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SITUATIONAL ANALYSIS OF ENVIRONMENTAL PRACTICES AT CAMP SITES IN SOUTHERN JORDAN FOR THE PROPOSED CAMP SITE ECOLOGICAL STANDARDS

PUBLIC ACTION FOR WATER, ENERGY AND ENVIRONMENT PROJECT

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This report developed based on PAP technical staff trip to Aqaba Governorate

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1.0 INTRODUCTION

Jordan has a variety of touristic attractions and its economy is heavily dependent on tourism. A big component of the tourism sector is the camp sites located in particular in the southern part of Jordan. Aqaba, Wadi Rum and Wadi Musa are always the favorite destinations to both local and international tourists who visit Jordan. During their visit, tourists wish to experience the simple bedouin life, stunning scenery and warm weather. The camp sites in Aqaba, Wadi Rum and Wadi Musa are spread throughout the southern Jordanian desert and each camp site offers a different experience and style. The majority of camp sites in these areas are made of simple Bedouin tents with minimal facilities, while others offer more extravagant modern style camping with entertainment activities.

The Public Action for Water, Energy and Environment project (PAP) team performed a field situational analysis to assess the current government policies, practices and behaviors related to the issues of water, solid waste and energy at camp sites in Aqaba, Wadi Rum and Wadi Musa. In addition, the PAP team promoted the concept of Eco-Standards among government officials, NGOs, camp managers and tourists to spread the culture of environmentally friendly camp sites (i.e. Eco-Camp sites) which conserve resources and use available resources efficiently.

1.1 STATEMENT OF NEEDS

The increased number of camp sites in Aqaba, Wadi Rum and Wadi Musa has added pressure on the already limited water and energy resources in the area and in Jordan as a country. Camp sites demand clean water supply, energy and sanitation facilities. Therefore, wise and efficient use of resources will add to the sustainability of the camp sites. Camp sites can cause adverse environmental effects if not constructed properly. Leaky septic tanks, cesspits and poor solid waste collection and management are common at these camp sites and the necessary steps have to be taken to remediate the status quo and prevent further degradation of precious water resources and protect biodiversity in the area.

Protection of humans, natural resources and energy is of a paramount importance. The need for Ecological Standards (i.e. Eco-Standards) dedicated to camp sites in Jordan will enhance the image of tourism in Jordan specially at camp sites, attract more campers both locally and internationally as campers are becoming more aware and sensitive to environmental issues and contamination, protect already scarce water and energy resources and encourages camp managers to use available natural resources in more efficient ways. These Eco-Standards will set certain criterion such as water, energy, waste reduction, general management issues and others, each with certain expectation which must be fulfilled to qualify camp sites as Ecological Camp Site (i.e. Eco-Camp).

1.2 TRIP OBJECTIVES

The PAP team embarked on this field trip to Aqaba, Wadi Rum and Wadi Musa to achieve a myriad of objectives. They are as follows:

- Gain field knowledge about the current practices concerning Water, Energy and Solid waste at the municipality level in southern Jordan (Aqaba, Wadi Rum and Wadi Musa).
- Observe the extent of the problem of solid waste management at various locations in the corridor between the Dead Sea area and City of Aqaba.
- Observe the use of natural resources and energy at camp sites in Wadi Rum and Wadi Musa. Examine Solid waste practices carried out by camp managers at desert camp sites.
- Promote and increase awareness of the concept of Eco-Standards to government officials, NGOs and camp managers in southern Jordan.
- Understand the environmental problems facing camp sites in Wadi Rum and Wadi Musa and the issues that might hinder the applicability of Eco-standards at the camp sites.
- Perform water and energy audits at camp sites in Wadi Rum and wadi Musa and access the potential use of water and energy saving measures.
- Obtain the opinions of campers about Eco-Standards and Eco-Camps and access their awareness and sensitivity to environmental problems.

1.3 TEAM MEMEBERS

The PAP field team was made up of the following professionals:

- Eng. Hiba Ahmad-Solid Waste Specialist
- Mahmoud Ahmad-Office Assistant
- Eng. Mobadda Allabadi-Water Specialist
- Mohammad Ben Tarif-Communication Specialist

In-office support was provided by the following professionals:

- Mona Greiser-Social Marketing Specialist
- Khalid Alsaheb-USAID grant manager
- Hanan Ibrahim-Office Assistant

2.0 METHODOLOGY

To achieve the above mentioned goals, the PAP team information gathering and assessment task was carried out by the following methods:

2.1 FIELD OBSERVATIONS

During the field trip, field observations were taken at the following locations:

- Dead Sea-Aqaba Highway (Approximately 3 km past the Dead Sea hotel area known as Dead Sea Hot Springs.
- Ghandour Beach in Aqaba.
- Movenpick Hotel accompanied by staff from Entity Green.
- Aqaba House of Efficiency.
- Camp sites in Wadi Rum and Wadi Musa.

1. Interviews with government officials from Aqaba Special Economic Zone Authority (ASEZA).
2. Interviews Non-Government Organizations (NGOs) such as The Royal Marine Conservation Society of Jordan (JREDS) and Entity Green.
3. Interviews with staff from The Royal Management for the Protection of Environment (Rangers).
4. Interviews with camp managers in Wadi Rum and Wadi Musa.
5. Interviews with campers and tourists in Wadi Rum and Wadi Musa
6. Performing preliminary water and energy audits at visited camp sites.
7. Observing behaviors of campers and beach goers.
8. Field photos.

2.2 INFORMATION GATHERED FROM FIELD MEETINGS:

2.2.1 AQABA SPECIAL ECONOMIC ZONE AUTHORITY (ASEZA)

a. Dr. Salim Almoghrabi (Commissioner for Environment)

- The main constrain of developing Eco standards for campsites, lodges and restaurants in Aqaba is the financial cost. He noted that the donors should play a key role in implementing projects that improve the environmental situation in Aqaba. (i.e. sewerage network).
- Budget Restraints on camp managers to install solar energy panels due to high investment cost.
- He said that development projects and grants should invest some of their resources in financing camp owners to implement Eco-Standards
- Environmental problems caused by septic tanks at most camp sites in Wadi Rum.
- Encourage camp managers to use applicable and affordable technology.
- Camp managers lack appreciation of the concept of Eco-Standards.
- Conversion to solar energy is expensive and it is unknown who will bear the cost.
- Incentives should be given to camp managers to reduce water and energy consumption and minimize littering.
- According to Mr. Almoghrabi, the three major problems facing camp site are: 1. Fires 2. Septic tanks and cesspits 3. Animal remains.
- 80% of campers bring their own water and lack the knowledge of wastewater recycling and organic waste. Campers do not trust the quality of water at camp sites.
- Campers and local people throwing plastic bags and bottles have to be given financial incentive to allow for reuse of such material.
- Most polluters come from outside the camp contrary to the belief that most of the pollution and littering is caused by on-site campers.
- Most of the solid waste at camp sites is organic.
- ASEZA lacks the expertise in marketing and proposal writing for programs related to solid waste and wastewater recycling.
- ASEZA does not have a problem collecting solid waste from camp sites in Wadi Rum.
- The role of the “Royal Rangers” is unclear and the dilemma of enforcing the law and being related to camp managers through tribal relations hinders enforcement of environmental law.
- The use of indigenous people and material should be encouraged and it is vital for job creation and economic growth of small communities.

b. Engineer Abdullah Khair (Water and Irrigation Expert)

- ASEZA holds the responsibility for infrastructure such electricity and septage pumping for both private and public camps.
- ASEZA is responsible for providing bins at camp site.
- Local scavengers collect recycled material for sale.
- Connecting camps in Wadi Rum to sanitary sewer system and wastewater treatment plant is financially intensive and not a viable option at the stage. It is unknown who will bear the cost of construction and maintenance.
- Small on-site wastewater treatment plants are highly encouraged for camp sites in Wadi Rum.

c. Engineer Isam Jaradat (Director of Coordination & Maintenance)

- According to his sources, there are about 50 certified camps and 38 illegal camps.
- Solid waste collection and disposal is a major problem at camp sites.
- Camp sites lack waste recycling programs.
- According to him, water saving devices are not used at camp sites.
- Use of biodegradable material should be encouraged.
- ASEZA has the responsibility of solid waste collection in Wadi Rum but the coverage area is huge which causes interruptions in collection frequency and causes accumulation of solid waste at camp sites.
- The high consumption of Diesel fuel at camp sites is very costly economically and environmentally.
- The use of solar energy for water heating at camp sites falls below expectation. The technology should be used more to conserve fossil fuel and minimize environmental impacts.
- Collection of solid waste by camp mangers is not enough. Before solid waste can be collected by ASEZA, waste has to be appropriately collected on-site by camp managers.
- ASEZA has the capability to collect solid waste one or two times a day from camp sites if sufficient waste is collected.
- ASEZA can provide (240L) plastic bags to camp managers to collect solid waste.
- Camp managers and guides hold the responsibility of solid waste and not camp users.
- Water saving devices are not commonly used at camp sites.
- Diesel generators are widely used at camp site which can cause environmental pollution.
- Camp managers have a financial mentality with nominal care to environmental needs and restrictions.
- Environmental awareness programs are needed for both campers and camp managers to spread the culture of efficiency, preservation and conservation of resources. The Use of affordable technologies should be encouraged.
- He stated the campsite owners in general do not see the long-term value of investments; therefore it would be hard to convince them of having eco-standards unless they see a short-term benefit.

2.2.2 NON-GOVERNMENT ORGANIZATIONS (NGOS)

a. The Royal Marine Conservation Society of Jordan (JREDS)-Faisal Abu Sondos

- JREDS is highly interested in this project and willing to offer its technical and staff expertise to formulate environmental standards for camp site.
- International standards for camp sites have already been done by Green Key. These standards should be adapted to national conditions (i.e. Jordan).
- Green key criteria set for national conditions should contain up to a maximum of 20% national additions.
- Jordanian camp site standards have to reflect more water and energy restrictions and plans for wastewater reuse.
- Use of a classification system for camp site will help enforce Eco-standards. Camp sites with Eco-Standards should be classified higher and vice-versa.
- Incentives for camp managers should be provided to encourage adaptation of Eco-Standards.
- Septic tanks and cesspits are major cause of environmental pollution at camp sites. Jordanian Eco-Standards should address this issue.
- The program will be begin as voluntary then give incentives to camp managers to switch to Eco-Camp.
- JREDS has been authorized to give both Green Key and Blue Flag accreditation for hotels and beached in Jordan and in the region (i.e. Radisson group and Intercontinental).
- He suggested that we should arrange for a workshop to discuss the development of Eco-Standards at camp sites where all stakeholders are included.

b. Camp Owners & Managers

- Camp managers and owners are enthusiastic about setting Eco-Standards for campsites and willing to cooperate.
- The camp sites we visited have already taken partial measures towards water and energy saving by using water saving devices and solar flash lights. Each camp site is working within its means to achieve water and energy conservation.
- Camp managers showed sensitivity towards environmental pollution and understand that their financial prosperity is dependent on having healthy environment at the camp site and sustainable use of natural resources.
- Camp managers are financially strained and do not have the financial means to pursue costly technologies to further reduce water and energy consumption (i.e. solar panels and wastewater reuse systems).
- Managers of camp sites outside Wadi Rum archeological reserve criticize ASEZA for its lack of presentation in the area. ASEZA officials and camp managers do not hold regular meetings to discuss issues such as: improving camp site tourism, current

environmental problems facing camp sites and the necessary steps needed to solve these problems.

- ASEZA official and camp site managers both understand the concepts of "Cost Sharing" and "Financial Incentives" to promote and finally accepting Eco-Standards at camp sites.

c. Tourists

- During the field trip several "quick" interviews were done with campers to get their opinions on the facilities and level of service provided at camp sites and their attitudes towards Eco-Standards.
- There is a clear division among campers when it comes to Eco-Standards. Some campers showed great care and sensitivity towards the environmental issues facing camp sites in Wadi Rum and Wadi Musa and preferred to stay at Eco-Camps. While others such as "one day campers" were apathetic towards the concept because they are only there to stay overnight before they continue on with their journey.
- Both types of campers made price a main factor in choosing the location of stay. Camps offering cheap prices and specials have preference over more expensive camps.
- The level of service at the visited camp sites was very satisfactory.
- Some campers were astonished by the lack of solid waste recycling at the camp site.

2.3 SITE VISIT OBSERVATIONS

2.3.1 DEAD SEA HOT SPRINGS

- The area has enormous accumulation of solid waste such as plastic bottles, cans, plastic bags, cardboard and tires.
- There is a lack of containers in the area and the ones already there are completely full.
- The spring water is in contact with the solid waste before it discharges into the Dead Sea which poses a serious environmental problem.
- Collection frequency at the site is not sufficient.
- There is a "Royal rangers" station located in close proximity of the dumping site.
- Royal Rangers are authorized to give ticket and verbal warnings to violators.
- According to the Royal Rangers, more awareness is needed through advertisements and brochures.
- Greater Amman Municipality (GAM) has the responsibility of collecting the solid waste from the area since the area is within its collection route and the nearby municipalities are considered "Poor Municipalities" and do not have the financial means or capabilities for solid waste collection.
- In the last two months, Greater Amman Municipality (GAM) did not do any cleaning activity in the area.

2.3.2 GHANDOUR BEACH

- According to ASEZA officials Ghandour Beach will stay public and there are no future plans for change to a private beach.
- ASEZA made plans to buy the land adjacent to the beach to develop the land for commercial use but the plan was halted due to high prices of land in the area.
- Some shops have been forced to leave the area but others are still there.
- According to ASEZA there is a solid waste problem at the beach.
- Our observations of the beach area indicate that the beach is generally clean and trash bins are located throughout the beach.
- The areas where bins are closer to the water (where people usually hang out) seem to be cleaner than the areas where the bins are located away from the water.
- Cigarette butts and few plastic water bottles are scattered throughout.
- Most beach goers are local people living in Aqaba.

2.3.3 MOVENPICK HOTEL AND ENTITY GREEN (ENGINEER ALA'A MDANAT)

- The solid waste at the facility is collected by the hotel staff and sorted by Entity Green on-site staff and later transported to the recycle facility owned and operated by Entity Green.
- Collection bins are located throughout the hotel. Waste is separated by type: Paper, plastic, cardboard, cans, glass, printer cartridges, cooking oil, bread and soap.
- More collection bins are needed to collect more solid waste. Waste is sometimes collected twice a day.
- The hotel hires special sea divers to collect trash and other objects from the beach area located in a close proximity of the hotel. Objects such as tires, tin containers and others have been recovered from the bottom of the beach. The beach area is restricted only to hotel residents.
- Water saving devices are used throughout the facility including faucets, showerheads and toilets.
- The facility does not use solar panels for energy or heating.
- The facility has been green-key certified for two years.

2.3.4 AQABA EFFICIENCY HOUSE (ENG. ISMAEL MUTAIRAH)

- The Aqaba House project was partially financed by the European Union (EU) as part of a pioneer project in the Middle East region in which the concepts of water and energy conservation have been applied.

- The Aqaba House is an eco-friendly house built as a prototype for such houses in Jordan
- The house uses eco-friendly technology and simple methods to conserve water and energy to minimize damage to the environment.
- The house uses insulation to save energy such as using mud and polystyrene for walls.
- A special system is installed to generate energy for cooling using solar energy. Unfortunately, the system is not working currently and they are looking for alternatives.
- The house is positioned in a certain direction to minimize heating caused by the sun.
- The outer surface of the house walls that is most exposed to sun light is covered with a layer of stone to improve insulation.
- The vents of the central cooling system are placed in the bottom of walls (low height) to improve cooling efficiency.
- A Grey Water system is installed in the house where grey water is collected in a special tank, filtered through a layer of sand and coal then pumped into another tank for irrigation use.
- No solar panels are used to generate electricity in the house which seemed to be a big disadvantage in such a prototype project.
- An interesting idea implemented is the plantation on the roof of the house which basically helps keep the temperature low inside the house and therefore save energy on cooling.
- The house, with some modifications, could be a great example for eco-friendly houses here in Jordan. There is great potential and a great opportunity to raise awareness through this house on environmental issues.

2.3.5 CAMPSITES

a. Beit Ali (Manager and Land Owner: Mr. Tahseen Shinaco and Suzy Shinaco)

- Located outside the Wadi Rum archeological reserve and it is considered one of the best camp sites in the area.
- The camp is composed of tents, single-occupancy chalet and multi-occupancy chalet.
- The camp has swimming pool, kitchen, shower and bathroom facilities. Also, it contains open areas for social gatherings and open-air theater that seats approximately 3,000 people.
- The camp is well maintained and littering is very minimal.
- Five concrete septic tanks spread throughout the camp to catch wastewater from bathrooms and kitchen area.
- The gray water from septic tanks is used for irrigating landscape plants.

- Water for the camp site is brought via tanks outside the camp area. The owner is in the process of drilling an on-site well due to high price of water tanks.
- Solar panels are used throughout the camp site for water heating.
- Faucets and showerheads did not have water saving devices.
- Organic waste is consumed by birds, dogs and cats.
- Solid waste is collected and put into bins for later pick up by Qwera Municipality twice a week. There is a lack of waste bins in the area.
- Mr. Tahseen showed great interest in installing water saving devices in the kitchens and toilets and great interest in composting organic waste.
- According to Mr. Shinaco, It will be hard to find a replacement for plastic water bottles. Other ways will not appeal to tourists.
- The opinion of Mr. Shinaco is that changing the behavior of campsite owners, managers and the local community is a very hard task and has to be done gradually.
- According to the Mr. Shinaco, ASEZA does not have a presence in the area and they rarely visit the camp to assess the problems and needs of the camp.

b. Bedouin Life Camp (Manager: Obeid Alamamrah, Wadi Rum)

- Small camp within the Wadi Rum archeological reserve.
- The camp is composed of single and multi-occupancy tents, kitchen area, bathroom and shower facility.
- Potable water from Disi is transported and brought to the camp site.
- The camp uses propane and butane gas for water heating and lighting. Also, solar flash lights are used. There were no water saving devices installed.
- Wastewater is collected into a cesspit which is leaking.
- The bathroom and showers did not have water saving devices installed.
- The camp site looked very clean without any littering.
- The solid waste is collected in plastic bags and transferred to nearby villages for later pick up by the municipality.
- Mr. Alamamrah stated that government authorities and donor agencies lack the essential interest in learning and solving the environmental issues at camp sites inside Wadi Rum archeological reserve.

c. Ammerin Camp (Manager: Ziayd Hamzeh, Wadi Musa)

- Medium-sized camp with single and multi-occupancy tents with kitchen area, bathroom and shower facilities.
- Quiet area, beautiful scenery and most campers are foreigners.
- Water is brought by tanks into the camp site. Water from the area is brought form the city of Ma'an. The Underground storage tank located at the camp site has a capacity of 70m^3.

- The water is pumped from the underground storage tank into two tanks located on a rocky hill above the camp site and later used for hand washing, toilet flushing and bathing.
- Electrical water heater is used at the camp site to provide hot water.
- Water saving devices such as aerators and hand valves are used in bathroom sinks and showers. Dual flush toilets are also used.
- The kitchen area does not have water saving devices installed, but plans are made to purchase nozzles for washing dishes, pots and pans.
- The site looked clean with minimal littering. Most litter is outside the camp and camp employees clean up the affected area regularly.
- Solid waste is sorted out according to material for further disposal in bins provided by Wadi Musa Municipality.
- A diesel generator is used for energy source. The generator works 4 hours a day.
- Wastewater is collected into a single septic tank and pumped by septic tanks when it reaches full capacity. There is no on-site reuse of wastewater at the camp site.
- The owners of the camp (the Ammerin tribe) showed great interest in saving even more water and energy if does not involve high capital investment.
- Bottled water is the main source of drinking water. The manager of the camp site disliked any other ways of providing drinking water such as clay jars due to lack of aesthetic appeal to campers and potential for breakage.

3.0 GENERAL FINDINGS

- A financial support plan could be very useful in getting camp sites to adopt Eco-Standards.

- ASEZA does not seem to have regular follow-up with or supervision over camp sites.

- ASEZA in general does not have accurate information about camp sites.

- ASEZA officials lack the clear understanding of the top environmental problems related to campsites.

- Camp owners are not willing to take any measures that would compromise, even slightly, the quality of service for its guests.

- Camp owners showed great enthusiasm towards Eco-Standards but the financial barrier always surfaces up throughout the discussions.

- Campsites do not seem to be having a littering problem.

- Most of the waste generated by campsites consists of plastic bottles.

- Partnering with an established organization with proven track record and understanding of Eco-Standards is a significant factor for the successful implementation of Eco- Standards for camp sites.

- Raising the awareness of campsite owners, manager and the local community on solid waste and eco friendly standards is needed. This could be done as a first step towards adopting eco standards.

- Replacing plastic bottles with an eco-friendly solution will be very challenging. This will need much work and creative solutions.

- The biggest motives behind water and energy conservation practices adopted by campsites are the benefits of cost cutting, and minimizing operational and managerial efforts.

- The top barrier to applying Eco-Standards is the financial cost.

- There is a clear division among campers when it comes to the importance of Eco-Standards in camp sites. Some showed enthusiasm to the idea while others did not care. Most tourists agreed that the most important things for them as guests are price and comfort.

3.1 SITE SPECIFIC FINDINGS:

HOT SPRINGS (DEAD SEA AREA)

- There is an obvious littering problem in the Hot Springs area.
- There is lack of litter bins around the area, plus the locations of current bins are not helping keep the area clean.
- Collection frequency seems insufficient, and no cleaning efforts are being made to pick up scattered litter.
- The majority of the waste scattered around is plastic bottles.
- The littering problem is causing a serious environmental hazard, and could affect the ecology of the Dead Sea.

GHANDOUR BEACH

- No serious littering problem exists.
- The cleanness of the beach seems to be majorly a result of the abundance of litter bins.

CAMPSITES

Solid Waste

- Littering is very minimal.
- Sorting of solid waste is observed in visited camp sites. The sorted material include, plastic, cardboard and organic waste.
- Municipality waste collection service does not cover all camps within the Wadi Rum and Wadi Musa areas.
- Sorted solid waste goes eventually into the municipality's waste stream! No recycling is being done.

Water

- There is a division among camp managers on the use of WSD's where some camps have already installed such devices on faucets and showers while others have not.
- There is a division among camps as well on the use of grey water. While one camp from the examined camps used untreated grey water for irrigation, others did not see the need for gray water system at all.
- There could be environmental and ground water pollution hazards due to the use of unlined cesspits by some camps especially in Wadi Rum.
- The cost of transporting water into the camp sites is high, causing camp managers to think of alternative ways of getting water such as drilling private wells.
- Septic tanks sludge is used by some camps to fertilize desert trees.

Energy

- The main source of energy at the camp sites is through diesel generators, which can result in high energy consumption and pose a serious threat to the surrounding environment.
- There is great potential for the use of solar energy for electricity generation and water heating given the warm and sunny climate. One of the camps is already using solar panels to heat water.
- The use of energy saving light bulbs is not commonly practiced in camp sites.

FUTURE BEHAVIORS:

To accelerate the adoption of Eco-Standards at camp sites in Jordan, future behaviors and actions from camp owners and managers will need to occur. These changes in

behavior can be achieved by setting target goals which ought to be met by 2013. These targets are as follows:

- 30% percent of camp sites use solar energy to provide hot water for bathing, cooking and cleaning.
- 60% of camp sites use water saving devices such as aerators, shower heads and nozzles
- 70% of camp sites use energy saving devices such as light bulbs.
- 20% of campers utilize reusable materials such as reusable water bottles.
- 60% of camp sites do on-site solid waste sorting. Recyclable materials could be sold to trash traders to generate income.
- 30% of camp sites use septic tanks to collect wastewater which can be reused for toilette flushing and landscape irrigation.

TOURIST EDUCATION:

Some camp sites in Wadi Rum and Wadi Musa are located inside or nearby archeologically and ecologically sensitive areas. For example, the Bedouin Life Camp lies inside the Wadi Rum archeological reserve and The Ammerin Camp is in close proximity to the ancient City of Petra which is designated as a "World Heritage Site" by UNESCO since 1985.

Educational programs offered by guides, camp managers and owners are vital for increasing awareness among local and international tourists about the ecological sensitivity of these areas. Therefore, the behaviors of tourists and campers should in a certain way reflect their awareness and sensitivity to the environment so that negative impacts on the environment are minimized.
To enhance environmental awareness, the following steps should be taken:

- Train guides to offer specific lectures on history of landscape, flora and fauna and other eco-offerings that help enhance the touristic experience and also make tourists more alert to ecologically sensitive areas.
- Offer night environmental lectures to educate tourists on a variety of environmental issues facing archeological and ecological reserves and ways to alleviate these issues.
- Offer brochures for tourists at camp sites to inform them about the significance of archeological and ecological areas and provide them with tips on how to minimize adverse environmental impacts.

ECONOMIC DEVELOPMENT:

Job creation and increasing income level lies at the heart of economic development. The areas of Wadi Rum and Wadi Musa suffer from high unemployment rate, low household income levels and diminished role of women. Applying Eco-Standards at camp sites presents the perfect setting for improving the social and financial situation of local people and has a great potential to create jobs related to water, energy and solid waste. There is a potential for jobs in the following areas:

- Train local people in the maintenance and operation of solar panel technology.
- Hire local people to install and maintain water and energy saving devices at camp sites.
- Link the campsites with private organizations such as Entity Green to train people in solid waste sorting to generate income.
- Hire local people to sort camp site solid waste.
- Hire local people to clean up litter.

4.0 RECOMMENDATIONS

- Improve communication and coordination between ASEZA officials and camp site managers to focus efforts on spreading the concept of Eco-standards in Jordan.
- Amplify the supervisory role of ASEZA in Aqaba and Wadi rum and hold regular visits to camp sites and meet the managers to discuss their needs and take the necessary steps to stop the environmental degradation in the area.
- Carry out further detailed research through additional site visits to camp sites and hold talks with stakeholders to understand the problems facing camp sites and put together a social marketing strategy (behaviors/barriers/benefits) which will end in adopting Eco-Standards at camp sites.
- Conduct both qualitative and quantitative research through field surveys and focus groups that will target camp managers, owners and tourists to obtain more precise “situational analysis” of the camp site areas. Other camp sites from middle and north of Jordan should be included in the research.
- Hold workshops in which both government and non-government identities can participate to initiate a dialogue to discuss and promote the concept of Eco-Standards and Eco-Camp site.
- Review past initiatives or projects related to “camp sites Eco-Standards” in Jordan to learn from past experiences and recommend further steps.

- Implement the “Camp sites Eco-Standards” project gradually. The project should start with an awareness campaign to educate government officials, NGOs, camp site managers and owners about pertinent environmental issues and then build on that capacity to change behavior of tourists at camp sites through social marketing techniques and finally offer incentives to camp site managers to adopt Eco-Standards.
- Build the capacity of the “Royal Rangers” about environmental problems facing camp sites and efficient use of natural resources such as water and energy and enhance their role in law enforcement.
- Spread the culture of environmental responsibility among camp owners managers and tourists and promote the use of water-saving devices, energy efficient appliances and fixtures and sustainable solid waste practices to bridge the gap between the existing practices and the desired future practices which will be set in the Eco-Standards.
- Use this report as a tool to structure future Request for Application “RFA” that goes in line with PAP’s mission and objectives.
- Distribute this report to stakeholders and other interested institutions and groups (i.e. USAID, ASEZA, Entity Green, Clean City, Jordan University-Water & Environment Research & Study Center, Jordan University for Science and Technology, Royal Scientific Society (RSS)… etc) in order to link them with the goals of PAP project.
- Carry out an extensive program to assess and monitor the effects of septic tanks and cesspits on the quality of ground water resources in Wadi Rum and specifically underneath camp sites. This represents a great opportunity for a Master’s Thesis for environmental sciences and engineering students in Jordan.
- Enhance the Social Corporate Responsibility (CSR) of Jordanian banks through financing of solar energy projects at camp sites in Jordan.