

## **Ecological water transport, medicine and training online**

We present proposals aimed at communities of hard-to-reach places. During IGF2021, the issues of climate, renewable energy, tourism, health protection and education were discussed. According to the UN, 1/3 of the world's people do not have access to medicines. We propose to create remote medical clinics in hard-to-reach places. Such clinics can function on the basis of satellite internet, drones and solar panels as power sources [1,2]. It is proposed to launch ecological water transport in riverside towns, based on constructed hydropower plants as renewable energy sources [4,5]. It is an implementation of the development of tourism mentioned by the UN, in this case water tourism. There may be small hospitals serving remote medical clinics [3] and education centers on board ship. To ensure lifelong learning, we propose online training organizations [6]. The presented proposals can be implemented in cooperation with local organizations of hard-to-reach places by organizing bottom-up debates [7].

### Literature

1. <https://www.linkedin.com/pulse/satellite-internet-drones-creating-remote-medical-clinics-polcik/>
2. <https://academic.oup.com/eurheartj/advance-article/doi/10.1093/eurheartj/ehab498/6358076>
3. <https://thepointsguy.com/guide/cruise-ships-medical-centers/>
4. <http://www.tirol-adria.com>
5. <https://www.salon24.pl/u/henrykpolcik/1192113,turystka-i-energia-odnawialna-na-szczycie-cyfrowym-onz-bez-turystyki-wodnej>
6. <https://odlewnictwo-szkolenia.pl/;https://www.salon24.pl/u/henrykpolcik/931656,czy-dzis-mozliwe-jest-szkolenie-w-polsce-inzynierow-z-afryki-odpowiedz-prezesa-stop-t-franaszka>
7. [www.g1000.org](http://www.g1000.org)

### **Problem P1**

#### **Ecological, local water transport in global transport**

In 2020, in Krakow, there was a conference "WATERWAYS OF CENTRAL AND EASTERN EUROPE - yesterday, today and tomorrow"

I propose for IGF2022 the topic "Ecological, local water transport in global transport"

and sub-topics:

- Development of local transport, including tourist transport, on small rivers on shallow-submersible electrically powered vessels.
- Development of hydropower plants used by electrically powered ships. The excess electricity produced will be sent to local power grids.
- Incorporation of local tourism into global tourism - sea-river ships. Waterways connecting Europe and Africa. Renewable energy.
- The problem of revitalizing the world's rivers as an element of improving the quality of the climate.

On the transport route, operating, revitalized or newly built hydropower plants will be used to ensure the continuity of the flow of ships. The proposed topics are part of the problems discussed in IGF2021 WS#214 documents and can be discussed online at IFG 2022.

#### Sources

8. Waterways: : <https://www.salon24.pl/u/henrykpolcik/940662,polaczenie-wodne-baltyk-adriatyk-m-czarne>; <https://www.salon24.pl/u/henrykpolcik/1079305,o-drogach-wodnych-w-centrum-jana-pawla-ii-w-krakowie-lagiewnikach>; <https://henrykpolcik.neon24.pl>; <http://www.tirol-adria.com>
9. Hydroelectric power plants and water transport on small rivers rzekach ( <https://www.salon24.pl/k/164,oze,6> - Małe elektrownie wodne).

## Problem P2

### Online training for engineers from countries whose citizens emigrate to Europe

In 1979-89, Poland organized internships for engineers and technicians from developing countries [1]. These were industrial practices in various production plants in our country. The organizer of the training was the Foundry Research Institute in Krakow, which cooperated with dozens of Polish factories where fittings, tractors, cars, warships and parts for many machines and devices were produced. The organization of these practices from the UN was the United Nations Industrial Development Organization – UNIDO. Industrial practices were generally several weeks long. The first stage were weekly lectures on which material standards, material properties and selected foundry technologies were discussed among other topics. The basic internship program was visits to industrial plants. Three groups of trainees consisting of usually ten people visited 5-8 companies located in cities of Poland. Industrial

practices have been beneficial for developing countries and for Poland. It was a form of promotion of our products and establishing cooperation in the field of science and research. More in the article by Z. Wójcicki and H. Połcik „Training of engineers and technicians from Africa, Asia and Latin America”[1], published in Polish, at <https://www.salon24.pl/u/henrykpolcik/>. Such internships were organized in Poland until 1989. **Maybe it is worth returning to organizing industrial practices for engineers and technicians of countries whose citizens emigrate to Europe, instead of rebuilding their own companies in their own homeland? Such trainings can be organized in a different form, using modern methods of communication, including video-conference techniques. In current conditions it is possible to create international teams that can jointly conduct such training. These courses prepared by specialist teams can be organized for engineers of Africa and Asia.**

### Source

**1. Engineers from Africa, Asia and Latin America on industrial internships in Poland** (in Polish) <https://www.salon24.pl/u/henrykpolcik/926786,szkolenie-inzynierow-i-technikow-z-afryki-azji-i-ameryki-lacinskiej>.

### Problem P3

#### **Remote medical clinics instead of exclusion from healthcare?**

Much of the world's population does not have access to medical care. In the current conditions, remote medical assistance is possible for people living in hard-to-reach places. You might consider setting up small remote medical clinics in small towns. Such a clinic could be equipped with appropriate diagnostic equipment. Based on the obtained results, doctors would issue appropriate prescriptions. Medicines would be delivered to the patient by means of drones. Solar panels could serve as a power source for such a clinic. Initially, with little effort, it would be possible to take pictures of the patient in remote clinics, collect blood and urine samples, and check the work of the heart with a Holter. Pictures of the patient or specific parts of his body, blood and urine samples and a Holter could be sent by drone to larger medical clinics and be the basis for diagnosing certain diseases, issuing prescriptions and sending medicines to a remote clinic by the drone. The use of drones to deliver defibrillators to save the lives of patients may be considered. An example of the use of drones in the case of suspected cardiac arrest is described in [1]. Drones were used to deliver defibrillators to places where such a case occurred. Properly trained pilots controlled the drones. The delivery time for the defibrillators was significantly shorter than that of the ambulances. Meteorological conditions such as rain or wind were considered in the tests. Satellite internet can be used to connect remote clinics with medical centers in larger towns. Geostationary satellites located above the equator are used to transmit information. You can connect to such internet from anywhere. It is not super-fast internet as in the case of using

optical fiber, but the speed of information transfer should not be an obstacle in the operation of a remote clinic. The experience described in [2] can be used in the work on the organization of a remote clinic. A problem in the organization of remote clinics may be the inability to operate the equipment, including the use of computers. Experiences in educating young people who had no access to computers, or the Internet are published in [3]. Sugata Mitra installed "computers in the wall" in places remote from large cities. He left them to the children for some time [3]. By trial and error, the children learned how to use the computer and use the programs installed there. He organized a group of elderly women in Europe to whom students of small Indian villages could turn with questions via the Internet. Students from the "School in the Cloud", established in India, talked with teachers from England and Germany using Skype.

#### Literature

1. S. Schierbeck et al. Automated external defibrillators delivered by drones to patients with suspected out-of-hospital cardiac arrest ;  
<https://academic.oup.com/eurheartj/advance-article/doi/10.1093/eurheartj/ehab498/6358076>
2. Satellite Internet: <https://bigblu.pl/jak-dziala-internet-satelitarny-i-komu-moze-sie-przydac/>
3. Education: [https://blog.ted.com/the-school-in-the-cloud-a-documentary-on-sugata-mitras-ted-prize-wish-premieres/;](https://blog.ted.com/the-school-in-the-cloud-a-documentary-on-sugata-mitras-ted-prize-wish-premieres/)  
[https://www.ted.com/talks/sugata\\_mitra\\_the\\_child\\_driven\\_education/transcript?language=pl](https://www.ted.com/talks/sugata_mitra_the_child_driven_education/transcript?language=pl)