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Project overview

Further development of a mobile arsenic removal and drinking water treatment plant by NECON GmbH by Prof. Dr.h.c. Klaus Gebhardt

Initial situation: The current water supply of the Peruvian population along the River Tumbes (Tumbes region) is highly endangered. Due to the El Nino phenomenon and the associated heavy rainfall and flooding, the available water resources are heavily contaminated with coli bacteria and heavy metals (especially arsenic). The latter are mainly caused by the waste water from gold mines, whose locally operated waste water treatment plants are not able to reduce the high arsenic and heavy metal loads even remotely to anywhere near the limit values for drinking water. About 50,000 people in the region are permanently exposed to health risks.



Objectives and planned measures: In the Tumbes region, the long-term supply of drinking water according to WHO standards for about 250,000 inhabitants is to be ensured.



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The construction, operation and maintenance of 10 mobile drinking water treatment plants without chemical and biological additives will ensure the supply of drinking water preferably to the population along the Tumbes River, and optionally in municipalities of the Piura region. The reference plants will be put into operation at suitable locations and will be supervised by trained personnel. The analytical monitoring will be carried out by the University of Tumbes. The specialized personnel will be provided by the state utility.

In addition to disinfection with copper/silver ions against pathogenic germs (Cu/Ag electrolysis), heavy metals, in particular arsenic, will be filtered (Fe electrolysis) via the mobile drinking water treatment plants on the basis of a novel electrolytic (chemical-free) process. The treated water is delivered via tank transports to an existing storage tank (concrete, capacity: 60 - 70 m³) or to existing drinking water depots in the villages. From the storage tank, the treated water can then be delivered directly to households (existing pipeline network) or collected by residents from nearby depots. Together with the regional/municipal administration, a catalog of criteria for the sites will be developed and 10 sites will be selected for the construction of the reference plants.

Necon informs local representatives and the University of Tumbes, where Prof. Gebhardt holds a visiting chair, but also other stakeholders in the region. A total of around 40-50 people will be informed and trained on the technology, maintenance and operation in one or two-day events and lectures.

Interest of the private partner: The company is convinced that its products will be in great demand, especially in South America, where the supply of clean water is an extraordinary challenge. The develoPPP.de project is designed to help NECON to get to know the South American market better, find the right partners and adapt its product range to the needs of the market. In the medium and long term, NECON hopes to increase sales and profits in this new target market.

NECON GmbH would not be able to perform the activities described above without a public contribution and has therefore decided to apply for funding under the develoPPP.de programs.

Development policy benefits: By installing and operating a total of 10 mobile water treatment plants of the type NEC-10000, the population can be helped efficiently, cost-effectively and sustainably. Improving the quality of drinking water should have a particularly positive impact on the region's child mortality rate and significantly improve the quality of life in the affected villages.

By dispensing with the bottling of drinking water, the financial burden on the families will be noticeably reduced. The potential savings range up to EUR 70 million/year for the 50,000 inhabitants of the region affected.

The training and further training offered in the project will increase income opportunities, i.e. the general living situation of the water technicians and skilled workers can improve significantly. The local authorities will gain competence in the water and sanitation sector and the education partners involved will be able to offer independent training and qualification concepts for the necessary skills in the future.