government support for the development of indigenous peoples in combination with assistance to various forms of their self-organization are necessary. Such a policy of interested federal and regional authorities could guarantee movement towards limiting state paternalism, forming partnerships and mastering negotiation procedures by all their participants. The monograph proposes legal measures as mechanisms to overcome risks for indigenous peoples of the North associated with the industrial development of areas of their traditional residence and economic activity. Among them are the improvement of legislation, primarily the adoption of a special Federal Law "On assessing the impact on the ancestral habitat and traditional way of life of indigenous peoples of the North, Siberia and the Far East", introducing changes to land and resource legislation that correspond to the legal rights and interests of indigenous peoples, tightening environmental regulations in the Arctic. To improve the effectiveness of the proposed measures, monitoring of law enforcement practice will be required. It seems to us that in such work, an interdisciplinary approach is especially important, the joint work of anthropologists, lawyers, ecologists, and possibly the

involvement of biogeographers, economists and other specialists. An effective means of improving the quality of life of Aboriginal people could be the development by industrial companies of a policy focused on interaction and dialogue with indigenous peoples, studying and taking into account their interests. A fruitful practice in this regard appears to be the practice of campaigns, recognized in many countries, to accept obligations on social corporate responsibility, based on international standards formulated in the UN Declaration of the Rights of Indigenous Peoples (2007) and the Guiding Principles for Business Development in the Context of Human Rights (2011).). Company policies based on these principles should combine direct financial injections into the regions in which they operate with targeted competitive projects aimed at developing communities and families of indigenous peoples, supporting their cultures and languages. In this case, primary importance should be given to the social sphere - education and health care, construction and support of enterprises for processing products of traditional industries. Special measures are needed both in relation to Aboriginal people living in cities and towns with a mixed population, where different economic and cultural structures coexist, and in relation to ethnically homogeneous communities of the indigenous population leading traditional environmental management. The multivariate approach proposed in the book takes into account the ability of people of any culture and social environment to innovate and gives preference to individual strategies of people, their fundamental desire to provide better personal and social living conditions. At the same time, the industrial development of the Arctic zone can contribute to the development of the indigenous peoples of the region if government authorities provide a legal framework and socio-economic guarantees, increase the efficiency and quality of education, realize the right of people to reliable information, which in total will certainly contribute to the formation of a favorable social climate. Only taking into account all these circumstances is it possible to free, preliminary and conscious participation of indigenous peoples of the North in making decisions affecting their interests, full control over the activities of industrial enterprises, and the application of high standards of social and environmental responsibility to their activities in the Arctic.

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Article



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GM CROPS AND GENETIC ENGINEERING

Abstract: The field of agricultural biotechnology has grown significantly over the past 30 years due to our understanding of DNA as the chemical double-helix code for genes. Genetic engineering, a recombinant DNA-based method, allows for the manipulation of individual genes and the transfer of genes between species that would not normally interbreed. This differs from conventional plant breeding, which has limited advancements due to the random rearranging of genes. Genetic engineering techniques are used when desired traits are not present in the crop's germplasm, are difficult to improve through conventional breeding, or take a long time to introduce.

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Introduction

The field of agricultural biotechnology has grown significantly over the past 30 years as a result of our growing understanding of DNA as the chemical double-helix code that codes for genes. One of the recombinant DNA-based agricultural biotechnology methods available today is genetic engineering. The process by which the genetic composition of an organism can be changed using "recombinant DNA technology" is referred to as genetic engineering. The word is sometimes used interchangeably with terms like gene technology, genetic alteration, or gene manipulation. This entails the removal, insertion, and modification of DNA segments containing one or more target genes using specialized instruments and

enzymes. Genetic engineering differs from conventional plant breeding in that it allows for the manipulation of individual genes as well as the transfer of genes between species that would not normally interbreed. Among the millions of crossings produced by normal plant breeding, there is little to no guarantee of receiving any specific gene combination. Because the genes of both parents are combined and more or less randomly rearranged in the offspring, undesirable genes may be passed along with favorable genes or one desirable gene may be acquired at the expense of another. These issues restrict the advancements that plant breeders can make, consuming resources and time in the process (1).

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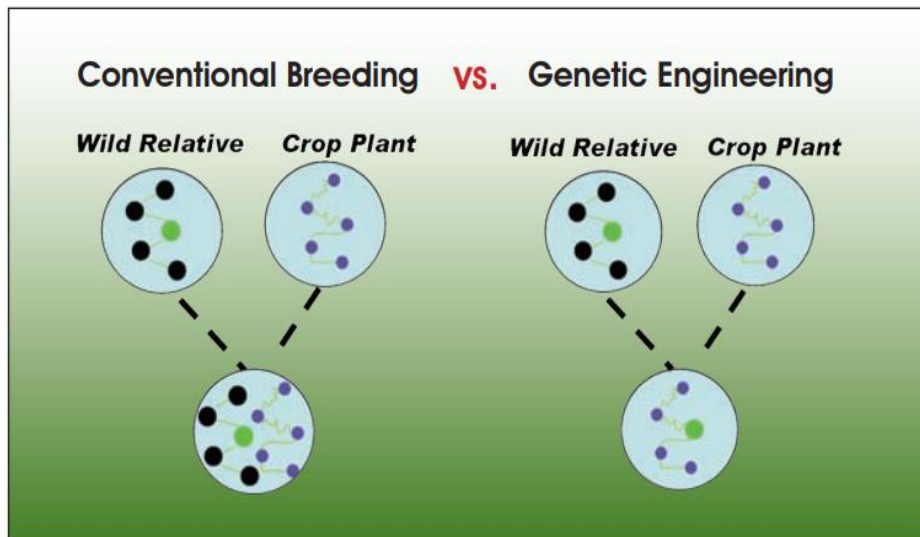


Figure.1 Conventional vs. genetic engineering (Biotech Mentor’s Kit, 2003)

Genetic engineering, on the other hand, enables the direct transfer of one or a small number of genes between closely or distantly related animals. Not every genetic engineering method includes introducing DNA from other living things. Additional methods for altering plants include deleting or turning off specific genes and genetic regulators.

Genetic engineering techniques are only employed in the following situations: 1) the desired

trait is not present in the crop's germplasm; 2) the desired trait is extremely difficult to improve through conventional breeding methods; and 3) it will take a very long time to introduce and/or improve such a trait in the crop through conventional breeding methods. These conditions must be met before using genetic engineering techniques (2).

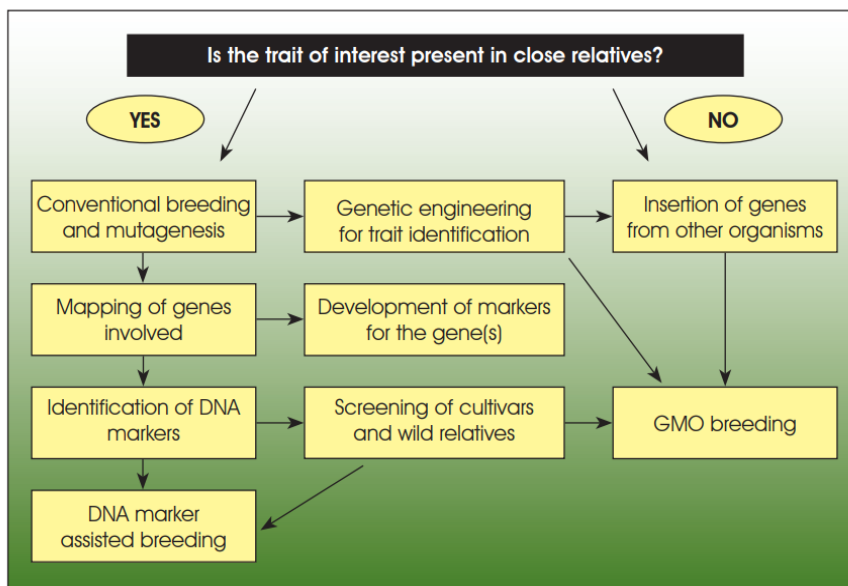


Figure.2 Integration of conventional and modern biotechnology methods in crop breeding (DANIDA, 2002)

A wide range of instruments and components from traditional breeding methods, bioinformatics, biochemistry, molecular genetics, molecular biology, and genetic engineering are used and integrated in the multidisciplinary, coordinated process of modern plant breeding.

Cloning genes is the second stage. Any cloning experiment consists of four main steps: creating DNA fragments, attaching to a vector, growing inside a host cell, and choosing the necessary sequence. All of the target organism's DNA is extracted during the DNA extraction process. In order to enable its cloning into

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bacterial vectors, this genomic DNA is processed with particular enzymes known as restriction enzymes, which cleave it into smaller fragments with predetermined ends. After that, several distinct

genomic inserts will be carried by copies of the vector. Following their transformation into bacterial cells, thousands of copies of these vectors are created (3).

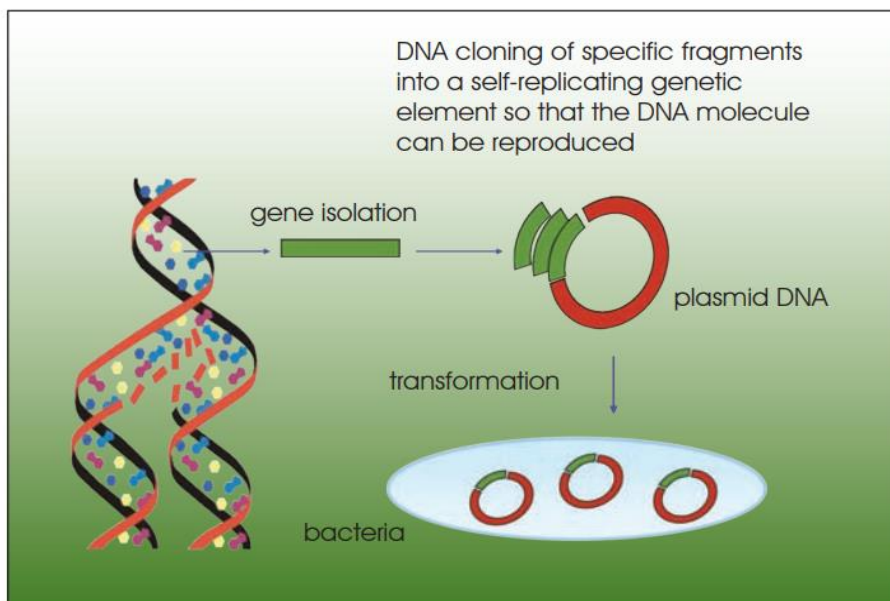


Figure.3 Gene cloning (Tabien, R. 2000)

Genes can express themselves differently thanks to promoters. Certain promoters, for example, cause the inserted genes to express continuously throughout the entire plant (constitutive), while other promoters only permit expression during specific plant growth stages, in specific plant tissues, or in response to cues from the outside environment.

The promoter also regulates the amount of the gene product that is expressed. While some promoters are strong, others are weak. Developing genetically

modified plants has the benefit of controlling gene expression.

In order to make it easier to recognize the gene of interest once it is inside plant tissues, selectable marker genes are typically connected to it. This saves a great deal of money and labor by making it possible to identify the cells that have successfully integrated the desired gene.

To identify cells that have the inserted gene, genetic engineers employed flag genes resistant to herbicides and antibiotics.

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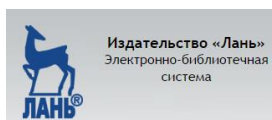
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