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Circular Economy
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INFORMATION ON THE SITUATION OF THE PROJECT THAT OUR ASSOCIATION IS CARRYING OUT IN CUBA AT THE END OF THE YEAR 2022

Dear Sir or Madam

This report is a follow-up to our communication of last June 28. We regret that we have not been able to give you an intermediate information since this last date, but the increasing difficulties of communication with Cuba, due to the increased lack of fuel feeding the thermoelectric power plants, cause long and frequent interruptions of electrical supply as well as of Internet links and make a correct follow-up of the project very difficult.

1. ECONOMIC SITUATION OF THE COUNTRY

The losses in the tourism sector, which is essential for the country's economy, following the COVID-19 crisis, combined with the consequences of the conflict in Ukraine, have caused a complete freeze on all investment in the country, except in the tourism sector. Shortages for the population and for government services have reached a level not seen in 30 years.

As far as transport is concerned, only one in four vehicles is still in working order, both for public road transport and for the rail network.



As an example, the main railway line connecting the two metropolises of the country, Santiago de Cuba and Havana, which used to be served by two round trips per day, is now operated by one round trip every four days.

2. CONSEQUENCES ON THE VIABILITY OF OUR PROJECT DEDICATED TO THE MODERNIZATION OF THE HERSHEY NETWORK

The objectives of our action were abundantly described in the presentation document of the project submitted to the city of Lausanne at the beginning of this year and in our informative report of last June 28. The financial arrangement that envisaged mixed financing of the planned operations between the Cuban state and our association has been reduced to nothing by the complete withdrawal of support from the Cuban side. Only the following sectoral actions were still possible:

- **The recovery of the four substations of the Uetliberg railway and their transfer to Cuba**
- **The purchase of copper contact wire, the current contact line being by sections more than wear limit**
- **5 high-performance air compressors supplied by the Uetliberg Railway**
- **Several pantographs supplied by the Uetliberg Railway**
- **The supply of new tools for the main vehicle maintenance workshop**



These items corresponded to an investment of some CHF 93,000 (detailed in the report of June 28, 2022), including the purchase of equipment and the transfer of all components from Switzerland to Cuba.

A recent communication from the Cuban Railways (UFC) informed us that neither the compressors nor the pantographs could be installed due to the dilapidated state of the rolling stock. Therefore, it does not make sense to send them to Cuba.

3. TECHNICAL CONDITION OF THE HERSHEY RAILWAY

The Hershey electric rail system has not seen any major investment in over 25 years. The 2017 hurricane had catastrophic consequences on this network, resulting in massive destruction of rail facilities. My visit in June 2022 highlighted the following:

- Of the 22 engines that were fit for service 25 years ago, only 4 engines in poor condition remain today
- Of the approximately 130 km of this network extended 25 years ago, only 18 km remain regularly operated with electric traction
- The cyclone destroyed about 45 km of overhead line. These sections have not been operated for 5 years and the electrical installations have been stolen over some 25 km, making it impossible to return to electric traction without heavy investments.



- The main workshop depot has no roof since the 2017 cyclone. As soon as it rains, the technical control pits fill up with water, making any work impossible for several days. The supporting structure of the roof is in such a state of corrosion that a roof can no longer be installed.

This state of deterioration will only worsen due to the planned absence of investment resources in the field of transport involving foreign currency purchases in the coming years. The means at our disposal do not allow a significant recovery of the technical deficiencies mentioned above.

4. PRIORITIES SET BY THE MINISTRY OF TRANSPORT (MITRANS) AND ENERGY AND MINING (MEM)

Due to the general economic situation, the following options are taken:

- Priority will be given to the main long-distance rail network, which does not include the Hershey network. No significant resources will be invested in this network over the next few years. It is feared that the network will be completely shut down in the short term.
- Although decarbonization of energy production remains a long-term goal in Cuba, the country has

momentarily put all the priority on oil as a



only source of electrical power. Several ships purchased second-hand in Turkey have recently been fitted with heavy diesel engines coupled with generators to serve as floating power plants. Similarly, the president of Cuba visited Moscow in mid-November to obtain cheap Russian oil.

- Our academic partner Cubaenergia approached the national electricity producer "Unión eléctrica (UE)" to propose a financing of a solar power plant in the order of CHF 1 million by our partner company Climate Services in Fribourg. The EU was obviously not interested.

In short, the situation in Cuba is so bad that the government has no other solution than to resort to thermoelectric power plants to deal with the most pressing problems and thus try to reduce the daily power cuts to households and industries.

An official communication from the head of this project to the Union of Cuban Railways attesting to this situation is expected within ten days

5. CONSEQUENCES ON OUR PROJECT IN CUBA

It is necessary to recognize, after 3 years of intense efforts, including the visit of a Cuban delegation to Switzerland and an exploratory trip of our



In June of this year, we went to Cuba and none of the objectives that we had set with the Cuban parties involved could be achieved.

It is therefore necessary to seriously question whether the material worth about CHF 2 million from the Uetliberg railroad that we have at our disposal, as well as the funds in our possession, can be adequately used in Cuba, knowing that this will not lead to any significant improvement, either on the technical level or in terms of benefits for the population.

6. SEARCH FOR AN ALTERNATIVE SOLUTION

Since we have power supply equipment designed for a supply voltage of 1200 V, we could not but think of giving it to an electrified railway network or one that already has railway equipment compatible with this voltage, in an emerging country of course, in order to respect our objective of North-South cooperation.

7. OPENING IN MADAGASCAR

An attractive opportunity has arisen in Madagascar. The situation is somewhat the opposite of that in Cuba, as we have here some twenty Swiss vehicles (including 10 electric self-propelled vehicles) in good working order which were recently transported by a generous and still unknown Swiss donor (given the costs involved).

represents, this is unbelievable, but true!), but without real coordination.



with the Malagasy public authorities. The vehicles are compatible with the track gauge, but the network is not electrified (so the vehicles are unusable) and there is a chronic lack of electricity in Madagascar.

The Uetliberg substations could therefore be more than useful, as the voltage they can deliver is also compatible with these Swiss vehicles, while a solar power plant project is more than urgent, both for general power supply and to provide power to the railway substations.

We contacted our embassy in Antananarivo, which gave us contacts of "strategic" people. Everything seems to indicate that we could then set up a project by taking advantage of our know-how acquired in Cuba and to realize what unfortunately seems highly improbable in the Caribbean.

8. THE MADAGASCAR PROJECT IN OUTLINE

The Malagasy government is developing what is called a The project is to build an "urban train", an RER line of some 15 km, on the tracks of the Madagascan railway company (MADARAIL) entering the city center of Antananarivo. It has a budget of CHF 35 million for infrastructure work (station construction, footbridges, etc.), but cannot find the means to generate traction power and, above all, to electrify this section. This RER line can have a major effect on decongesting urban and suburban traffic, as it serves a population of



Some 700,000 people, or a good quarter of the population of Antananarivo, not to mention the reduction in air pollution that it would bring.

Contrary to Cuba, Madagascar wishes to free itself from oil if possible in a not too distant time and is very interested in using solar energy.

We have just been in contact with the head of the current affairs management unit of the Minister of Energy and Hydrocarbons, Mr. Stephano Razafindramarga, and our proposal has been well received.

The idea is to organize a teleconference with the support of our embassy before Christmas to give substance to the support we want to offer on the spot.



9. SIGNING OF A LAW

In order to give the best possible impact to the preparation of our action on the spot, we have decided to sign a Letter of Intent (LOI) between three companies pursuing the objective of decarbonization, in particular in transport, just as our association COMED wants. This LOI is attached.

10. CONCLUSION

We believe we have been very prudent with the funds that the City of Lausanne was kind enough to entrust us with the very troubled context in Cuba and ask you to reallocate the CHF 60,000 that remains untouched and available to us to the project in Madagascar. Additional and more precise information on this subject will be provided to you as soon as we have them.

For COMED: Remy Fankhauser (President)