

# Project writing and involvement

## 1. CLEAN THE LESVOS SEA – Revitalization of Marine Environment of the Lesvos Island from Environmental Pollution Produced by Immigration Crisis

**Written for:** Municipality as a Regional Administrative center of Northern Aegean Sea, Greece

**Brief description:** Middle East refugee crisis is one of the biggest concern of Europe especially Greece. The crisis had escalated 2015/2016 and from then, Lesvos Island in Greece was the one of the main receiving points for refugees coming from Turkey in Europe, given its proximity to Turkey. Refugees use equipment such as inflatable boats and lifesaving float, life jackets and bags with dry clothes and food. Many of these items are abandoned and cause environmental pollution of the marine area of the Lesvos coast. Therefore, the main goal of the proposed project CLEAN THE LESVOS SEA is to conduct an assessment of the current state of marine environment, and develop a plan to clean 120 km (75 miles) coast (beaches and cliffs) and shallow waters up to 40 m depth in order to address the burning issue of the marine environmental pollution. This project also aims to tackle the prevention from new pollution by conducting environmental education programs in order to raise awareness of local community, refugees arriving to the island, as well as tourists. After implementation, know-how will be pass to other Aegean Islands that are facing the same social and environmental crisis. Program will be implemented by the multi-stakeholder consortium including private sector, Marine Science department from University of Aegean, non-governmental organization and Municipality of Mytilene.

Marine environmental pollution has multiple negative effects and ultimately endangers sustainability of the region, by producing negative impact on environment as well as affecting prospects to generate income from tourism. Rising levels of human caused pollution impact marine habitats and causing serious degradation processes. Importantly, Lesvos being a tourist destination is already facing decreasing numbers of tourists, many of which used to come to enjoy activities such as scuba diving and observing unspoiled marine habitat around the island. Therefore, this project has specific importance and there is a sense of urgency to address the problem of uncontrolled and rising pollution of the marine environment. Given that many items that are left behind, such as rubber boats, are not bio-degradable, the problem is even more serious and should be tackled as a matter of urgency through a wide social action. Additionally, this project has the attention to integrate refugees in the education phase of the project in order not to present them as a main cause of the environmental pollution but people that need help on their way to find better future. Some facts about the project:

- More than 1,600,000 refugees have arrived to Lesvos since 2008 by different kind of vessels, crossing the sea from Turkey and searching for a better life in western and northern EU countries.
- Lesvos is the third biggest island out of 1200 islands in Greece with a 330km long shore. Practically half one third of the island's total coast has been polluted - 120km.
- Marine environment is affected by litter to a depth of 40m, besides beaches and cliffs.
- More than 100 wrecks are laying on the seabed in length of every 10km of affected marine environment.
- Marine debris consist of different type of plastic such as PES (Polyester) from life jackets, PE (Polyethylene) from plastic bags, PU (Polyurethane) from inflatable boats, PET (Polyethylene terephthalate) from plastic bottles; then boat engines, petrol and other chemicals; glass bottles, cans, paper, wood, cotton clothing...

- 333 species of birds, 650 species of fish, 11 species of whales and dolphins, 3 species of turtles, 757 species of Cnidaria and 2239 species of Crustacea are heavily endangered.
- Tourism has dropped by almost 80% comparing to 2015.
- 187 tourism-oriented businesses are headed for bankruptcy due to negative publicity and polluted environment
- Police records of refugees coming to Lesbos Island are dating from 2008, meaning that the refugee waste has been accumulating all these years, causing multidimensional impact on environment and socio-economic status.

## **2. Implementation, monitoring and development of waste Management system in Moria refugee camp from April – September 2020 and Mavrovouni refugee camp from October 2020 – June 2021 under organization IRC on Lesbos Island**

### **Moria camp**

#### **I. Baseline**

The total population of the camp in May 2020 was ~20 000 (registered and reported 18 200 but on-the-ground counting showed higher number), from which ~7 000 have been placed in the area under the jurisdiction of the Government where the basic level of waste collection has been practiced (only collection from one type of refuse bins; no separation of the waste). The rest of ~13 000 PoCs were living in olive growing, in so-called 'zones', surrounding the walls of the Governmental area of the camp. No waste collection was implemented in these zones except occasionally sometimes by trucks that some NGOs would organize. Community members disposed of their waste in the surrounding environment and river that was passing through the camp, causing high health and environmental risks in their living areas. Children would play with waste and adults would burn the waste like plastic to heat the living space and to make bread.

#### **II. Assessment**

Waste component structure: 75% recyclable, 20% organic and 5% non-recyclable waste

Recycling list that can be collected by volunteers:

- Plastic bottles – PET
- Paper – cardboards and paperboards
- Tin cans
- Aluminum cans
- Plastic bags
- Plastic boxes/food packages
- Other plastic bottles and packages except for PET and food packages (eg plastic bottles of chlorine etc.)
- Glass bottles.

Note: Some of the recyclable waste from the above list could not go through the recycling process due to its low quality after analysing in situ sample (eg. paper and cardboard wet from organic waste or rain, plastic bags or other plastic packaging being exposed to sun and rain for a longer period, etc.). This waste then has to be classified as non-recyclable or general waste that has to be disposed of on Municipality landfill.

Partners in the waste management project:

- RIC (Governmental body – Reception and Identification Center),
- Different NGOs,
- Recycling company – a local private entity,
- Technical transportation company - a local private entity,
- Municipality of Mytilene.

### **III. Project**

Solid waste management covers:

- Planning solid waste management systems;
- Handling, separating, storing, sorting and processing waste at source;
- Transferring to a collection point;
- Transporting and final disposal, reuse, re-purposing or recycling
- Continual educational programs.

**Goals of the project in the duration of one year:**

- Engage a minimum of 80 community volunteers (CVs) in the waste management process and recycling program.
- Increasing awareness about waste management and recycling through education sessions and workshops in at least 50% of the camp population.
- Start separation of recycling and non-recycling items by a community of the camp by 80% of the camp population.
- Decreasing the engagement of waste collection contractors in the collection of the general waste by (general waste decrease by 50%), and increase the engagement of Recycling company in the collection of the recycling waste (recycling waste increase by 300%).
- Build a self-sustained system in the camp and increase cooperation between local authorities, private sector and community of the camp, so that NGOs present is minimized (presents of only one NGO).
- Clean the 25% of the river length that passes through the camp.
- Introduce composting and planting to the camp community.

**Steps of accomplishing these goals:**

1. A regular environmental educational program for the community - children and adults (Open Classes, Workshops, visit the recycling company and learn about the recycling process, sensitizations).
2. Distribution of the blue reusable bags for each household in the camp for recyclables collection.
3. Implementation of the refuse bins only for recycling items with labels on them in each language of the community members.
4. Implementation of the refuse bins for general waste with labels on them in each language.
5. Implementation of the waste collecting trucks, separately for general waste and for recyclables.

6. Implementation of recycling promotion activity every day for two hours where community volunteers would distribute waste bags to the community of the camp, sensitize the community about waste separation, collect recyclable waste from the surrounding environment and households.
7. Implementation of massive cleanups of the camp area (olive grove, surrounding environment, river) once per week with separation of organic, non-recyclable and recyclable waste with community volunteers and engagement of Municipality and Recycling company trucks.
8. Constantly motivating and educating community members, especially volunteers, about the importance of a clean environment, waste management and recycling.

**Results of 3 – 4 months of implementation of the project (until the devastating fire in the whole camp on 9th of September):**

- 68 community volunteers have been fully educated, trained and engaged on daily bases on waste management programs
- Hygiene promotion programs on the topic of waste management were:
  - Sensitization of the community members everyday tent-by-tent on proper waste segregation and disposal → ~350 households/day, 1400 – 2000 PoCs/day.
  - Environmental awareness sessions – 1h class-based session, 2 times per week, with children and adults → 10 – 20 children per session, 10 – 15 adults per session; 245 children (unique number) in 3 months and 233 adults (unique number) in 3 months (the number could be higher but the Covid restrictions about any kind of group gathering have had an effect on the session occurrence).
  - Cleanup campaigns – one per week, community volunteers and one-time volunteers (inhabitants that want to participate) were engaged → 17 cleanup campaigns/ 4 months.
  - Recycling promotion – 5 times a week, community volunteers distributed bags for recyclables and bags for general waste to the community while sensitizing them about proper waste collection and disposal.
- 15 tons of recyclables collected in first 4 months of implementation of waste management and recycling project with 68 community volunteers in the zones of 9000 residents (disposal point – Recycling company) in the area where no recycling program ever exist before.
- River cleanup → 300m of the river, with involvement of 140 community and international volunteers, Municipality and Recycling company trucks, 31t general waste and 520kg of recyclable waste in 4h has been taken out from the river bed.
- 230 tons of general waste collected in 4 months in the zones of 9000 residents (disposal point – Municipality land field) with decline from June to August as recycling collection has been intriduced to community.

- With recycling program, generation of general (non-recyclable) waste decreased on Municipality landfill for 25% in 4 months, which decreased pressure on Municipality landfill and had positive results on Municipality budget.
- 2.5% population (adults and children) of the camp went through the environmental education program in 3 months and 30% community members went through sensitization program (topics like “what is recycling and why it is important for you”, “how to use reusable bags for waste”, “where to dispose waste”, “how to reuse waste”, etc.)

Sub-projects that took place in parallel and closely related to waste management:

- Vector control,
- Hygiene promotion,
- Marine environment protection.

## **Mavrovouni camp**

### **I. Baseline**

The total population of the camp in October 2020 was 8 200. The Waste Management project needed to be re-established and a consortium of actors re-united. Community volunteers that were engaged in the Moria camp were keen to be part of the IRC team also in the Mavrovouni site.

### **II. Assessment**

Waste component structure: 75% recyclable, 20% organic and 5% non-recyclable waste

Recycling list that can be collected by volunteers:

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Note: Some of the recyclable waste from the above list could not go through the recycling process due to its low quality after analysing in situ sample (eg. paper and cardboard wet from organic waste or rain, plastic bags or other plastic packaging being exposed to sun and rain for a longer period, etc.). This waste then has to be classified as non-recyclable or general waste that has to be disposed of on Municipality landfill.

Partners in the waste management project:

- TRIC (Governmental body – Temporary Reception and Identification Center),
- Greek Army,
- Different NGOs,

- Recycling company – a local private entity,
- Technical transportation company - a local private entity,
- Municipality of Mytilene.

### **III. Project**

#### **Goals of the project in the duration of one year:**

1. Cover all the RIC residential areas with the Waste Management program,
2. Re-establishment of the SWM (Solid Waste Management) and Vector control Focus group,
3. Re-establishment of the volunteers' group – 60 members,
4. Recycling Program continuity,
5. Monitoring of the recycling truck,
6. Sensitization of the camp community,
7. Educational session for children and adults,
8. Refuse bins installation,
9. Training of other actors and volunteers,
10. Implementation of storage container for collected recyclables,
11. Distribution of cleaning kits.

#### **Results of 6 months of implementation of the project (until April 2021)**

- Engagement of community volunteers → ~250 (unique number),
- Daily cleanups – only recyclables → ~ 14000 bags collected from Oct-Apr, 120 – 500 kg/day,
- Installation of 82 refuse bins of different volumes with posters throughout the camp,
- Monitoring of the recycling truck - truck was coming 3 times per week,
- Cleanup campaigns - Inside and outside of the TRIC → 11 cleanup campaigns
- Sensitization on proper collection and disposal of the waste → more than 15 000 PoCs reached (PoCs were changing all the time so the number covers new arrivals and PoCs that listen to the sensitization more than one time),
- Environmental awareness session – class-based - > 62 children pass through the session (each child needed to pass 4 sessions in order to receive certification),
- Distribution of Cleaning kits → 1259 cleaning kits for families.

Sub-projects that took place in parallel and closely related to waste management:

- Vector control,
- Hygiene promotion.

### **3. Proposal tasks for the phases VI and VII of the proposal “HEALING LESVOS – Revitalization of Marine Environment of the Lesvos Island from Environmental pollution Produced by Immigration Crisis”**

#### **Brief description:**

VI phase: Dissemination of lessons learnt – maintaining the web-portal and uploading relevant information that can help other small island communities to address the problem by using the case examples from the Lesvos cleaning campaign.

VII phase: Environmental Education Program (ongoing in parallel with the implementation / cleaning campaign) – package of educational activities, promotions for local elementary and second schools, tourism entities and visitors, while also aiming to include refugees to the extent possible

#### **4. TDT – Innovative mixing reactor - patent made by my father and supported by my brother and me**

**Brief description:** TDT System mixing Reactor was made for ethanol production in alcoholic beverage production line. The innovator, Dragan Matijević, wanted to find a way to reduce energy consumption and waste water. What he invented was more efficient technology with pure quality of ethanol as a main product, first grade human food as a byproduct, less waste water, less energy consumption while the whole process can be controlled constantly. All this features, put this technology in front of all known systems of today.

Mr. Matijević took power of jet system to quickly change pressure. With a monopump and specially designed impregnator for faster impregnation of stem, he got very fast mixing of ingredients and faster saccarification of starch. By adding a buffer tank he conserved energy. But the most innovative is the mixing technology that is faster and more effective than all the others.

Benefits: Better quality ethanol, human food by-product, control of every phase, hermetically sealed, low quantity of waste water and energy efficient.

#### **5. International Volunteer Camp Environmental protection Projects in Subotica and Mionica, Serbia – Coordinator and organizer**

**Brief description:** A form of short-term volunteering that offers a positive and practical way to bring together young people from different countries and different cultures who live and work together for 2 weeks until 1 month on projects that contribute to local communities and volunteer organizations.

**Scope of the work for the first volunteers action:** Ludas Lake, as a Special Nature Reserve is located on North of Serbia, City of Subotica. It is one of the most well preserved lake-swamp ecosystems in the steppe zone and a center of biodiversity inhabited with a great number of rare, endemic and relic species. Because of this values, Ludas lake was listed as wetland of international importance, especially as waterfowl habitat in 1977 by Ramsar Convention. The primary goal of this camp is to clean lake from herb species that preventing rare birds the mate and nest on the lake and lake coast.

**Aim:** Developing and protecting this important natural reserves for biodiversity and increase the protection of the most jeopardized herbs species in Europe. Promoting values about nature and the care of this area and spreading ecological awareness, In local community, with developing ecotourism.

**Scope of the work for the second volunteers action:** An international volunteer work camp in Banja Vrujci has been held with the participation of 15 foreign and 15 domestic volunteers. The primary goal of this camp is to clean the riverbeds of the Ribnica, Toplica, Krčmarska, Paklešnica, Manastirica and Lepenica rivers, in order to improve the condition of the aquatic ecosystems of this area.

**Aim:** In addition to solving specific problems, this volunteer camp also aims to animate the local population, break down prejudices and stereotypes through life and work in an international group, as well as promote the Mionica region, ie its cultural, historical and natural values.