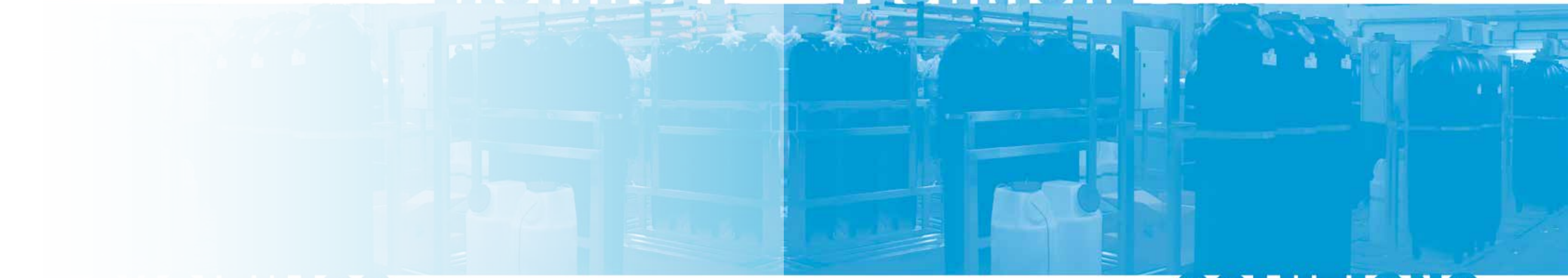
TECHNICAL



SOLUTIONS

+ HIGHLIGHTED PROJECT

EPC of the drinking water treatment plant of Nkumekien

High level of local acceptance

Drinking water supply to 1,600 inhabitants

A flow rate of 4 m³/h.

Equatorial Guinea

WE MEET THE WHO PARAMETERS

pH

Residual chlorine (mg/l)

Turbidity (NTU)

Colour (UCV)

Thermotolerant coliforms

Fecal streptococci

Concentrations of nitrate, fluoride, arsenic, iron and copper

At INCLAM, we understand that when emphasising the training of people in healthy habits, it is also necessary to facilitate them with the means to practise the habits mentioned above, i.e. clean and quality water.

The solutions we offer include the extraction of water from the source, piping it to the water treatment plant, the water treatment process, the storage tank for treated water, through to supplying it to the population.

Another point worth mentioning is the construction, installation and testing phase of the project. During this phase the population still does not benefit from a drinking water service, since the project is being implemented; however, they enjoy other very important advantages. We are talking about a source of income from remunerated work, encouraging rural families to improve their living conditions.

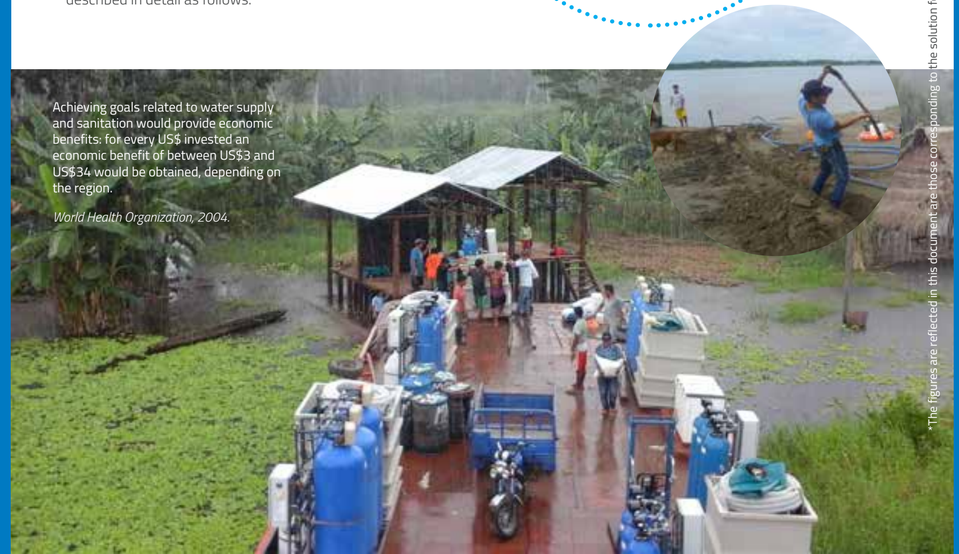
In addition, the local population is directly involved in the project in that it is they who develop and execute the work entailed in this supply programme both for themselves and for the rest of their community. The locally recruited workforce will act in direct coordination with the INCLAM specialised team that manages the programme to its completion according to the agreed/foreseen directives.

Thus the community becomes the main driver of the initial programmes and takes responsibility for the leap forward towards a better way of life.

INCLAM develops all kind of supply solutions; family units for the supply of drinking water to the kitchen and the rest of the dwelling; mobile units for rural communities and emergency situations for up to 2,400 people; hybrid fixed and mobile plants for communities from 500 to 5,000 people; pressure filtration technologies for rural communities from 4,000 to 10,000 people; and continuous wash filters for communities larger than 10,000 people.

However, our priority is to help the communities most in need, and, therefore, the drinking water supply solution for a population of up to 5,000 inhabitants (and consumption of 16 gallons per head and day) that best fits our profile is described in detail as follows.

OUR GOAL IS TO INCREASE AVAILABILITY OF DRINKING WATER IN COMMUNITIES OF FEWER THAN 5,000 INHABITANTS, PRIORITISING EMERGENCIES DECLARED AND TO PROVIDE THE NECESSARY CONDITIONS FOR SUSTAINABLE RESOURCE MANAGEMENT



Achieving goals related to water supply and sanitation would provide economic benefits: for every US$ invested an economic benefit of between US$3 and US$34 would be obtained, depending on the region.

World Health Organization, 2004.

*The figures are reflected in this document are those corresponding to the solution for which a specific budget is proposed.

AT INCLAM WE DESIGN SUPPLY SOLUTIONS TAILORED TO THE CLIENT'S REQUIREMENTS AND THE SURROUNDING ENVIRONMENT

Rotavirus is the most common cause for childhood diarrhoea around the world and represents a considerable cost to the community; it is relevant to include it in any evaluation of a preventive programme.

In Mexico, diarrhoea caused 5,955 hospitalisations with a cost of $5.5 million. Average cost per each diarrhoea event was US$936.

Resource utilisation and costs for the treatment of severe rotavirus diarrhoea in Mexican children from the perspective of the provider of health services.

PLANTS

Flow rate: 0.3 m^3/h (fresh water)

Flow rate: 0.33 m^3/h

Flow rate: 4 m^3/h

Model R.OI-1

An independent portable system designed to continuously produce drinking water from any type of water: fresh water, brackish water and seawater

Designed to operate autonomously using solar energy. It is fitted with three 250 Wp photovoltaic panels. It can also operate with a generator

It hardly requires any maintenance, keeping costs minimal

It purifies water by ultrafiltration and reverse osmosis, without using chemicals

Model R.OI-2 and R.OI-15

An emergency plant designed to produce drinking water from any type of water: fresh water, brackish water and seawater

It is designed to be transported by air, with two units in each IATA container

It can perform filtration or filtration + reverse osmosis, depending on the raw water quality

It is fitted with an optional 100 Wp photovoltaic panel, which can keep the equipment on standby when not in operation. This saves both energy and maintenance costs given the system can resume operation automatically

Designed for Response Centres in the event of emergencies, civil defence, the Armed Forces...

High-quality materials

Automation and centralisation of processes

Custom design

Rapid manufacturing, installation and implementation

EACH DOLLAR INVESTED IN DIARRHOEA PREVENTION YIELDS APPROXIMATELY US$25.80

GLOBAL WATER, SANITATION, & HYGIENE CDC - CENTRES FOR DISEASE CONTROL AND PREVENTION

Model R.FD-3

An excellent solution for supplying drinking water to small populations, particularly in disadvantaged areas

Quick to manufacture, install and start up

Centralised and automated operation from an easy-access control panel

It comes with a stainless steel frame to make loading, unloading, and overland transport easier

Manufactured with top-quality materials and equipment

Model P.LCI-12

Designed to supply drinking water to populations of up to 30,000 inhabitants

All the necessary equipment is included in a single compact filtration module

They are easy to transport by truck and can be moved based on the client's needs

Manufactured with top-quality materials and equipment

Continuous cleaning technology

Model P.OI-50

A specially designed plant to purify highly contaminated or high-salinity water through filtration with reverse osmosis membranes

These systems can be housed in adapted intermodal containers, making them easier to transport and set up, and providing overall protection from external agents

Manufactured with top-quality materials and equipment

Flow rate: 1-3 m^3/h

Flow rate: 12-60 m^3/h

Flow rate: 50-200 m^3/h

Dimensions of 1 x 40' container

EXAMPLE

65 WATER TREATMENT PLANTS OF 1 TO 3 M^3/H AND CONSTRUCTION OF 124 BUILDINGS WITH A WAREHOUSE AND OPEN SPACE, WITH TECHNOLOGY TRAINING AND SOCIAL PROJECTS FOR INDIGENOUS COMMUNITIES IN THE BASINS OF THE PASTAZA, CORRIENTES, TIGRE AND MARAÑÓN RIVERS IN THE AMAZON, AS PART OF THE IMPLEMENTATION OF THE HEALTH EMERGENCY DECLARATION OF THE PROVINCE OF LORETO. THE REPUBLIC OF PERU

Water treatment plant installed in traditional stilt houses


Download and installation of plants involving local workers


Modular water treatment plant with reagent dosage, decanting and pressure filtration

① Water from the river/well is impelled with a 4 m^3/h, 48-metre water column, submersible pump, along a 300-yard conduit to the first phase of the pre-treatment*.

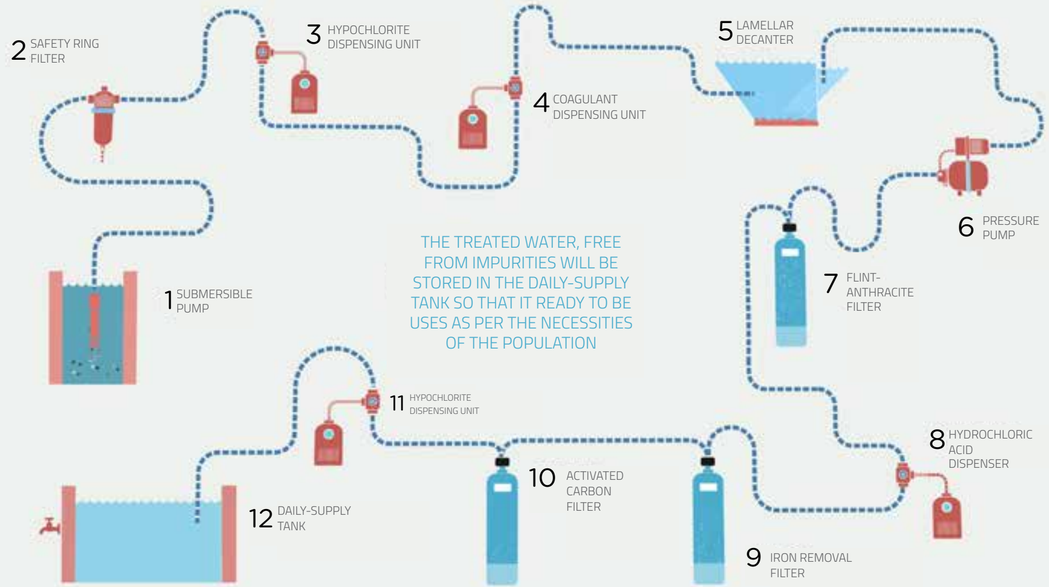
② The pre-treatment consists of a roughing filter through rings that removes large particles.

③ Then micro-organisms are eliminated with an in-line shock treatment with chlorine.

④ In succession, coagulants are added to agglutinate the suspected solids and facilitate their separation in the next phase, lamellar decantation.

⑤ The decanter will function also as contact chamber between the water and the added hypochlorite. In the decanter we remove up to 95% of suspended solids in water.

⑥ The decanted and clarified water is pumped to the rest of the treatment.



11-12 The water goes through a sand filter, which eliminates suspended solids that have not been decanted.

10 To empty and clean the plant it is necessary to pipe the water by gravity to the nearest channel or location indicated by the customer, at a maximum distance of 30 m. Should a longer conduit, drive speed (due to lack of height), or supplementary works be required, INCLAM will design and provide a quote for them for free, and can undertake to execute them.

8-9 We will have another filter in series, this time made of activated carbon, where the other suspended solids will be retained.

7 As a final treatment stage, the water is subjected to a final chlorination in order to ensure the absence of microorganisms and meet the WHO Standard, and also sent to the storage tank.