Tourism, Scientific, and Didactic Potential of the Ultrabasic-Alkaline Intrusion in Afrikanda with Perovskite Mineral (Kola Peninsula, N Russia) and of the Related Built Heritage

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Abstract: The present article is an example of research on the tourism, scientific, and teaching potential of the ultrabasic-alkaline intrusion with perovskite minerals in Afrikanda (Kola Peninsula, North Russia) and the possibility of its development as part of a local geopark site. A proposal to create a protected zone in this site, to expose sites of geological, natural, historical, and tourist interest is presented. Didactic routes and locations of geo-point visitors are proposed. Currently, there are numerous quarries and other mining objects of high historical, technical, and geological value. In the vicinity, there is a trough lake and post-glacial formations that can supplement knowledge about this region and add interest to would-be visitors. The remains of a historical camp for workers and miners are also visible in the intrusion area. In the vicinity of Afrikanda village, there is an international railroad line to Murmansk and St. Petersburg with a working railroad station. The place has high historical and geological potential for tourists and very rare and interesting mineralization. The last is a key value. The location is associated with 30 alkaline intrusions in NE Fennoscandia. There are opportunities to create a museum with a park where, with relatively little funding (most of the existing infrastructure buildings are in good condition), the intrusions can be shown to tourists. We proposed a conservation area with exposures, quarries, mine infrastructure, and historical sites, along with the location of geosites, hiking trails, and a geo-point for visitors. These sites are prospective for the economic revival of Afrikanda village and can protect the unique exposures.

Keywords: Afrikanda; geoheritage; historical heritage; ultrabasic-alkaline intrusion; Kola Peninsula; NE Fennoscandia

1. Introduction

The Afrikanda intrusion is located in the southern part of the Kola Peninsula in the NE part of the Scandinavian Peninsula, about 35 km from Khibiny Mts [1–4] and about 10 km from Polarnye Zori town. This is one of many intrusions connected with the hot spots in the early Paleozoic plume [5], of the alkaline continental magmatism such as Khibiny, Lovoziero massif and many others. Afrikanda intrusion was formed by the primitive ultrabasic magma [6–12]. In this small intrusion, about 6 km², dated at 364 million years [6,13,14], there are olivinites, clinopyroxenites, and magnetite-perovskite ores containing rare mineralization [15,16]. This intrusion is part of Kola Alkaline Province and is 364–465 million years old [5,10,13,17–19]. Afrikanda is localized over the major railroad line: Murmansk–St. Petersburg, which runs through the village. A road with a length of about 3 km leads from the station to the already closed quarries. It is therefore a place that can be managed, and the communication closeness means that visitors can get there by train, car, or bus. At present, after the end of mining in the 1990s, this site is
unprotected, yet it still has much heritage value, and the potential of this site is still little known. The authors would like to popularize this place and offer it a new function as a didactic and tourist site, where the existing infrastructure could be preserved and the unique rocks found here secured.

The purpose of this article was to propose the development and protection of these quarries, together with the location’s historical heritage (remains of the camp and mining infrastructure [19]) and to present the unique mineralization of these intrusions for tourists with the possibility of developing the tourist infrastructure in this area so as to bring about local economic revival. These intrusions are well known in the local and international scientific community, but their eco-tourism potential is untapped [20]. Apart from the intrusions themselves, Archean and Proterozoic rocks that build the basement of NE Fennoscandia, as well as numerous geomorphological forms and post-glacial rocks of the last glaciation are located in the vicinity and broaden the tourist potential. Building community information about the environmental problems and the importance of nearby sites is also important [21].

The following describes the sites and possible geo-sites in Afrikanda and discusses the possibility of organizing a local conservation facility (Figures 1 and 2).

Figure 1. Map of the Afrikanda localization (after [5,7,19], changed by author), and proposition of the touristic infrastructure in the intrusion region.

The issues addressed in this article are the protection of these sites, along with exploitation of the historical heritage (remains of the camp and mining infrastructure [19]), the unique mineralization of these intrusions, and the biodiversity for eco-tourism. Due to the preserved infrastructure and proximity to the town of Polarnye Zori and an international rail route passing through the locality, the site has high potential as a geopark (with the addition of a protected area of Khibina alkaline massif) [23].
2. Geographical and Geological Settings

2.1. Field Observation

The field research made it possible to create an inventory of the values in the area under discussion, determine the condition of the historic buildings, and select the routes connecting those places, which are key from the point of view of the importance of the discussed intrusion and are potentially most interesting for eco-tourists. Although the mining exploitation ended here relatively recently, i.e., in the 1990s, at present, many objects of the mining infrastructure are heavily devastated. The most damaged are the processing plants. In the quarry, all mining levels are still clearly visible, and in the forest, one can see ditches, pits, shafts, and other elements of mining work. The whole area is covered with boreal forest with pines (Pinus friesiana), spruces (Picea obovata), and birches (Betula tortuosa, B. subarctica) forming the overstory [24]. The undergrowth is dominated by lichens of the cladonia species, numerous fungi and mosses, forbs, and berries (Vaccinium vitis-idaea, V. myrtillus) [24]. In the shore zone of Imandra Lake, one can observe a landscape built of numerous hills and islets flooded by the waters of this trough lake. The area of the intrusion is located on a small mountain overlooking the hills of the Kandalaksha region (from the south) and the alkaline massif of Khibiny (from the north).

At present, the best exposure is in the main quarry and in several smaller quarries and nearby forests. The access roads to these quarries are well preserved. They can be reached on foot and also by car from the south. The most interesting is the main quarry, where a variety of intrusive rocks can be seen among the preserved mining levels. Next to the main quarry, there are several smaller ones, sometimes littered. Particularly interesting from the point of view of the history of research of this area are numerous small pits, ditches, and shafts located in the central part of the site, overgrown with forest. Also of interest is the village, where there are blocks of flats now abandoned but in good repair.
contains a store and a railroad station, as well as a bus stop for the nearby town of Polarnye Zori. The area is easily accessible by various means of transportation and is a weekend destination for the town’s residents.

2.2. Historical Mine Objects

Afrikanda has been the subject of mining since the early 20th century when the deposit was discovered. Exploration of the site began in the mid-20th century, and a series of wooden houses and a workers’ camp were built there [19]. It was a forced labor camp as evidenced by the entanglements that remain today. The work consisted in defining the boundaries of the deposit, building numerous trenches, shafts, and ditches where rock samples were taken. In a short period, a quarry and several open pits of lesser importance were established. All the material was transported to processing plants that were also built on site (along with a nearby settling pond that has been preserved to this day). After the transformation of the 1990s, the quarry was abandoned and production gradually ceased [25]. Currently, the village is inhabited by few people, with the majority of former residents having gradually moved out.

The main, at this time, unexploited, quarry is located about 1.5 km east of the Afrikanda railroad station. An earthen road leads to it, through the buildings of the village. To the west, the road leads from the processing plant to the quarry and is paved. This location is currently in partial ruin. The plant is heavily devastated but is still a monument of technical thought in this place. Behind the buildings, there is a loading ramp where the ore was dumped into wagons. To the village leads an asphalt road from nearby Polarnye Zori (about 5 km). In this area, there are also pits, shafts, and ditches left after the geological exploration. In the western part, there are remains of a labor camp (double entanglements and barbed wire). The entanglements and guardhouses are badly damaged, and the camp buildings have not survived; however, the remnants are an important monument to former times.

The main quarry consists of several mining levels. On the highest of these is an offset overburden built of sands and erratic blocks associated with the Pleistocene glaciation. Subsequently, there is the main exploitation level with pyroxenites and ferrites. In the central part of the quarry is the third-lowest level, which is partially waterlogged at present, where olivinite and pyroxenite occur. Next to the quarry, at a distance of about 500 m in the south, there are two outcrops of mineralogical interest. On the first, an embankment ramp was constructed, while the second is currently heavily contaminated with garbage. Here, olivinite occurs. In the central part of the intrusion, there are outcrops with pegmatites containing schorlomite. There are many paths trodden in the forest that lead between these outcrops (Figure 3).

Walking in a northerly direction, one can reach the shore of the lake, which is one of the many bays of Imandra. Lake Imandra is ethnographically associated with the Saami people, who are among the indigenous inhabitants of the area. Near Afrikanda in the Kandalaksha area, numerous labyrinths are monuments related to this culture [25]. There is a view from the shore towards the lake and the many hills and islands in the area. The aforementioned quarries, shoals, and geological/geomorphological points of interest currently covered with forest are located north and west of the main quarry. In their vicinity, there is the barbed wire of the former exploration facility and more fragments of the gulag (Figure 3). Of note, numerous mounds, shoals, and shafts are now in a state of collapse—unsecured, posing a threat to visitors to this area (Figure 3). In these places, there are relics of old exploitation (rails, entanglements) as well as rubbish. Left to themselves, these historic objects are deteriorating, overgrown with vegetation, and pose a danger to people who might walk on the snow-covered grounds in early spring. The entire area is unguarded, and access is possible at any time. All these objects are interesting from the point of view of the rocks that are there, as well as the history and technique of their exploitation.
2.3. Geology and Geomorphology of Afrikanda

Surrounding the Afrikanda intrusion is a series of biotite gneisses and amphibolites of the Archean and Paleoproterozoic ages of the Kola series [13,18,19]. These rocks form the crust of NE Fennoscandia. They were consolidated in the Paleoproterozoic during major tectonic movements that occurred in the region. Among these rocks, there are numerous intrusions, including relatively young ones of basic-alkaline composition. These rocks were formed as a result of high geological activity in the discussed region between 465–369 Ma due to the impact of a hot spot [9], which formed a Karelian—Kola alkaline mafic—carbonatite province [6] (Figure 1). They form several different bodies composed of ultramafic-alkaline rocks (such as Afrikanda) with a complex of kimberlitic pipes (Tersky Bereg and Arkhangelsk region) and the youngest alkaline types such as Khibina and Lovoziero, Turiy, and many other intrusions. The Afrikanda intrusion, which is an example of the central form, was formed from primitive magma containing derivatives of deep zones of the Earth’s crust and mantle [13,18,19]. There is an alkalic-ultrabasic formation outcropping in the area (Figures 1 and 4). It forms a small hill with a morphologically uneven surface, which is caused by the selective resistance to weathering of the rocks that make up the massif.

Its present appearance may also be related to glacial activity, as outcrops of the massif’s rocks contact directly with moraine formations and sands of the Pleistocene glaciation. Post-glacial formations are visible in the vicinity of the intrusion, and the glacial activity in this region highly influenced the landscape as, in close vicinity, there is the Imandra channel lake, the largest in this region, whose bay is directly adjacent to the discussed intrusion. Lake Imandra has a length of about 120 km, and a maximum width of about 14 km. It is a strongly elongated body of water with an extensive shoreline.
Located on the southern side of the village, the intrusion is isometric in shape with a distinct zone-ring structure. It is composed of pyroxenites sometimes admixed with phlogopite, which are the most resistant to weathering of the discussed rocks. They are accompanied by calcite-amphibole-pyroxene rocks with magnetite and perovskite [22] (Figure 4). Analyzing the geological structure of the Afrikanda massif, two zones can be distinguished, an outer and an inner ring. The outer ring is formed by melteigites, which are best seen in the peripheral part of the massif on the eastern side (Figure 5). These are dark grey, streaked rocks. They are composed of aegerine-diopsides and nepheline.

Secondary minerals are garnets, common hornblende, biotite, apatite, and titanite. This is followed by fine-grained massive black-green pyroxenites, sometimes with intercalations ofapatite (Figure 5). These rocks consist almost exclusively of diopside and hedenbergite with admixtures of magnetite, apatite, perovskite, and fluorite. In the central part of the massif, the fine-grained pyroxenites are gradually replaced by coarse-grained varieties. They resemble green-gray rocks consisting of diopside-hedenbergite, perovskite and magnetite with phlogopite, hornblende, cummingtonite, titanite, penite, clinochlore, clinozoisite, and calcite as secondary minerals [22] (Figures 4 and 5). Among these rocks are ferrites composed mainly of magnetite doped with perovskite and pyroxene and derivatives composed of perovskite doped with knopite. Next to these rocks, one encounters an olivine of dark gray color and numerous nests and veins built of carbonatites with strontianite. Sometimes there are also small bodies of pegmatites that, besides clinochlore, feldspars, and epidote, contain rare schorlomite garnet. This intrusion is accessible in several places—in the main quarry of about one square kilometer where iron ore was mined and in several smaller quarries, as well as in several small pits and shafts that remained after prospecting work was done in the area in the second half of the 20th century.
The uniqueness of this intrusion is the presence of minerals of the perovskite group and 85 minerals—accompanied by alkaline and ultrabasic rocks types.

Figure 5. Microphotographs (Nx) of the typical rocks from the Afrikanda: perovskite ore with perovskites (per) and knopite (ree) (A); olivinite with olivine crystals (ol) serpentine (srp) and perovskite (per) magnetite (mt) (B); pyroxenite rocks with clinopyroxene (cpx) with perovskive (per) and carbonate minerals (cc) (C); melteigite with nepheline (ne) and olivine (ol) serpentine (srp), phlogopite (phl), and orthopyroxene (opx) with cummingtonite crystals (cum) (D); carbonate veins with calcite and strontianite (cc) and clinizoisite (czo) (E); pegmatite with schorlomite garnet (gar), carbonate (cc), microcline (mi) cummingtonite (cum), and epidote (ep) (F).
3. Materials and Methods

During the stay in Afrikanda in 2015–2019, a series of field studies, photographic documentation, and about 100 rock samples were taken. The intent was to assess the mining infrastructure and historical objects in these places. When selecting the objects proposed in this study, the classification applied was that by James-Williamson et al. [26], Williams [27], Woo et al. [28], and Brilha [29,30] modified to local needs (Figure 6). In addition, we applied a geosite assessment model (M-GAM) created by Vujičić et al. [31]. The general appraisal of site values was influenced by natural values (the presence of valuable plant communities, plant succession on post-mining areas), inanimate nature values (rock formations, their mineralization, the nature of the surrounding and covering rocks), historical values (traces of former mining, land reconnaissance, and lager camp) and landscape values, which are especially interesting for ecotourists, such as geomorphological features and the possibility of observing various forms. During the field research, attention was paid to the values described above by making an inventory of them and determining their quality. On this basis, the evaluation of values and their analysis were made.

![Diagram of site assessment in the described area.](image)

Figure 6. Diagram of site assessment in the described area.

An inventory of geo-sites was made with ecological observations. Selected rock samples were described and then thin-plate preparations were made. Observations were made with a Leica DM2500P optical microscope, followed by several petrographic analyses with a Hitachi SU6600 scanning electron microscope with an EDS attachment. Mineralogical, petrographic, and geochemical studies were conducted to identify minerals and understand the geological structure of the study area. The results of these studies were published in detail by the authors [16]. Detailed geological studies in this area were also used [1–12].

The analysis of the surveyed area made it possible to indicate 11 sites, the exact locations of which are given in Table 1 and the numerical evaluation of their values in Table 2. These sites are particularly interesting for tourists and have geological, landscape, historical, and cultural value. The authors believe that the whole area of the Afrikanda intrusion can be a part of a larger geopark, e.g., Khibiny (postulated in the publication of 2021 [23]) due to the nature of its values, which are ranked at the fifth level in the classification [32,33].
Table 1. Geographic positions of proposed sites.

| Name of Site                                           | Geographic Position          |
|--------------------------------------------------------|-----------------------------|
| Site 1. The highest level of the main quarry           | 67° 25'53.5” N 32° 45’28.6” E |
| Site 2. The main exploitation level of the quarry      | 67° 25’31.4” N 32° 45’20.2” E |
| Site 3. The lower part of the quarry                  | 67° 25’52.7” N 32° 45’16.4” E |
| Site 4. The historical legacy of exploration of this region | 67° 26’59.4” N 32° 45’21.1” E |
| Site 5. Another historical legacy of exploration      | 67° 26’02.3” N 32° 45’12.8” E |
| Site 6. Small quarry                                  | 67° 26’52.9” N 32° 44’34.4” E |
| Site 7. Processing facilities                          | 67° 26’26.5” N 32° 43’46.1” E |
| Site 8. Excavations with pegmatite occurrences        | 67° 26’15.9” N 32° 44’42.3” E |
| Site 9. Traces of a former camp                        | 67° 26’18.1” N 32° 43’57.5” E |
| Site 10. The shore of Lake Iamandra                    | 67° 26’43.0” N 32° 46’08.8” E |
| Site 11. Afrikanda village                             | 67° 26’28.0” N 32° 45’59.6” E |

Table 2. The results of the evaluation of values in proposal geo-sites *.

| Site No. | Geology | Natural | Historical | Inanimate Nature | Total |
|----------|---------|---------|------------|------------------|-------|
| 1        | 0.5     | 0.5     | 0.25       | 0.25             | 1.50  |
| 2        | 1.00    | 0.00    | 0.25       | 0.5              | 1.75  |
| 3        | 1.00    | 0.00    | 0.25       | 0.25             | 1.50  |
| 4        | 1.00    | 0.00    | 0.5        | 0.25             | 1.75  |
| 5        | 1.00    | 0.75    | 0.5        | 0.25             | 2.50  |
| 6        | 0.75    | 0.75    | 0.25       | 0.25             | 2.00  |
| 7        | 0.00    | 0.00    | 0.25       | 0.00             | 0.25  |
| 8        | 1.00    | 0.75    | 0.25       | 0.25             | 2.25  |
| 9        | 0.00    | 0.25    | 0.75       | 0.00             | 1.00  |
| 10       | 0.25    | 0.25    | 0.00       | 0.75             | 1.25  |
| 11       | 0.00    | 0.00    | 0.25       | 0.00             | 0.25  |

* The number value characterizes the importance of a value from 0.0 (insignificant) to 1.00 (significant at the world level).

4. Results

Individual sites with particularly significant historical, geological, scenic, and natural value are discussed in this section. Evaluation of individual sites (in Table 2) was based on their value in comparison with other similar sites in Murmansk District. For example, geologic values were rated 0.00 if they were indistinguishable from similar sites in the region, 0.25 if they were notable, 0.5 if they were significant, and 0.75 if they were rare and particularly important. The highest value of 1.00 was given when the feature in question was unique and very important. The same ratings were given to the other values.

Site 1. The highest level of the main quarry

In the area of the disused quarry, rocks covering the intrusion at Afrikanda can be observed at the highest level. These are postglacial sediments represented by sands and erratic boulders of Pleistocene glaciation. Their thickness is about 1–2 m. In this place, many interesting rocks that were transported by the glacier can be observed. These are different kinds of gneisses, granitoids, and migmatites. This zone provides information about the recent history of the area, which is connected with the last glacial epoch. Here, on the exposed parts of the intrusions, secondary plant succession can be observed; the
highest level of the quarry is covered with lichens and mosses. This part of the quarry can also be used for the topic of post-mining land reclamation and messages from ecology in a broad sense.

Site 2. The main exploitation level of the quarry

This level exposes pyroxenites composed of clinopyroxene sometimes reaching large sizes, accompanied by amphiboles, phlogopite, and carbonatites. In these rocks, there are ferrolites with magnetite and perovskite. They are accompanied by numerous rare minerals, including those composed of REE group elements. The exposures of these rocks constitute the most important part of the intrusions. These are formations originating from deep zones of the Earth, making it possible to observe minerals found very rarely on the surface. These rocks are important from the point of view of petrography and structural geology, showing the action of the hot spot that caused the formation of several intrusions in the area. They are also didactic, allowing visitors to become acquainted with rare formations and to gain an idea of what the deep zones of the Earth, from which these rocks originate, might look like.

Site 3. The lower part of the quarry

In this zone, olivine is exposed, accompanying ferrolites. Carbonatites with calcite, prehnite, and strontianite can also be found near these rocks. All these formations, similar to the ones described above, are of great petrological and didactic significance. They constitute the most important part of the profile of the discussed intrusion.

Site 4. The historical legacy of exploration of this region

At this site, one can see pits and ditches in which prospecting for rocks forming the discussed intrusion was carried out. In some places, pegmatites with schorlomite and other interesting rocks are exposed and can be seen in situ. The significance of this site is important in terms of the history of the discovery and ongoing research into the Afrikanda deposit.

Site 5. Another historical legacy of exploration

Slightly farther away are the trenches and shafts that were excavated to explore the intrusion in question. These ditches, sometimes several meters deep, give an idea of the extent of the exploration. Numerous stones that were dug out from the bottom of these ditches, fragments of the intrusion, can still be found in the embankments. The shafts are now partly collapsed and buried, however even there one can see numerous rocks connected with the construction of this place. Samples of these rocks ex-situ can be exposed, and their significance in the profile of the discussed intrusion can be discussed.

Site 6. Small quarry

This site can be used to show environmental issues (currently this quarry is littered); decomposition of garbage; and its segregation, disposal, and impact on the environment. Apart from this aspect, this quarry contains olivine, rocks relevant to the discussion of intrusions, and to some extent preserved mining infrastructure used for transportation of ore.

Site 7. Processing facilities

These plants are partially ruined at the moment and such can be an attraction in itself as a post-industrial example. However, after the restoration of their walls, these buildings could be, in the future, a geo-visitors point where workshops on the building of environmental awareness of visitors would be held. Accordingly, the over two-billion-years-old history of the discussed area could be shown, starting from Archean- and Proterozoic-age rocks, through discussion of some intrusions related to the impact of heat spots in the Paleozoic and finally glaciation in the Pleistocene. These buildings, when revitalized and restored, would be a key heritage site in the region.
Site 8. Excavations with pegmatite occurrences

This site contains another site associated with the geology of the area. These are outcrops in which pegmatite rocks with interesting mineralization can be found. This site, similarly to the previous, is very important in understanding the processes of formation and evolution of the discussed intrusions.

Site 9. Traces of a former camp

This site, steeped in the recent history of the 20th century, can be a place of reconciliation of different times and systems. This particular site of a labor camp can be used to address the subject of forced labor that was carried out on a large scale in the Soviet Union in the mid-20th century and its psychological, demographic, and sociological effects.

Site 10. The shore of Lake Iamandra

This lake is the largest body of water in the Kola Peninsula region. It is a trough-shaped lake. The area of this lake is covered by numerous islands, and there are hills and mountains made up of various rocks. This lake is a product of glacial activity in this area during the Pleistocene glaciation. However, this lake is also significant in terms of the ethnography of the region. Its name refers to the Saami peoples who inhabited the area, along with the first Russians who colonized these areas. In this place of special landscape and geomorphological values, we can also talk about the rich history of human intensification with the taming of territories located behind the Arctic Circle.

Site 11. Afrikanda village

This last site contains blocks of flats now abandoned. This is a place to put a hotel for visitors to Afrikanda. These blocks offer a nice view of the nearby lake, Kandalaksha hills, and Khibina massif. Afrikanda along with Polarnye Zori are sites located beyond the Arctic Circle, but due to their elevated position and the geometry of the Earth in this area, even in December, the sun peeks through for a few minutes, making it the northernmost inhabited area without a polar night (not counting the highest peaks of the Khibiny mountains).

5. Discussion

At present, the quarry is not used, and some of its parts are littered. Generally, however, the exposures are well preserved. Depending on the pool of expenditures, one could build a didactic path in this place showing the most important rock exposures and transitional forms [34,35]. A very important issue is the safety of the tourist visiting the area in question. The shafts should be protected against falling in, and their location should be marked so that they are visible even under the cover of snow. The shelves of the exploitation levels in the quarry could be secured with barriers to prevent tourists from falling. These sites, together with examples of exploration work could be secured and exposed. Information boards can be put up (Figure 5). It would also be worth taking into account the process of self-consolidation of some places in the quarry, along with examples of forest-tundra, mosses, and lichen communities (Figure 5). This area could be protected to ensure free access [36]. As the interest in this place increases, one could place an interactive museum with workshops (Figure 5).

Such a museum could be an interesting center that could attract the international eco-tourist. In this center, information about the intrusion itself in Afrikanda and other intrusions could be presented interactively, allowing us to understand the interesting geological construction of this area. Natural and demographic aspects related to this place could also be shown. Such a place would enliven the locality, which is now dying out. In combination with possible winter sports attractions (e.g., marking skiing routes), development of the lakeshore of the Imandra, and the construction of a camping site, this area could have international significance [35,37].

From the field investigations, the quarry and nearby shafts and exploration ditches reveal a variety of rock types present in the intrusion in question. Alkali pegmatites with schorlomite and melteigite, which are not found in the main quarries, are particularly
prominent in the latter sites. These places are now damaged, although the main mining assumptions are still clearly legible. The lack of protection and monitoring of this area means that these exposures may be more difficult to observe in the future. On the other hand, free access has resulted in unfettered rock selection by collectors and amateurs.

At this location, the value of exposure with rare mineralization and unusual rocks appears to be high. In an area where there are more than a dozen such intrusions, this may not be so obvious. Nevertheless, few places on the Kola Peninsula can be used as a teaching and demonstration area where such unusual rocks can be seen. Apart from the very extensive Khibina and Lovoziero massifs, which have an alpine relief [38], the lithological alteration of the rocks is spread over a large area. In the discussed area there are also intrusions where active exploitation is occurring (Kovdor, the southern part of Khibina, and the northern part of Lovozero). Currently, these areas are out of bounds to casual visitors. In turn, other intrusions of potential interest are found in sparsely settled areas that lack infrastructure or at all under the surface of Pleistocene sediments. In this context, the intrusion at Afrikanda is both of an interesting form that at the same time presents a diversity of rock types in a relatively small area and is relatively easy to secure and access due to nearby road and rail links.

The proposed didactic paths, and exhibition halls of multimedia and multisensory nature, may also aid in the economic recovery of the region, which is declining today, and will contribute to the growth of qualified tourism. Finally, it is important to initiate the creation of a network of trails and shelters that would allow the development of tourism in a controlled manner, far from today’s wild excursions that often destroy the natural environment irretrievably. A small area of exposure in Afrikanda is a good place to start experiments in this practice, which can then be transferred to the much larger Khibiny and Lovoziero massifs and other interesting places, to create a coherent network of tourist attractions within the Kola Peninsula [38]. Afrikanda is now a dying and declining town; however, the condition of the buildings and infrastructure is surprisingly good (Figure 7).

Figure 7. The current state of repair of buildings and infrastructure in Afrikanda: (A): a building in the decomposition state in the vicinity of nearby Khibiny; (B): building close-up; (C): another example of a block; (D): road in Afrikanda built of concrete blocks.
At a relatively small cost, the current infrastructure can be adapted to new purposes. Buildings that have windows and are partly inhabited can easily be converted into hostels, cultural centers, and other places. People who still live there could find employment as guides and guardians of this investment [39]. At present, these plans can be implemented at an optimally low cost, but due to the climate and the progressing decay from year to year, it will require more and more funds.

Many examples of post-mining sites that have been converted into parks are known worldwide. There are many examples of geoconservation of such sites [40–42]. Such treatments are mentioned in the work of Prosser [43] who shows the aspect of closing and protecting open-pit mining areas as an example of creating natural exposures that allow learning about the geological structure of the area. The work by Sa dos Santos et al. [44] demonstrates the possibilities of adapting old excavations with different platforms for their exploration and enriching them with elements that arouse imagination in children. In the case of Afrikanda, both the Paleozoic world when the intrusions in question were formed and the Pleistocene world when the glaciation of the area in question occurred could be shown. Examples of in situ and ex situ exposition of rock samples and their great role in didactics are mentioned by Burek [45]. An important need to protect the discussed site is connected with the processes of uncontrolled erosion and destruction of the site through neglect and abandonment. This process can be reversed by using its potential to enhance the tourist values of the Murmansk Region [46]. Considering Afrikanda’s close location to Polarnyi Zori and the ease of connection to other cities by rail and road, by tapping into the specific interests of the ecotourist, visitation is highly likely [34]. The authors propose to place the Afrikanda intrusion area under protection and to create a network of teaching trails in its area, to secure and make available to visitors the quarries to create a geo-visitors point where workshops and teaching activities would be conducted. The area could stand alone or become part of a larger protected area: Lapland National Park, which has been recently established to protect the western part of Khibiny.

The Kola Peninsula region has seen increasing visitation by ecotourists [38]. However, at the moment, much depends on the foresight of the local authorities and the state’s help in launching mechanisms to revitalize the area. This is an opportunity that can change the face of the region. Still, it has to face planned changes, and social initiatives and local investors alone are not able to rectify the current situation. The revitalization of the quarry and the village can be carried out in stages. The first would be to clear the area of garbage, to make safe abandoned shafts, to designate and mark paths, and to introduce monitoring with webcams, as well as to put up signs, campsites, and lighting. This stage does not require large investments and will help to organize ecotourist traffic in this place, which is limited today to visitation by people from the nearby town. The second stage could be the introduction of open-air events, tours, performances, and possibly historical reenactment. This would draw the attention of the regional and national inhabitants to this unusual place. The next step would be to adjust the infrastructure, which could be run in parallel from the beginning; the renovated buildings could be leased to private investors. Finally, the last step would be the construction of an interactive geo-visitors point and the creation of other facilities. An important advantage of this site is the lack of conflict of interest due to the absence of existing factories and other entities that could be disturbed by the expansion of the town.

6. Conclusions

The geological intrusion in Afrikanda is a unique area of occurrence of ultra-basic rocks rich in perovskite mineralization and the presence of many other rare minerals. It occupies a small area with the availability of one inactive quarry and numerous shallow excavations and shafts scattered in a picturesque location. It is now easily accessible, albeit devastated and littered. The nearby town of Polarnye Zori makes it relatively easy to provide adequate facilities to this place and at the same time revive it economically. Due to the nature and development of tourism in the Kola Peninsula, there is a great need to secure
and make this place available in a way that protects it. This can be done with relatively small financial support, using and modernizing the existing post-industrial infrastructure associated with recently operating processing plants. It is possible to build educational paths, to introduce monitoring, as well as to build an exhibition, educational, and didactic center. The proposed direction of development, divided into several stages, seems to be easy to implement and is dependent in practice only on the goodwill of the regional and central authorities. Such solutions are known all over the world, and it is high time to transplant them into this region.

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