



Ecological State of Navoi Region (1940-80s)

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Article History	Abstract
Received: 08 June 2023 Revised: 21 Sept 2023 Accepted: 08 Dec 2023	<p><i>In the article, the policy of industrialization in the 40-80s of the 20th century in the Navoi region, the placement of industrial enterprises in the city centers and densely populated areas, the fact that the production products of the industrial enterprises, especially in the Navoi region, served the interests of the former union, not the country, but the chemical and oil products, is a statement based on historical sources. done Information is given about the harm caused to the environment by the waste of industrial enterprises as a result of the neglect of the material and technical bases of industrial enterprises, the lack of technical equipment, and the rapid implementation of production.</i></p> <p>Keywords: Industrial Enterprises, Environment, People, Production, Water, Soil, Health, Atmospheric Air, Morbidity.</p>
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1. Introduction

Navoi region is one of the leading industrial cities of Uzbekistan. Since the Second World War, huge industrial enterprises such as mining and metallurgical combine, production of mineral fertilizers, Navoi nitrogen, electrochemistry have been operating in the region. One-sided development of industrialization in the total volume of industrial products, the share of the mining (extraction) sector was twice as much as that of the processing industry. Meanwhile, the indicator of the processing industry in the republic was much lower than the indicators of the Union [1]. Therefore, in this regard, chemical, oil, mineral fertilizer production industrial enterprises located in Navoi region have made a great contribution to the development of the economy of Uzbekistan.

Literature review. A large part of the Lower Zarafshan oasis was part of the Bukhara region (until the establishment of the Navoi region in 1982), and after the establishment of the city of Navoi in 1958, the city became a major center of chemical industry and electricity production in Central Asia. Also, Navoi Mining and Metallurgical Combine (NKMK), "Naoi Nitrogen Production Union", "Kyzilkumsement", "Elektrokimy", "Nurota Marmar" and other enterprises were launched in the city. In 1965, the launch of the Navoi chemical plant [2] aggravated the pollution of the ecological situation. R. Umrzakova, H. Sakhobiddinov, M. Orinboev, S. Badriddinov, T. Nazarova, A. Zavulunov, R. Karshiev, A. Aminova, S. Khaydarova and others have made many studies about the industrial enterprises and economy of the region during the Soviet Union. those who took In the researches, information on the working class of chemical industry enterprises, the implementation of production plans, achievements and economic development has been highlighted. In these research works, the introduction of material and technical achievements into the production process of industrial enterprises is praised. However, sometimes there are also critical studies about the negative impact of the problems of the material and technical bases of industrial enterprises on the economy.

For example, one of the economic researchers, A. Zavulunov, said in his research, "The material and technical condition of the new chemical industrial enterprises built in Uzbekistan in the 1970s was insufficient, the construction of industrial enterprises was based on the income of the national economy, and the construction work was carried out very slowly, the funds were not delivered on time, the construction of industrial enterprises whose projects were not approved was started" [3].

During production, industrial enterprises have had a comprehensive impact on the environment with their harmful emissions. In particular, there are many scientific studies on the serious impact of chemical industrial enterprises on atmospheric air, water, soil and public health. After the independence of Uzbekistan, the impact of industrial enterprises on nature began to be openly researched. Sh. In the

works of Askarov, M. Sharifkhojaeva, I. Sizova, R. Karshieva, M. Aminova, D. Karimova, I. Kudryavtsev, S. Khaidarova, Y. Toshpolatov, N. Khalmanov and other [4] researchers -environment and its environmental problems are studied and included in the scientific analysis.

S. Khaidarov writes that as a result of the pollution of the Zarafshan river water from Navoi nitrogen waste, unique species of aquatic plants have decreased [5]. A researcher majoring in geography studies the negative impact of businesses on the world of plants. "Excessive poisoning of cotton fields with mineral fertilizers and chemical agents has reduced the fertility of the land, reduced the species of plants, worsened the health of the population, and negatively affected the labor resources, creating a huge crisis in economic development. , the intensification process in the economy of industrial enterprises, i.e., the lack of scientific and technical progress affected natural resources" negative effects have not been clearly demonstrated.

2. Materials And Methods

The city of Navoi was established in 1956 as one of the regions of the Uzbek SSR specializing in cotton cultivation. Pursuant to the order of the Cabinet of Ministers of the Uzbek SSR No. 2247-X of April 20, 1982, the Navoi region was separated from the Bukhara and Samarkand regions, and the city of Navoi was designated as its center [7]. The main water source of the Navoi region is the Zarafshan River, and the region consists of 6 large cities: Navoi, Zarafshan, Kyziltepa, Nurota, Uchkuduk and Yangirabot. Navoi region is a place rich in tungsten, uranium, gold, phosphorus, cement products and gas and oil production industries. Energy, mining and metallurgical, chemical, cotton ginning and construction goods manufacturing industries have been developed in the region.

In the 1950s and 1960s, the use of Amudarya water gained great importance in the Navoi region. The development of electrochemistry and electrotechnical industry in Amudarya has taken an important place. The development of electrical energy in the region created the basis for an increase in the number of industrial enterprises. All the industrial enterprises that were built and operated were powered by Navoi GRES. As a result of the full operation of the Navoi GRES and its connection to the single national line, electricity will be supplied to the cities and villages of Samarkand, Tashkent, Kashkadarya, Khorezm regions and the sister republic of Turkmenistan. Natural gas reaches Moscow, the industrial heart of the Urals, other Russian cities, as well as Kazakhstan, Turkmenistan, Tajikistan and Kyrgyzstan through the Bukhara-Ural, Central Asia-Central giant gas pipelines. As a result, such economic centers as Navoi, Gazli, Zarafshan, Uchkuduk, Qarovulbazar will be created.

3. Results and Discussion

In 1950, Uchkuduk secret deposits were discovered in Navoi region by geologist-engineer A. Matveev [8]. Mysterious mines in the Navoi area became known by the discovery of uranium mines in 1956. Working of mines with gold, tungsten and uranium compounds made it possible to establish new industries in the city of Navoi. In 1958, the Navoi mining and metallurgical combine for working with mining metals was launched. The fact that Navoi uranium mines start working in an open state and the lack of timely provision of specialists causes the toxic radiation rays emitted from the mines to negatively affect the surrounding living insects. As a result of lack of experts in uranium mines, the upper part of the mine remained permanently open. Uranium mines left in the open are active during the rainy, rainy and snowy seasons and emit radioactive rays. It is known that radioactive solid waste is the most dangerous waste, the main source of which is the waste of solid, liquid and gaseous products consisting of nuclear energy, military production, other sectors of industry, radioactive isotopes and mixtures from the health side. natural. Radioactive elements move through food chains and enter human activities through water, soil and atmospheric air. The amount of radioactive waste in the warehouse located near the city of Uchkuduk in Uzbekistan is 3 mln. it was close to tons and was known to contain radioactive waste.[9] Radioactive storages had a great impact on the sharp deterioration of Navoi's ecological environment. In the early 1980s, Navoi uranium mines affected the surrounding residential areas with radioactive rays, affecting the water and atmospheric air of more than 200 residential areas. Uranium industry wastes first start to poison groundwater. However, dangerous uranium and tungsten mines have not been completely closed. In the 1960s, the Soviet state brought specialists and expanded its activities. By the end of the 20th century, Uzbekistan was the leading producer of uranium, oil and energy in the Soviet Union. In particular, the use of Uzbek uranium mines as energy resources was tested in the cities of Navoi, Angren, and Samarkand.

Near the city of Navoi, there was a waste dump of the Hydrometallurgical Plant (GIZ-1), which has another negative impact on public health. The hydrometallurgical plant waste storage was built in 1964, its area was 630 hectares, and its height was 15 meters [10]. The wastes of the warehouse seeped into the ground and poisoned the ground water. In addition, in 1965, the commissioning of the only chemical plant in Central Asia, based on Bukhara natural gas and Navoi GRES, in Navoi region [11] also led to

a change in the nature of the region. The Navoi chemical plant was adapted to the production of mineral fertilizers in agriculture and produced more nitrogen fertilizers. Many industrial enterprises of the Navoi region differed from the industrial enterprises in Uzbekistan in the field of chemical products, oil processing and mining metallurgy. Therefore, the comprehensive influence of industrial enterprises adapted only to chemical production in Navoi region caused the ecological situation to deteriorate.

The superphosphate fertilizer manufacturing plant located in Navoi region also polluted the atmosphere with various fluorine compounds. The increase of fluorine compounds in the composition of the air poses a great danger to the health of the people and caused the increase of lung and anemia diseases among the residents of the region. In 1977, the Navoi nitrogen chemical industrial enterprise discharged waste water into nearby canals and streams without control. and disposal of waste water into ditches and streams changed the composition of water and, as a result, it was no longer possible to use it, chemical waste led to the loss of the properties of life and productivity of water. Despite the fact that many industrial enterprises have been repaired in Navoi region, instead of their technical repair, new industrial enterprises were built in order to further improve the economic development of the region. Although the technical condition of industrial enterprises is sometimes checked and problems are critically discussed at meetings and syezs, measures for their solution were not implemented, funds were not allocated for sufficient replenishment of material supply. In particular, in 1978, 5 out of 12 treatment facilities at the Navoi Nitrogen Enterprise technically met the requirements.[12] The remaining 7 waste treatment facilities did not meet the requirements at all, as a result, 216 tons of waste water from the industrial enterprise were dumped into the river, and 200 tons of waste dust into the atmosphere without treatment. This situation led to the destruction of the ecological condition of the region. The fact that 50% of the treatment facilities at the Navoi Nitrogen Industrial Enterprise are in a technically defective state made it possible to treat only 36 tons of waste water per year. Unfortunately, many industrial enterprises in the Navoi region lacked technical equipment. In 1979, 169 out of 422 industrial facilities of industrial enterprises operating in the Republic of Uzbekistan did not have technical cleaning equipment. There was a lack of dust collection drums, filter driers and similar sources of waste treatment in industrial enterprises. This situation was mostly observed in Chirchik, Navoi, and Almalyk chemical industrial enterprises, where 1194 waste treatment devices did not exist. Inadequate technical treatment facilities of industrial enterprises in Navoi region had a negative impact on nature and its factors. Chemical industry enterprises have worked with various technical furnaces and laboratories in the preparation of chemical agents. The toxic fumes released from them significantly destroyed the naturalness of the atmospheric air.

The amount of harmful waste released into the atmosphere in Uzbekistan.

№	Xududlar	1980 y	1985 y	1986 y	1987 y
1.	Toshkent	61.3	47.6	51.7	68.3
2.	Navoiy	96.5	84.2	84.2	84.2
3.	Samarqand	65.3	71.2	72	72.8
4.	Olmaliq	79.2	70.4	77.1	75.2
5.	Angren	51.9	75.5	74.9	68.0
6.	Bekobod	87.8	85.2	88.8	82.1
7.	Chirchiq	31.9	83.0	84.5	84.1

It can be seen from the table that industrial enterprises in Navoi region have the highest level of waste disposal in the atmosphere. Atmospheric air pollution has threatened the entire nature, plants and people's lives. This, in turn, indicated that Navoi region is an ecologically dangerous area. Even in 1983, the chemical industrial enterprise located in Navoi region lacked chemical dust cleaning facilities, retaining drums, filters, dryers. In this regard, enterprise managers apply to the center with applications. The central management did not like such economic problems, soon the management of the industrial enterprise was punished, they were dismissed from their positions, or various fines were imposed on the industrial enterprise as a punishment. However, the chemical industrial enterprise was not repaired and funds were not allocated, or the activity was not stopped for a period of time. Over the years, waste dust from the industrial enterprise has polluted the atmosphere in the surrounding districts of Navoi region.

The situation is deplorable in other industrial enterprises located in the Navoi region, and the technical situation was similar in all cotton ginning, light industry, oil, mining and metallurgical industrial enterprises of the region. In the cotton ginning industry, the waste dust collection drums were not working, and the damaged and worn out ones were not repaired. The technical equipment of the industrial enterprise was not at the required level, it did not meet the sanitary and hygienic requirements.

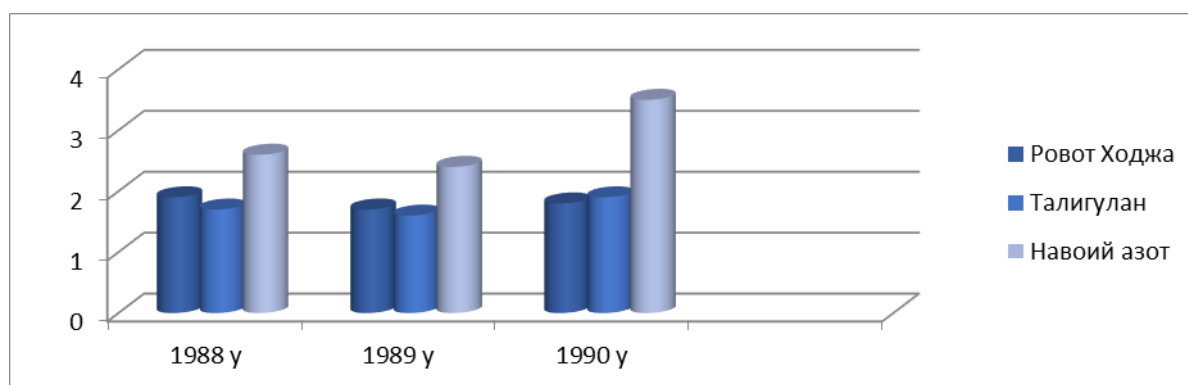
At first, the quality of the waste dust increased within the industrial enterprise. Even in this case, the workers of the enterprise worked, unfortunately, their rights and health were not protected. In addition, legal and social systems were not used to protect the population, despite the fact that there are kindergartens and schools around cotton gins. The center did not carry out control work on the protection of nature, improvement of the ecological situation, the mechanism of industrial enterprise waste safety and processing was not established.

The renewal of the main production funds became slower and slower. On the eve of independence, he was in a very poor situation. The main assets of production in industrial sectors are becoming obsolete. **Sanoat tarmoqlarida ishlab chiqarish asosi fondlarining eskirishi**

№		1980	1985	1986	1987	1988	1989	1990
1	All industries	0,5	3,8	5,7	36,8	7,2	8,4	9,6
2	Heavy industry	1.4	6,0	8,2	0,5	0,2	1,1	3,1
3	Light industry	1,4	6,0	8,2	0,5	0,2	1,1	3,1
4	Processing industry enterprises within the agro-industry complex (food industry)	6,6	6,0	7,5	7,4	5,1	8,3	7,7

In this table, it can be seen that the depreciation of funds is mostly in heavy industry. As a result of this, 160 thousand cubic meters of waste water from the Navoiyazot industrial enterprise of Navoi region was dumped into the Zarafshan river in one day. The water pollution of the Zarafshan river has also made the water of Shahrikhan and Mirzaariq, which are close to Navoi region, unusable. The seepage of the ditch water into the underground water caused the environment to lose its sanitary-hygienic condition. The Navoi nitrogen chemical industry enterprise polluted the Zarafshan river with 8 million cubic meters of waste water. The composition of chemical waste in the Zarafshan River also contained waste from industrial enterprises in Samarkand, Bukhara, Navoi, Surkhandarya and Kashkadarya regions[13]. This situation led to the derailment of the system of using the Zarafshan River for crop irrigation. The contaminated water of the Zarafshan River has caused a decrease in soil fertility. Water was poured into the Zarafshan River through 99 main canals polluted by the waste of industrial enterprises. Consequently, the canals were designed to irrigate many cultivated fields. The use of contaminated water from the dumping of chemical waste in the Zarafshan River in all agricultural fields of Jizzakh, Kashkadarya, and Navoi regions had a negative impact on crop productivity. The dynamics of water pollution index (SII) in Zarafshan compared to other cities was as follows.

Dynamics of change of Zarafshan river water pollution index (SII).



The table also shows that other industrial enterprises have dumped waste into the Zarafshan river, but among them, the waste water dumped by the Navoi nitrogen chemical industrial enterprise is too much. The influence of the river water on the surrounding underground water is strong, the seepage of the Zarafshan river into the underground water flow has caused the underground water to be polluted with chemical waste water. It is known from nature that underground water is related to drinking water of the population, and in areas where there is no tap water, the population used underground water through drains. Poisoning of the drinking water of the population from chemical waste has created the risk of contracting various diseases among the population. In particular, dental diseases are increasing among the population, especially early tooth decay and fluoride-fluorosis among school-aged children.

The use of Zarafshon river water by residents for watering their pets has caused animals to get sick from the water, their branches fall off early, they cannot lift their bodies, and skin diseases appear on permanent bodies. The polluted water of the river had a negative effect on domestic animals and caused a significant crisis in the economic development of the region.

In 1984, A. Alimov, a member of the Presidium of the Supreme Soviet of the Uzbek SSR, substantiated the information about the damage caused to nature by chemical industrial enterprises located in Uzbekistan in the program "Chelovek i priroda" [14]. He said that by the 1980s, the lack of material and technical support and activities of all industrial enterprises in Uzbekistan had a negative impact on economic development. It is openly acknowledged that the atmosphere and water are polluted due to the lack and failure of waste treatment facilities. In particular, Navoi claims that 60% of the atmosphere is contaminated with toxic gas as a result of 44 out of 180 gas purification equipment not working at the nitrogen chemical industry. Industrial enterprises without treatment facilities have released thousands of tons of toxic dust into the atmosphere in a year. Only Navoi nitrogen chemical industrial enterprise released 150 tons of waste gas into the atmosphere during the year. It was against the law to disclose such statistics in the Soviet era, but by the 1980s, some changes in the administration of the Soviet state began, and the internal situation became tense. At the time when the management of the unilateral economy reached its end, internal economic crises began to be seen in all sister republics. Socio-economic problems are mixed among the population.

The damage to the environment and the population from the chemical industry enterprise in Navoi region has led to a sharp increase in various diseases and the dissatisfaction of the population. In 1989, residents living near the Navoi chemical industrial enterprise of the Navoi region sent a petition to the Ministry of Mineral Fertilizer Production of the USSR (Ministerstvo po proizvodstvu Mineralnykh udobreniy SSSR) demanding that the enterprise be stopped. The expedition called Ecology-89, which started working in Uzbekistan in 1989, also visited Navoi region and studied the ecological situation. The repair of the chemical industrial enterprise has determined that the dumping of various wastes has caused the deterioration of the environmental condition, and it is confirmed that the Navoi nitrogen chemical industrial enterprise is unfit for operation. In addition, the secretary of the Central Committee of Uzbekistan O'. Z. Komilkhojaev analyzes the technical support of all industrial enterprises in the Navoi region, and especially strongly criticizes the Navoi nitrogen chemical industry [15]. The expedition named Ekologiya-89, which started a new operation in Uzbekistan, studied and monitored the composition of the atmosphere and water in cities where industrial enterprises are located almost every month [16]. Environmental conditions were openly acknowledged in periodicals. For example, in June 1989, it was brought to the team's attention that the concentration of dust in the Navoi region increased from -2.7 to 3.3, carbon monoxide - from 0.7 to 1.0, and ammonia from -1.5 to 1.7. In June 1989, the composition of chemical dust in the atmosphere of the Navoi region was studied, and it was noted that the amount of nitrogen dioxide is 1.5 times more than the specified PDK amount, and dust storm is 25 times more.[17]

In 1989, critical articles about the negative impact of industrial enterprises located in the Navoi region on the environment increased 10 times, and the number of diseases among the population increased sharply. "Pravda Vostoka", "Communist Uzbekistana" and "Sovet Uzbekisti" newspapers began to publish many articles on the environmental situation. For example, in the central cities of Navoi, Tashkent, Bekobod, there is information about the deterioration of the environment and the sharp increase in cancer, oncological and anemia diseases among the population.

Since 1987, the spread of lung diseases among the population has increased due to the influence of chemical enterprises in the cities of Navoi and Chirchik. Atmospheric pollution aggravated cases of lung and respiratory tract poisoning in people. Especially among the population, lung diseases and tuberculosis diseases have increased by 1.5 times. Such sad situations were criticized only on paper, and preventive measures did not have a practical expression. In practice, funds were not allocated for technical support to industrial enterprises, and the enterprises were not sufficiently repaired. As a result, it led to a change in the ecological environment of Navoi region.

The Navoi Cement Plant releases 22,800 cubic meters of polluted effluent into the environment every year, and the Navoi Electrochemical Plant releases 29,500 cubic meters of polluted effluent into the environment without treatment. An artificial reservoir covering an area of 20 hectares was created from these waters, which caused great damage to the "Kyzil Uzbekistan" collective farm and the "60th anniversary of the USSR" state farms. In particular, on the lands of "Kyzil Uzbekistan" kolkhoz, 6 irrigated water bodies appeared under the influence of mazkurokava. They have been kept in a state of disrepair, and toxic effluents seep into the underground waters, join rivers and destroy orchards. Despite spending millions of soums for nature protection every year, the level of water pollution has not decreased. In 1986, about 30 measures were implemented for industrial enterprises due to the efforts of higher organizations in the field of nature protection. 1 million 760 thousand soums will be spent on these works, of which 960 thousand soums will be spent on water resources protection. But the situation does not improve. A total of 84 thousand 849 hectares of cultivated land in Khatirchi, Navoiy,

Konimekh, Navbahor, Kyziltepa districts drank water from the Zarafshan river. According to the state standard, the minimum level of nitrates in water is determined, that is, the amount of nitrates in each liter of water should not exceed 2-11 mg/ml. According to N. Yoldasheva, nitrates in the intestines of the population are converted into nitrites under the influence of bacteria living in it (intestines). The absorption of these nitrites leads to the formation of methemoglobin and the partial loss of the activity of oxygenated hemoglobins. In this way, oxygen starvation occurs in the body under the influence of methemoglobin. This condition is primarily manifested in children, especially in breastfed babies. They are more sick when they are artificially fed than with mother's milk - that is, when milk is mixed with water with talc nitrate or when they drink this water. If the amount of nitrates in the water is more than 50-100 mg/liter, the level of hemoglobin in the blood increases sharply. Sometimes the drinking water contains a lot of hydrochloric and sulfuric acid (chlorides and sulfates). They give the water a salty and bitter taste. Consumption of such waters destroys the gastrointestinal tract. A liter of water containing more than 350 mg of chlorides is harmful to health. Calcium and magnesium salts in water determine its hardness. Water saturated with various salts causes many inconveniences. Vegetables and meat are cooked slowly in such water. A lot of alkali solidifies in kettles and cauldrons. Water pipes are damaged by various alkalis. There is a certain relationship between the consumption of hard water and the spread of certain diseases [18]. The author said that 64% of Zarafshan water that reached the territory of Navoi region was used by industrial enterprises. 90 percent of this water was absorbed by the workshops of "Navoiyazot" and Navoiy Electrochemical Plant and was thrown into the river without treatment. As a result of this, the hardness of the river water is 7.2 mg/l compared to 1965. to 13.9 mg l., bitterness 1.2 mg/l. from 344 mg/l., chlorides from 25 mg/l. to 56.7 mg/l., sulfate. Another 29 organizations have been active in river water pollution. cotton ginning factories, brick factory, chemical warehouses[19], inter-district fodder breeding base, pig farms[20], Navoi region cattle breeding base, dairy farms, etc. They are located at a distance of 20 to 100 meters from the river bed, contrary to sanitary regulations. In the mid-1990s, the meeting of the city council in Navoi, it was noted that the technological tools and equipment in the majority of the enterprises located in the territory of the republic, left over from the Soviet era, are already outdated, out of order and in need of renewal. The natural resources and ecological environment of the republic have been greatly damaged, and in many cases irreparable. For example, the equipment of the "Navoiyazot" production association is morally and physically worn out, and the systematic increase in the price of fuel during the transition period has had a negative effect on the cost of its products and has led to an increase in prices. This, in turn, led to a decrease in the sales and market of this enterprise's products. As a result, the production of nitron fiber and vinegar was reduced several times.

4. Conclusion

In many industrial enterprises of Uzbekistan, the waste treatment facilities were not working satisfactorily, for example, in the industrial enterprises belonging to the State Rural Industry, State Light Industry, Central Tashkent Ministry of Construction, and the Ministry of Transport, the purification devices worked at a very low coefficient. Residents, tired of the negative effects of industrial enterprises on the environment, did not stop sending complaints to the center. These appeals were considered at the meetings of local deputies of the Communist Party of Uzbekistan SSR. At the meeting, he noted that the environmental problems of the cities of Tashkent, Almalyk, Navoi, Fergana are increasing, that industrial enterprises cannot meet technical and sanitary-hygiene requirements, that there are accidents at enterprises, and that it is necessary to stop the enterprise's activities. . However, despite this, the decisions of the meeting and the approved projects were not supported or remained unimplemented due to the inattention of the responsible local leaders.

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