

EFFECTIVENESS OF PUBLIC AWARENESS PROGRAMMES OF CROP WILD RELATIVES PROJECT

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ABSTRACT

Crop Wild Relatives (CWR) are wild plant species related to a domesticated crop. They contain useful genes, which could be incorporated into crop development. However CWR are increasingly at risk due to degradation of natural environments. Recognition of importance of CWR conservation was lead to launch a project on 'in-situ conservation of crop wild relatives through information management and field application' in Sri Lanka. Among its several objectives, increasing public awareness on CWR was a major concern and several actions have been carried out to achieve this goal. This study is an impact evaluation of the public awareness programmes conducted by the CWR project. The study was based on a sample survey of seven stakeholder categories (SC) associated with CWR and the total sample size was 1733. Four scores were developed to capture and compare the pre and post scenario of the project. Regression analyses were conducted to identify the influence made by the CWR project on the overall awareness. The study found that the CWR project has significantly contributed to improve the awareness of all the SC however it is inadequate. Therefore, the awareness has to be further improved especially among students of higher education and the policy maker categories.

KEYWORDS: Crop Wild Relatives, Public Awareness, In-situ Conservation

INTRODUCTION

Crop wild relatives (CWR) are progenitors of crops as well as other species more or less closely related to them. Their useful genes could be incorporated into crops to improve crop performance. Thus the importance of CWR for food security has been highly recognized (Stalker, 1980). However they are increasingly at risk due to habitat loss through the destruction and degradation of natural environments. With the identified importance of CWR conservation, the project 'In situ Conservation of Crop Wild Relatives through Information Management and Field Application' (UNEP/GEF Project, 2004) was launched. It was a multi country project funded by the United Nations Global Environment Facility (GEF) for the six years duration from 2004-2009. In Sri Lanka it was implemented by the Department of Agriculture in collaboration with the Ministry of Environment and Natural Resources. The major objectives of the project were to establish a national information management system for conservation of CWR, capacity building of stakeholders for CWR conservation, initiate CWR conservation actions, and increasing public awareness on CWR to assist CWR conservation.

The project has implemented various activities to meet its objectives in collaboration with many institutions. The activities conducted by the project to achieve its objective of increasing public awareness on CWR were distribution of booklets (5,000 copies), educational posters (5,000 numbers) and leaflets (10,000 numbers), seminars for related officials, establishment of demonstration sites at the Agro Technology Parks (Gannoruwa, and Bataatha) and National Botanical Gardens (Peradeniya and Haggala), broadcasting of TV programmes (2) and launching of a web site on CWR.

This study was conducted with the objective of evaluating the impact of the public awareness programmes conducted by the CWR project and to compare the changes that has taken place *viz a viz* the baseline conditions. The specific objectives of the study were a) assessment of awareness of stakeholders about and use of the CWR b) awareness of CWR targeted conservation activities and policies, and c) contribution made by the project 'In situ conservation of CWR through information management and field application' to improve the level of awareness on CWR of the different stakeholder categories (SC).

MATERIALS AND METHODS

This study was based on a field survey using a sample of respondents selected by stratified random sampling method. The sample selection procedure and the sample sizes under each level were similar to the baseline study (Wijesekera *et al.*, 2006) and it enables comparisons with the baseline information wherever appropriate. Stratification was done initially at three levels; the first level was the main target groups of the public awareness programmes (seven categories) who were the stakeholders having some association with CWR; the second level was the stakeholder sub groups (133) which consist of groups having similar professional characteristics; the third level was the respondents of each stakeholder sub groups who were selected randomly (Table 1). The total sample size was 1733 and the sample was distributed among all districts, except districts in Northern and Eastern provinces. The survey was conducted during the period of October 2009 to January 2010 using a pretested questionnaire, which contained a common and stakeholder specific section.

The indicators used to capture the impact of the public awareness programmes of CWR project and brief description of its sub components and the way of their measurement is presented in table 2.

Table 1. Major stakeholder categories, sub groups and number of respondents

	<i>Major stakeholder categories</i>	<i>No. of sub groups in each category</i>	<i>No. of respondents in each category</i>
1	Primary Education	2	473
2	Extension Workers	38	505
3	Policy Makers	44	180
4	Research Scientists	5	81
5	Protected Area Managers	14	31
6	Higher Education	3	100
7	Community	27	363
	Total	133	1733

The analysis was based on four scores; i). Score for general awareness (SGA), ii). Score for awareness of uses (SAU), iii). Joint score (JS) and iv). Composite score for project awareness (CSPA). The first three scores are similar to those of the baseline survey (Wijesekera *et al.*, 2006). The CSPA was developed to assess the level of awareness of the project among the stakeholder category (SC).

The SGA was developed to capture the general awareness on CWR using four indicators; general awareness, depth of knowledge, awareness on the importance and regional prevalence of CWR. Respondents were given 10 marks for each positive answer (aware) and zero marks for a negative answer (not aware or not sure) for above four indicators, except for depth of knowledge, which was given equal marks for their ratings (1 mark for rating 1, 2 marks for rating 2 and maximum 5 marks for rating 5). Accordingly, the SGA for each respondent took the values between 0-35. The SGA for each SC was obtained by averaging each respondent's score.

The SAU was developed to capture the awareness of uses, other crops associated with, conservation systems and the conservation programmes of CWR. The six indicators used for the estimation of SAU were awareness of CWR as a food crop, new crop varieties, traditional crop varieties, verge of extinct, the conservation programmes and concept of in-situ and ex-situ conservation methods. Each positive response was given 1 mark and otherwise zero. Thus, the score of each respondent got value between 0 to 6. The individual's score average depicted the SAU for each SC.

Table 2. The major and sub indicators used to capture impact of the project and its brief description

<i>Major indicators</i>	<i>Sub components</i>	<i>Description on measurement</i>
1. General awareness on CWR	a. General awareness b. Depth of knowledge c. Awareness on importance d. Regional prevalence	Awareness about CWR varieties (Aware, Unaware, Not sure) Depth of awareness level (a scale between 0 -5 (0 minimum and 5 maximum)) Awareness on importance of CWR (Aware, Unaware, Not sure) Awareness on the prevalence of CWR in their own regions (Aware, Unaware, Not sure)
2. Use of CWR in stakeholders' regular activities	The indicators are specific to each category	Policy makers - Awareness on national level policies & future policy perspectives on CWR Extension workers - Whether the work related with CWR, awareness on CWR related extension programmes, awareness on national policies on CWR Research scientists – Use of CWR in regular research, type of CWR used and degree of usage Community - Uses of CWR, easiness to find, changes of abundance with time and reasons for change Primary and higher education categories – whether the curricular indicate CWR related subjects Protected area managers - Awareness on prevalence of CWR on their protected areas, there type of conservation, awareness of availability of management plan and its implementation status
3. Association of general crop varieties and CWR	a. Awareness on new crop varieties b. Awareness on food crop related CWR	Awareness on existence of newly improved varieties (Aware, Unaware, Not sure) Awareness on existence of food crop related CWR varieties (Aware, Unaware, Not sure)
4. Awareness on conservation of CWR	a. Awareness of CWR being extinct b. Awareness of importance of conserving CWR c. Awareness on conservation programmes d. Awareness on conservation methods	Awareness on CWR being extinct (Aware, Unaware, Not sure) Awareness on importance of conserving CWR (Aware, Unaware, Not sure) Awareness on conservation programmes of CWR (Aware, Unaware, Not sure) Awareness on conservation methods in-situ conservation and ex-situ conservation (Aware, Unaware, Not sure)
5. Awareness of the specific project	a. Awareness on CWR project b. Participating to the workshops c. Visiting to the demonstration sites d. Seeing the sign boards e. Read the reading materials	Awareness on CWR project (Aware, Unaware, Not sure) Participation in the workshops organized by the project (Yes, No, Not sure) Visit to the demonstration sites maintained by the project (Yes, No, Not sure) Seen the sign boards maintained by the project (Yes, No, Not sure) Read the reading materials published by the project (Yes, No, Not sure)

The JS was used as an overall indicator of the level of awareness, the uses and conservation practices of CWR. This score for each individual was computed taking the weighted average of the SGA and SAU and its individuals score average depicted the JS for each SC (1).

$$JS = \left(\frac{SGA}{35} * 50 \right) + \left(\frac{SAU}{6} * 50 \right) \dots\dots\dots(1)$$

The CSPA was developed to capture and compare each SC on their level of awareness of the CWR project and its activities. The identified major five indicators for the development of CSPA were the awareness of the CWR project, participation for the workshops organized, visiting the demonstrations sites, access to the information materials such as sign boards of the project and reading materials distributed by the project. Each positive answer got one mark and otherwise zero. Therefore, the CSPA value of the individual varied between 0 to 5 and individual average score depicts the CSPA for each SC. The impact made by the CWR project for each SC was captured using simple regression analysis CSPA being the independent and JS being the dependent variable. The intercept explained the awareness on absence of the project and the slope expresses the influence made by the project.

RESULTS AND DISCUSSION

General awareness on CWR

The general knowledge on CWR was captured using general awareness, depth of knowledge, awareness on the importance and regional prevalence. The highest general awareness level was reported from research scientists and the lowest from the primary education category (Table 3). An improvement of general awareness was observed in all the categories, except policymakers and higher education categories. The project has undertaken several activities for the policy makers but the impact seems to be low due to higher mobility of trained officers. The concepts of CWR have introduced to university curricular but these subjects are offered at much specialized level such as final year of education or postgraduate level than at general level. Further, similar to policy makers, higher education category also has higher mobility than other SCs. This situation demands continues effort of awareness creation especially for above two stakeholder groups. The results of other indicators which are discussed below, also agree with this recommendation. The highest positive change in awareness among all the SCs was obtained by the primary education category.

Table 3. General awareness on CWR and its' change over baseline

<i>Stakeholder category</i>	<i>Base line</i>		<i>Evaluation</i>		<i>Total sample (No.)</i>	<i>% change in aware category</i>
	<i>Aware (%)</i>	<i>Aware (%)</i>	<i>Unaware (%)</i>	<i>Not sure (%)</i>		
1 Primary Education	41	53	26	21	473	29
2 Extension Workers	77	85	6	9	505	10
3 Policymakers	69	67	24	8	180	-3
4 Research Scientists	100	100	0	0	81	0
5 Protected Area Managers	86	97	0	3	31	13
6 Higher Education	92	84	8	8	100	-9
7 Community	61	75	16	10	363	23
Overall total	64	73	15	11	1733	14

The results of the depth of awareness of SC on CWR indicated that the research scientists have in-depth knowledge on CWR. More than 50 percent of the primary education, higher education and policymakers categories have indicated poor level of awareness (rated 1 or below). As witnessed in the baseline survey, policymakers still possess lower level of knowledge on CWR (Table 4).

Table 4. Depth of awareness on CWR

<i>Stakeholder category</i>	<i>Rating (%)</i>					
	<i>0</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
1 Primary Education	30	35	21	12	2	0
2 Extension Workers	11	31	31	21	4	1
3 Policymakers	22	38	22	16	1	1
4 Research Scientists	1	23	25	31	10	10
5 Protected Area Managers	0	23	29	32	13	3
6 Higher Education	6	45	24	21	4	0
7 Community	18	26	27	21	7	1
Grand sample	18	32	26	19	4	1

The analysis shows 57% of the respondents were aware of the importance of CWR and 22% was unaware (Table 5). Confirming the general condition the proportion of awareness was highest with the research scientists and it is low in primary education category. The baseline situation has improved in all the categories except policymakers and higher education categories.

The awareness on regional prevalence of CWR was tested in all SCs except primary education. About 60 percent respondents are aware of regional prevalence. This aspect has improved in all the SC and the highest level of awareness change has occurred in extension workers (72%) (Table 6). The lowest level of awareness was reported by policy maker category and the reason for this situation would be due to the same reason mentioned above.

Table 5. Awareness of the importance of CWR

Stakeholder category	Base line	Evaluation			Total sample (No.)	% change in aware category
	Aware (%)	Aware (%)	Un aware (%)	Not sure (%)		
1 Primary Education	28	31	34	35	473	11
2 Extension Workers	58	70	11	19	505	21
3 Policymakers	54	52	34	14	180	-4
4 Research Scientists	90	94	1	5	81	4
5 Protected Area Managers	68	90	3	6	31	32
6 Higher Education	72	65	20	15	72	-10
7 Community	52	63	23	14	363	21
Grand sample	50	57	22	21	1733	14

Table 6. Awareness on regional prevalence of CWR and its change over baseline

Stakeholder category	Base line	Evaluation			Total sample (No.)	% change in aware category
	Aware (%)	Aware (%)	Unaware (%)	Not sure (%)		
2 Extension Workers	36	62	11	27	505	72
3 Policymakers	31	33	26	41	180	6
4 Research Scientists	62	75	11	14	81	21
5 Protected Area Managers	51	71	10	19	31	39
6 Higher Education		38	35	28	100	
7 Community	43	68	13	19	363	58
Grand sample	42	59	15	26	1260	41

Use of CWR in stakeholders' regular activities

The results of the assessment of policy maker awareness on the national biodiversity and CWR related policies revealed that 17 percent of the policy makers were aware whereas 32 percent were unaware. Further about 18 percent of the familiar group were aware on future policy perspectives on agricultural biodiversity and CWR. Although, it shows an improvement from the baseline situation (by 100 percent) it still remains at very unsatisfactory level.

The results of the analysis of extension worker category indicate that nearly 50 percent were involved with CWR and only 13 percent of them were aware on CWR related policies. Further the majority of positive responses were from agricultural extension workers of Département of Agriculture and Département of Agrarian Services. The above results indicate some

improvement of the baseline situation but the awareness on the availability of extension programmes on CWR is poor (only 5 percent were positive).

The findings of the research scientists category were, CWR were featured in their work for 47 percent of the sample and only 5 percent of them are involved with CWR related research activities. The majority (67%) has indicated minor use of CWR and the usage is in high priority in their research activities for 5 percent of the sample. The major use of CWR was for plant breeding related to rice, pepper, vigna, cinnamon, cassava, capsicum, cardamom and mung bean. However, when compared with the baseline, no major changes have taken place.

The results of the community category indicate that about 60 percent of respondents use CWR and the major uses are food and medicinal purposes. It was an improvement of the baseline condition and the changes may be attributed to awareness programmes on CWR. According to the ranks given for the easiness to find, CWR plants are at average level of vicinity or no difficulties to find. The majority (57%) believes that the availability of CWR is decreasing whereas for 11 percent it is not available at all, for 9 percent availability was not changed and for 7 percent the availability is increasing (Figure 1). According to the community viewpoint the major reasons for the reduction of CWR availability were the environmental changes (32%) and deforestation (22%) and increasing availability and prevailing without change was due to the declaration of protected areas by the government.

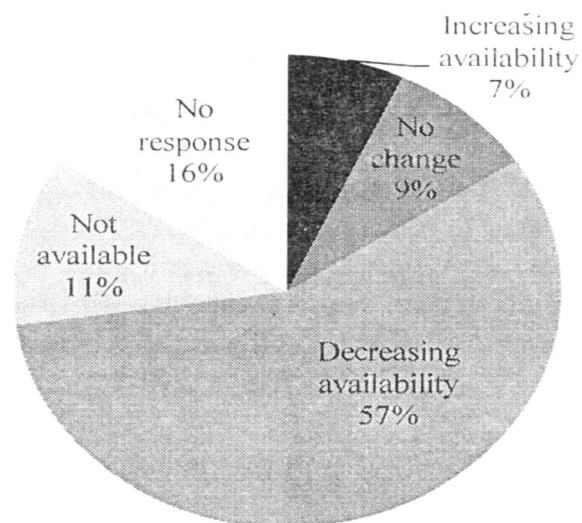


Figure 1. Community: Change in availability of CWR (%)

The responses of both primary and higher education groups indicate that conservation of biodiversity, agricultural biodiversity, plant conservation and CWR conservation are in their curricula giving high priority to biodiversity conservation. University students had more emphasis on CWR conservation than primary education.

The CWR project has conducted special programmes on capacity building for Protected Area Managers (PAM) expecting an improvement of knowledge on CWR. This evaluation found that about 58% of PAM knew about prevalence of CWR in the protected areas and it is a 40% improvement from baseline situation. Most of the PAM were able to list CWR plants correctly and 29% of them were able to mention on their conservation status indicating positive impact of the project. In response to the questions related to the presence of management plan for the protected areas, 58% has positively responded and from them 33% confirmed it was fully implemented. The overall analysis indicates that PAM knowledge on CWR has improved compared to the baseline but further capacity building is warranted.

Association of general crop varieties and CWR

The awareness on the new crop varieties and the food crop related CWR were evaluated. The results found that the baseline situation on awareness of new crop varieties has improved by 38% and the best achievers were research scientists (89%) while extension workers, PAM and university students' awareness were also above 70%. The lowest awareness was with the community category yet it has improved by 34% (Table 7).

Table 7. The awareness (%) on the new crop varieties

Stakeholder category	Base line	Evaluation			Total sample (No.)	% change in awareness
	Aware (%)	Aware (%)	Unaware (%)	Not sure (%)		
1 Primary Education	35	58	18	24	473	66
2 Extension Workers	70	73	15	11	505	4
3 Policy Makers	37	59	23	18	180	59
4 Research Scientists	83	89	4	7	81	7
5 Protected Area Managers	51	77	10	13	31	51
6 Higher Education		79	8	13	100	
7 Community	41	55	29	15	363	34
Grand sample	47	65	19	16	1733	38

Food crop related CWR are less popular among the SCs when compared with new improved varieties as only 42% of the respondents were aware and 30% were unaware (Table 8).

Table 8. The awareness (%) on the food crop related CWR varieties

<i>Stakeholder category</i>	<i>Base line Aware (%)</i>	<i>Evaluation</i>			<i>Total sample (No.)</i>	<i>% change in awareness</i>
		<i>Aware (%)</i>	<i>Un aware (%)</i>	<i>Not sure (%)</i>		
1 Primary Education	26	28	38	34	473	8
2 Extension Workers	70	52	17	32	505	-26
3 Policy Makers	59	32	61	7	180	-46
4 Research Scientists	48	57	21	22	81	18
5 Protected Area managers	70	57	13	30	31	-19
6 Higher Education		26	50	24	100	
7 Community	41	51	26	23	363	24
Grand sample	45	42	30	28	1733	-7

The baseline condition improved in community (24%), research scientists (18%) and primary education category (8%) and it has reduced in policy makers (-46%), extension workers (-26%), and the PAM (-19%) who are directly involved in the planning, conservation and dissemination activities. The highest proportion of awareness was with the research scientists and the PAM (Table 8).

Awareness on Conservation of CWR

The awareness on the conservation activities were captured by using four indicators such as awareness on; CWR been extinct, importance of conserving CWR, the conservation programmes of CWR and conservation methods. The analysis showed that 73% of the sample was aware on CWR being extinct and the baseline situation has been improved in all SCs except for policy makers (Table 9).

Table 9. Awareness on CWR been Extinct

<i>Stakeholder category</i>	<i>Base line Aware (%)</i>	<i>Evaluation</i>			<i>Total sample (No.)</i>	<i>% change in awareness</i>
		<i>Aware (%)</i>	<i>Un aware (%)</i>	<i>Not sure (%)</i>		
1 Primary Education	26	75	13	12	473	188
2 Extension Workers	78	81	5	13	505	4
3 Policy Makers	78	61	15	24	171	-22
4 Research Scientists	71	83	2	15	81	17
5 Protected Area Managers	84	87	6	6	31	4
6 Higher Education		59	15	26	100	
7 Community	53	64	17	19	363	21
Grand sample	54	73	11	16	1733	34

The reasons given by each category for the need of conserving CWR differed though the common reason for all the categories was the use of CWR for generating good quality varieties. In addition their food value, high resistance for pest and diseases, rich in biodiversity, environmentally friendliness and sustainability, endangered plants, daily uses, future needs, nutrient contents, medicinal values, research purposes, genetic diversity and for breeding purpose were the other importance identified by all SCs.

The awareness about the conservation programmes was poor in the sample yet the baseline condition has improved in all the SCs except extension workers and the community. The research scientists and PAM has the highest awareness (Table 10). The conservation programmes popularly mentioned were the programmes conducted by the Department of Agriculture, Ministry of Environment, Department of Wild Life Conservation and Central Environmental Authority. The dissemination of information through mass media could be a major reason for the popularity of programmes conducted by the above agencies

Table 10. Awareness of the conservation programmes of CWR

Stakeholder category	Base line Aware (%)	Evaluation					Total sample (No.)	% change in awareness
		Aware (%)	Un aware (%)	Not sure (%)	No response (%)			
1 Primary Education Extension	17	30	48	22	0	473	76	
2 Workers	37	27	48	17	8	505	-27	
3 Policy Makers Research	21	33	43	23	1	180	59	
4 Scientists Protected Area	57	65	19	16	0	81	15	
5 Managers	32	65	23	13	0	31	103	
6 Higher Education		18	52	30	0	100		
7 Community	26	21	64	15	0	363	-19	
Grand total	27	29	49	19	2	1733	8	

The concept of in-situ and ex-situ conservation practices was known to 41 % of the sample. Highest improvement was achieved by the primary education category and the highest awareness was with the PAM (84%) (Table 11).

Awareness of the specific project on in-situ conservation of CWR

The findings of the awareness on the project in-situ conservation of CWR were that the project is popular among PAM and research scientists and

least known to the higher education, community and the policy maker categories. From the grand sample, 25% were aware of the project while 59% were unaware and 9 percent were not sure (Table 12).

Table 11. Awareness (%) on the in-situ and ex-situ conservation

Stakeholder category	Base line Aware (%)	Evaluation				Total Sample (No.)	% change in awareness
		Aware (%)	Un aware (%)	Not sure (%)	No respons e (%)		
1 Primary Education Extension	1	55	30	14	0	473	5400
2 Workers	37	35	35	17	13	505	-5
3 Policy Makers Research	21	24	47	28	0	180	14
4 Scientists Protected Area	64	78	5	17	0	81	22
5 Managers	65	84	6	10	0	31	29
6 Higher Education		74	14	12	0	72	
7 Community	17	19	70	12	0	363	12
Grand total	20	41	39	16	4	1733	106

Table 12. Awareness (%) of the CWR project

Stakeholder Category	-Aware (%)	Unaware (%)	Not sure (%)	No Response (%)	Total Sample (No.)
1 Primary Education	22	61	12	6	473
2 Extension Workers	30	53	9	7	505
3 Policy Makers	19	62	8	11	180
4 Research Scientists	62	31	7	0	81
5 Protected Area managers	68	16	16	0	31
6 Higher Education	12	79	9	0	100
7 Community	17	66	6	11	363
Grand total	25	59	9	7	1733

The analysis revealed that the most efficient tool for awareness creation was reading materials (38%) followed by the demonstration sites (31%), which was highly effective for the community. Agro Technology Park Gannoruwa is the most popular site among the all the SCs. Participation of Research scientists and PAM in the workshops was high (Figure 2 and Figure 3).

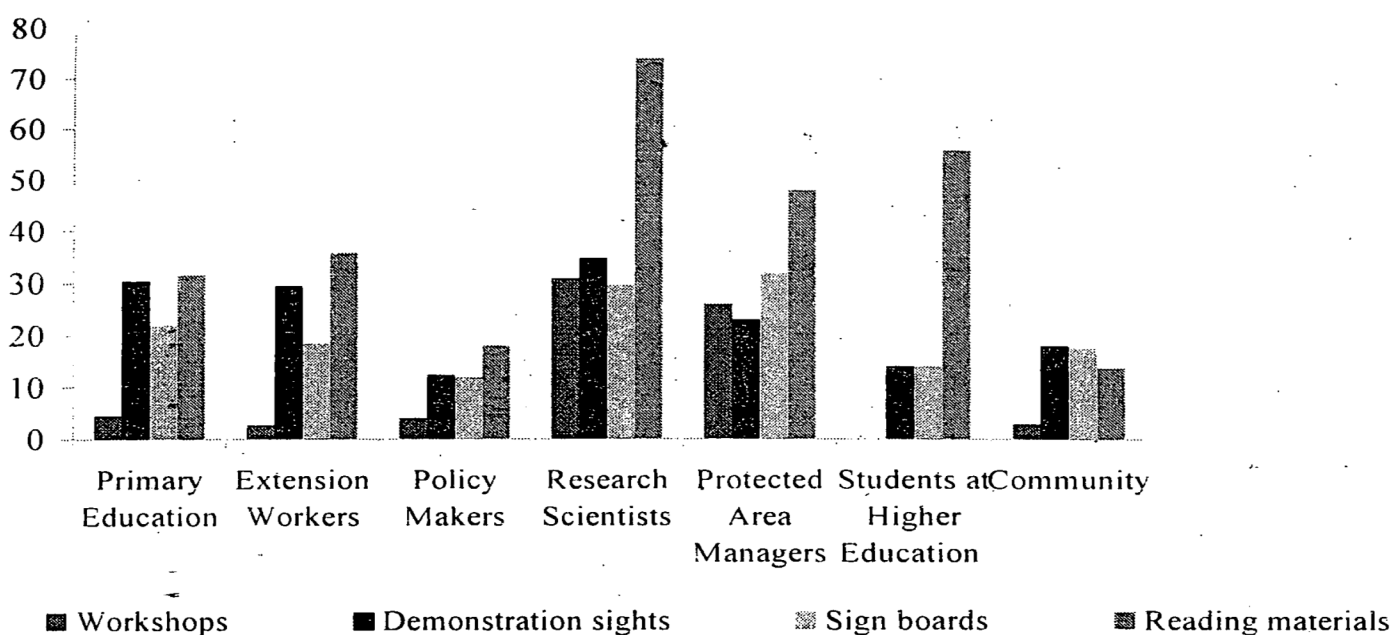


Figure 2. Level of use (%) of different information dissemination tools by the SC

The score comparison of before vs after

The score comparison indicates that the baseline situation for all SC has significantly improved except higher education category, which shows no significant changes. The change in improvement was high in primary education, extension workers, community and PAM categories (Tables 13, 14 and 15). As the knowledge on CWR is already high among the research scientists, the probability of obtaining higher change in improvement is low. However, they have obtained a significant improvement (6%) compared to the baseline condition. Although the potential for improvement of knowledge is high among the policy maker and higher education categories, higher mobility and inadequate attention on awareness programmes of CWR may have contributed to low level of awareness in these groups.

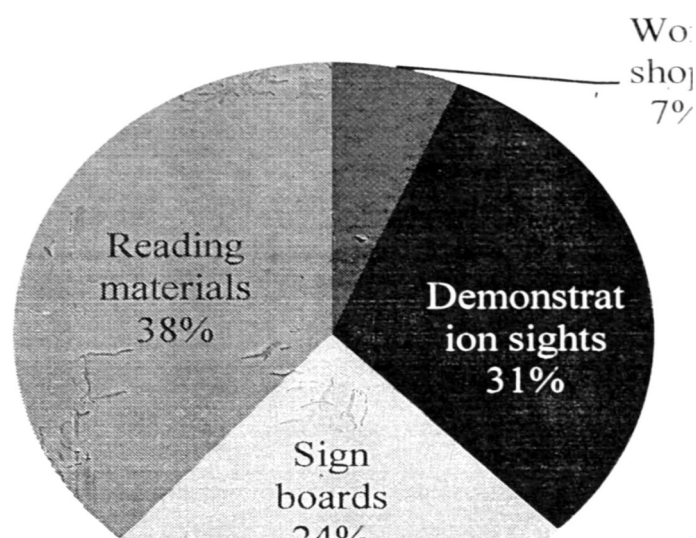


Figure 3: Level of use (%) of different information dissemination tools

Table 13. Score for general awareness (SGA) of stakeholders

Category	Scores		% change in scores compare to the baseline	P value
	Evaluation	Baseline		
1 Primary Education	38.71	34.00	14*	0.001
2 Extension Workers	67.24	54.00	25*	0.000
3 Policy Makers	47.60	48.00	-1	0.909
4 Research Scientists	84.16	78.00	8	0.086
5 Protected Area Managers	80.74	65.00	24*	0.002
6 Higher Education	58.34	72.00	-19	0.342
7 Community	63.70	51.00	25*	0.000

Note : * the change is significant at 0.05 probability level

Table 14. Score for awareness of uses (SAU) of CWR for stakeholders

Category	Scores		% change in scores compare to the baseline	P value
	Evaluation	Baseline		
1 Primary Education	51.02	25.00	104*	0.000
2 Extension Workers	57.69	51.00	13*	0.000
3 Policy Makers	45.00	40.00	13*	0.000
4 Research Scientists	76.34	66.00	16*	0.038
5 Protected Area Managers	73.12	47.00	56*	0.050
6 Higher Education	57.83			
7 Community	44.67	32.00	40*	0.000

Note : * the change is significant at 0.05 probability level

Table 15. Joint score (JS) for stakeholders

Category	Scores		% change in scores compare to the baseline	P value
	Evaluation	Baseline		
1 Primary Education	44.87	33.00	36*	0.000
2 Extension Workers	62.47	49.00	27*	0.000
3 Policy Makers	46.30	46.00	1*	0.017
4 Research Scientists	80.25	76.00	6*	0.021
5 Protected Area Managers	76.93	61.00	26*	0.003
6 Higher Education	58.09	72.00	-19	0.130
7 Community	54.19	48.00	13*	0.000

Note : * the change is significant at 0.05 probability level

The CSPA captured the level of awareness of each SC on the CWR project. All the categories obtained score below 50 indicating low level of awareness on the project and related activities. The CWR project was highly known to the research scientists and new to the policy makers, students at higher education and community categories (Figure 4).

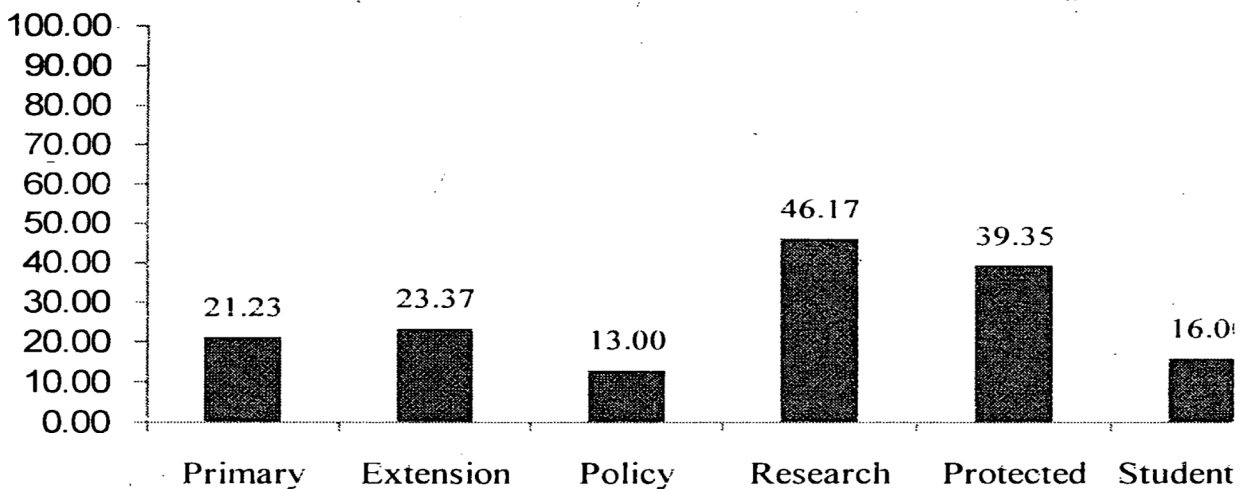


Figure 4: Composite score for project awareness

The impact of the project activities on awareness

According to the probability value obtained from the ANOVA tables, all the 7 equations were statistically significant at 0.05 probability level (Table 16). The low adjusted R^2 values are due to the other contributors of awareness creation on the CWR related matters in addition to the CWR project. All the intercept values and the slopes obtained were statistically significant at 0.05 probability level.

Table 16. The results of the regression analysis for overall awareness

	<i>Categories</i>	<i>Intercept</i>	<i>P value</i>	<i>slope</i>	<i>P value</i>	<i>R-sq(adj) %</i>	<i>ANOVA P value</i>
1	Primary Education	35.40	0.000	8.90	0.000	17.30	0.000
2	Extension Workers	54.80	0.000	6.56	0.000	11.50	0.000
3	Policy Makers	40.40	0.000	8.96	0.000	11.80	0.000
4	Research Scientists	69.60	0.000	4.60	0.003	9.50	0.003
5	Protected Area Managers	69.55	0.000	3.82	0.041	10.70	0.041
6	Higher Education	49.27	0.000	10.93	0.000	19.60	0.000
7	Community	49.29	0.000	7.05	0.000	8.90	0.000

The significant intercepts indicate the awareness on CWR without influencing from the project and as expected it was highest among the research scientists and the PAM. The significant slopes indicate the influence made by the project and it is high among the students at higher education, primary education, policy makers, and community. Although policy makers, students of higher education and community have marked with lower ranks for CSPA, the results of this analysis clearly indicate that these groups have immensely benefited from the project activities. At the same time it indicates that there is a high potential for further improvement in their knowledge on CWR.

CONCLUSIONS

This research found that overall awareness on CWR has significantly improved in all SCs, except higher education category and CWR project has significantly contributed to improve the awareness. Yet still the level of awareness is low among the primary education and policy maker categories. The low level of awareness of policy makers stems from various other reasons such as differences in educational background, job related activities, etc. Universities have incorporated the subject into curricula but it is usually offered at higher and specialized levels of education. Further, these two categories show higher mobility compared to the other SCs. Thus continuous capacity building programmes are needed especially for above-mentioned two categories as they are very important group for planning CWR related issues at present as well as future. Thus special emphasis requires for the continuous improvement of awareness on CWR among all SCs particularly among the policy makers and students in higher education systems.

ACKNOWLEDGEMENTS

This survey was conducted with the financial assistance from 'In-situ Conservation of Crop Wild Relatives through Information Management and Field Application Project' implemented in Sri Lanka by the Department of Agriculture funded by UNEP/GEF. The authors wish to thank the survey team

of Socio Economics and Planning Center for their help of conducting the survey.

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