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Implementation of Effective Public Outreach Program (POP) in Cameron Highlands

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Abstract: ***Public Outreach Program is performed in Cameron Highlands with the goals of sharing and disseminating ongoing information and future infrastructural works, as well as encouraging the public to take responsibility in controlling erosion and sediment issues and protecting the environment. Total 150 contributors had been concerned in this program consisting of 50 personnel from related agencies and 100 members from the community. These contributors had been policymakers, resource managers, students, individuals of the public and specialists. This paper has explained the process and strategies involved along the process of Public Outreach Program. The finding and information obtained through this program are believed can contribute towards the better management practices in the future.***

Keywords: Cameron Highlands, Public Outreach Program and Sediment issues.

I. INTRODUCTION

Outreach is an attempt by means of people incorporation or organization to attach its ideas or practices to the efforts of different organizations, agencies, specific audiences or the majority. Outreach has been described as a meaningful and collectively beneficial collaboration with companions in schooling, commercial enterprise, public and social provider [1]. Outreach program effectiveness not only depends on addressing vital needs but also identifying and targeting particular audiences.

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Depending on the outreach program, the audience may be changed from students to policy makers, teachers to recreational group or even citizens or particular professionals. Obviously, the target audience need to be identified based on the needs. Therefore, addressing needs and consequently identify target audience will allow researchers to develop the best outreach methods [2-3]. Engagement is the partnership between a stakeholder with those of the public, engaged citizens where strengthen the

Democratic values and civic (social) responsibility which address critical societal issues [4].

In Malaysia, there is lot of places where it requires outreach programs to conserve the environment as well as help in ecotourism [5]. One of the major ecotourism spot in Malaysia is Cameron Highlands. However, polluted rivers are hugely affected this place recently [6-7]. Due to illegal farming, uncontrolled logging, environmental ignorance etc. the rivers are being polluted and caused shattering floods too. In November 2014, due to flooding of several rivers the flood killed six peoples and caused numerous economic losses in this area [8-11].

Three main rivers have identified in Cameron Highlands namely Bertam River, Telom River and Lemoi River. According to the Department of Environment (DOE) and Department of Drainage and Irrigation (DID), is being listed that the Bertam River Basin has five rivers (Sg. Burung, Sg. Habu, Sg. Ringlet, Sg. Terla and Sg. Tringkap) that are healthy, i.e. Class I and II. Whereas another three rivers of same basin (Sg. Bertam, Sg. Lenggok, Sg. Telom) are slightly polluted i.e. Class II, based on the Water Quality Index [12].

Besides that, the issue in Brinchang which near to the LBS Group's construction site was due to the clogged underground culvert at the area, which caused localized flooding problems. The constrictions along Sungai Bertam's tributary, which consists of squatter's houses, bridges and utilities, also contributed to the restriction of the river's flow. Apart from that, direct discharge from the construction site has also increased the river's capacity. The discharge from this river tributary will then be directed downstream to a culvert near Iris Hotel.

Moreover, many researchers from different universities worked on the rivers in Cameron Highlands and found that river pollution has been going serious. Abdullah et al. shows that in March 2015, the traces of Endosulfan II, Aldrin, Endrine Ketone and DDE (a DDT derivative) which were banned pesticides found in the tap water and river in Cameron Highlands especially in Brinchang [13-14].

Thus, it is very important to have public awareness activities and the implementation methods among the residents of Cameron Highland in order to reduce the problems occurred in Cameron Highland. Therefore, the main objective of this research is conducting workshops and Public Outreach Program (POP) to disseminate information to all the relevant parties and to solicit feedback from the various parties concerned for further improvement.

II. APPROACH AND STRATEGY

There are seven strategies and approaches to develop a successful Public Outreach Program (POP) Cameron Highlands and a summary of the programs in this project [12]. The POP for Cameron Highlands is complex, involving multiple activities, issues and stakeholders. Therefore, it is important to develop a clear strategy around the workshop and POP implementation before detailed work commenced to design the programs for maximum effectiveness and to use the available resources for the greatest impact.

First action is to create interest and hope to the target groups. Target groups must be exposed to the importance of the river and environment to create interest. They could be shown clean stretches of the river to create hope. The second one is to improve knowledge and skills to allow target groups to understanding the nature of their own impacts as well as how they could participate. This is where training workshops; poster, exhibitions, etc. could come in to help various stakeholders improve their knowledge and skills. Next, to instill spirit of collective responsibility to understand that the river/environment is a collective responsibility and the spirit on ownership must be instilled. Pollution mapping for sub catchments and gotong-royong, etc. would be a good start and the leaders from all target groups who show initiative to support action must be recognized. Then, we need to initiate actions to reduce pollution. Real actions to reduce pollution need to be initiated such as recycling projects, sullage reduction programs, reducing litter, etc. come in here. Leaders from all target groups who show initiative to support action must be recognized. Fifth action is to facilitate partnerships. Partnerships must be facilitated by providing avenues/opportunities for internal/external parties to adopt/ take ownership of certain initiatives. Create opportunities for corporate, other NGOs, RAs to initiate, lead or sponsor specific programs. Next, Government backing, that shall provide appropriate supports and incentives. Support could include venues for events, equipment, transport, logistic support, services (e.g. rubbish collection for gotong royong), funds, etc. to demonstrate that the government is solidly behind the initiatives. Lastly, all the target groups need to be monitored & encouraged continuously. All programs/activities must be documented and monitored continuously. The government must provide constant encouragement. Successes must be quickly recognized and publicized.

The engagement provided an opportunity to understand the day-to-day operational behaviors of the farmers and from that, to develop capacity-building programs on how a change behaviors and management practices to have impacts that are more positive. The target key partners in this study include the Government Agencies and NGOs as shown in Table 1.

Table. 1 Target Key Partners for POP Cameron Highlands

Stormwater Group (Quality and Quantity)	ESCP & Agriculture Group
1) Jabatan Pengairan dan Saliran (JPS) ●Bahagian Saliran Mesra Alam (BSMA) ●Bahagian Pengurusan Lembangan Sungai (BPLS) ●JPS Cameron Highlands ●Bahagian Pengurusan Sumber Air & Hidrologi (BPSAH) ●Bahagian Pengurusan Banjir (BPB) ●Bahagian Bengurusan Fasiliti & GIS (BPFG) 2) Majlis Daerah Cameron Highlands ●Jabatan Kejuruteraan ●Jabatan Perancangan 3) PLAN Malaysia Pahang 4) Jabatan Ukur dan Pemetaan Malaysia (JUPEM) Pahang 5) Jabatan Alam Sekitar (JAS) ●JAS Cameron Highlands ●JAS Putrajaya	1) Jabatan Pertanian Cameron Highlands ● Pengurusan dan Pemuliharaan Sumber Tanah ● Pengurusan dan Pemuliharaan Sumber Tanah ● Kawalan Racun Perosak ● Perancangan, Teknologi Maklumat dan Komunikasi 2) Jabatan Pertanian Putrajaya ● Pengurusan dan Pemuliharaan Sumber Tanah 3) Jabatan Mineral dan Geosains Perak (JMG) ● Bahagian Perkhidmatan Teknikal, Ipoh 4) MARDI ● Ibu Pejabat MARDI ● MARDI Cameron Highlands 5) Pejabat Daerah dan Tanah ● PDT Cameron Highlands 6) NAHRIM ● Pusat Kajian Lembangan Sungai 7) Jabatan Kerja Raya (JKR) Cameron Highlands 8) Pejabat Setiausaha Kerajaan Negeri Pahang ● Bahagian Perancang Ekonomi Negeri 9) Jabatan Kerja Raya (JKR) Cameron Highlands 10) Tenaga Nasional Berhad (TNB) ● TNB Cameron Highlands 11) NGO's ● Persatuan Pekebun Sayur India Cameron Highlands ● Pertubuhan Pengusaha Pertanian Cameron Highlands SWCORP (Pengurusan Sisa Pepejal Domestik ● Persatuan Pekebun Sayur Melayu Cameron Highlands ● Persatuan Pekebun Bunga ● Pertubuhan Pengusaha Pertanian Cameron Highlands.

III. SESSION WITH STAKEHOLDERS AND KEY PARTNERS

A one-day session with Stakeholders and Key Partners Workshop (Figure 1) involving all the relevant agencies and project team with the objectives of this workshop was to develop a comprehensive understanding of the broader context of the Cameron Highlands, identifying the most significant stakeholders, and understanding the major challenges, issues and drivers for these stakeholders. Besides, the workshop was a place to share and disseminate information about the Cameron Highlands to the stakeholders including on-going and future infrastructural works and Government initiatives. Then, getting feedback on local on-going activities, barriers and challenges faced by the local stakeholders. The participants actively involved in this program and identified the needs for project sustainability.

Fig. 1 Brainstorming Session with Stakeholders and Farmers

The brainstorming session with stakeholders has been discussed issues related to storm water quantity and quality, erosion and sediment issues as well as issues related to agricultural practices. The outcomes from the workshop are listed in Table 2. The proposed mitigation measures are also shown in Table 2.

Table. 2 Current Practices in Cameron Highlands and Proposed Mitigation Measures

Details	Current Practices	Proposed Mitigation Measures
Greenhouse/Sheltered Farms & Farms In Hilly Area	1. Flooding has become more frequent due to direct runoff 2. The area near rain shelter does not have proper drainage 3. No cover/mulching 4. Steep topography combined with greenhouse – increase on stormwater flow (7ft/hr) and caused a flash flood 5. No specific guidelines for irrigation/drainage in hilly areas for a different type of plantation	1. Runoff from greenhouse must be collected and stored for re-use (rainwater harvesting) 2. Farmers that want to use greenhouse/sheltered farm must apply for Kebenaran Merancang (KM)
Current Agricultural Practices	1. Crop plantation schedule depends on each farmer. No specific schedule made it hard for supervision purposes 2. The implementation of guatamala & vertiver grass in hilly areas. However, the implementation is not as whole as it depends on the farmers. 3. Implementation of 'labu siam, kimchan and kacang' for slope protection and also generate income for the farmers 4. Implementation of organic farming □ Farmers only follow old methods and practices □ Not all farm owners registered with Persatuan □ No systematic waste disposal system, normally farmers will dispose of the waste directly into the river	1. Different crop planting technique - biodynamic farming – open fill plantation using cover crop which provides more nutrient in the soil 2. Create gel to maintain the fertility of the crop – example in Sg Menson – soil binding that allows rainfall to infiltrate: absorbent
Water Tapping From Mountain/Ground water	1. Tapping from the mountain/groundwater 2. Farmers built a small dam at upstream of the hilly areas 3. Direct tapping from the stream/groundwater (100-200 ft from foothill of Gunung Brinchang/Gunung Berembun	1. The specific drainage/irrigation methods for different types of plantation will be included in the ESCP Guidelines for Agricultural Areas 2. Construct a proper terrain and irrigation system 3. 50 cm depth plowing 4. Implement plowing during the dry season 5. Chisel Plough 6. New and hilly area – submit ESCP dan earthwork plan
Program by Authorities	1. 'Gotong royong' twice a year to clean rubbish and trash in Cameron Highlands (yearly program by MDCH) 2. 5 'gotong-royong' program organized by JPS CH in 2018 3. OPS Gading IV lead by MKN: RM2 million budget from MKN to organize environmental awareness program in Cameron Highlands 4. System 2L – Lawatan dan latihan kesedaran pekerja asing for pesticide and fertilizers management 5. MDCH is given authority to give compound for individuals caught throwing rubbish/agricultural waste into the river (if caught on the spot) 6. RTB Lembah Bertam and maintenance by JPS to reduce the impact of flooding 7. RM1.7 million maintenance cost for 2 years 8. Detention pond in Kg. Raja (1 acre) to reduce direct runoff to the river and being maintained by JPS 9. Detention pond in Ringlet (0.5 acres) is maintained by JPS	----

IV. PUBLIC OUTREACH PROGRAM

A one-day POP concerning all the applicable organizations such as farmers' association, project team and community with the objectives to train and raise awareness among the community. The program was attended by farmers, government agencies, local authorities, communities and students from the nearest school. All parties play their roles to accommodate the participants and to establish the relationship with the community involved. Figure 2 shows the key activities while Figure 3 shows the pictures during the program.

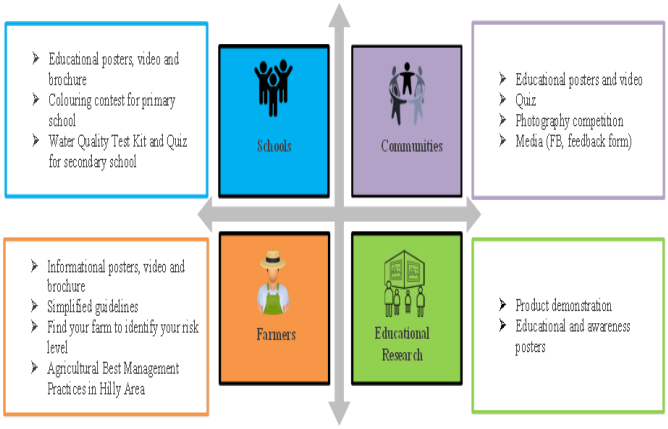

Fig. 2 Key Activities for Public Outreach Program

Fig. 3 Activities during Public Outreach Program

V. CONCLUSIONS

The research shows conducting workshops and POP to disseminate information and to solicit feedback for further improvement in the environment of Cameron Highlands. This program contributed valuable knowledge to the various parties such as consultants, governments and communities towards better management practices in the future. Few strategies are shown by whom the public awareness on environment is enriched. The program certainly helps on reducing the pollution in rivers situated in Cameron Highlands. In future proper mitigation can be implemented based on findings through this program for the sustainable environment.

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