

**Community Profiling and
Knowledge, Attitude, Perception, and Skills
(KAPS) Study
for Forest Restoration Efforts
within Panigan-Tamugan Watershed**

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Allan V. Villanueva
Researcher

Commissioned by:



I. Introduction

This community profiling and knowledge, attitude, perception, and skills (KAPS) study was commissioned by the Interface Development Interventions, Inc. (IDIS) as part of its project entitled “*Sustaining Forest Restoration Efforts within Panigan-Tamugan Watershed through Establishment of Riparian Forest Corridor in Baguio District, Davao City,*” supported by the Foundation for the Philippine Environment (FPE).

II. Methodology

This qualitative study employed a review of secondary data available in five (5) barangays (i.e., Gumalang, Tambobong, Tamugan, Tawan-Tawan, and Wines), such as their Barangay Master Development Plan, maps, other barangay records.

The barangays covered in this study are part of the watersheds of Davao City and have recently been delineated by the Davao City Watershed Management Council.

Focus group discussions (FGDs) were conducted in each barangay with the following invited as FGD participants: Barangay Captain; Barangay Committee on Environment; Barangay Committee on Agriculture; Barangay Watershed Management Council (BWMC); purok leaders from riverbank areas; women sector, youth sector, farmers’ representatives; teachers; and, *Gagmayng Kristohanong Katilingban* (GKK) participants. Interviews were also conducted with local key informants to supplement the FGDs.

Gathered data were collated and arranged using tables for analysis.

The research was conducted from May to June 2014.

III. Brief Community Profile

Tables 1 to 4 show the socio-economic, purok, organizational, and geographic/geological profiles of the five (5) barangays.

Barangay population ranges from 3,136 to 8,393, with Wines and Tamugan being the smallest and biggest in terms of population and household (HH) number, respectively.

Farming is the most dominant form of livelihood in the said barangays, with average monthly HH income ranging from P3,000 to P6,000.00.

Both Wines and Tambobong have at least (40%) ethnic population.

Educational attainment is mostly high school and elementary level.

Gumalang, Tamugan, and Wines have at least 50% Roman Catholic population.

Tamugan has the most number of puroks (7) located along the river. In terms of number of occupants residing near riverbank areas, Tamugan has the most number (1,246), while Wines, the least (326).

Barangay Tawan-Tawan has the most number of puroks (5) identified as disaster-prone.

All barangays have past experiences in implementing reforestation project/s with assistance of external organization/s and/or involvement of various agencies and individuals.

The table below shows the profile of each barangay in terms of land area, number of puroks, number of puroks with riverbanks, and disaster-prone puroks.

Barangay	Land Area (hectares)	# of Puroks	# of Puroks w/ Riverbanks	# of Disaster-Prone Puroks
Tambobong	7,100	34	6 (17.6%)	3 (8.8%)
Tamugan	8,781	19	7 (36.8%)	3 (15.8%)
Gumalang	1,100	13	4 (30.8%)	2 (15.4%)
Wines	1,026	15	2 (13.3%)	2 (13.3%)
Tawantawan	3,450	20	11 ((55.0%)	5 (20.0%)

A. Community Knowledge

FGD participants in the five (5) identified barangays have at least moderate level of knowledge on reforestation, partly because of the landslides and floods they have experienced and also because of past reforestation activities implemented in their respective barangays (Table 5).

In general, they agreed that there is a need: (1) to conduct information, communication, and education (IEC) campaigns, particularly for land occupants and owners residing near riverbank areas; and (2) to deepen community knowledge on watershed protection.

Project objectives need to be tied up with disasters experienced by the community (e.g., floods, landslides) to increase community appreciation of the proposed project.

Because most of its puroks are located in low-lying areas, FGD participants in Tamugan were emphatic on the need to dredge and de-silt the river. Past-tree planting activities were conducted in the barangay by various agencies (e.g., DCWD) but most

of the seedlings planted were just washed out by floods (at least 50%). Aside from the urgent need to conduct dredging and de-silting, the FGD participants highlighted the need to focus the tree-planting activities upstream. Moreover, they are open to the idea of utilizing bio-engineering (e.g., use of coco net) to prevent landslides in their barangay.

B. Community Attitude

On the whole, the FGD participants in the identified barangays have a positive attitude and are receptive to the idea of implementing a reforestation project. To ensure the project's successful implementation, they underscored the need to closely involve the land owners and occupants residing along the riverbanks (Table 6). Corollary to this, community mapping of local stakeholders needs to be conducted so that they can be effectively targeted in various IEC activities. Forging formal partnership with local stakeholders is a must.

“Daily survival” attitude and mentality (e.g., charcoal-making as livelihood, which is common in most barangays) of a number of local residents should be addressed as well.

C. Community Perception

Unity, volunteerism, conduct of IECs, fostering unity, understanding, and coordination, and leadership of the BLGU are the identified important factors for the project's successful implementation (Table 7).

In Tamugan, due to the past experience of local residents of being paid by the DCWD a “monitoring fee” of P2.00 per seedling, the FGD participants inquired about monetary incentives for local residents who will participate in the project. Consequently, the IEC should consider rectifying this perception (i.e., money-based incentive; paid services). Future harvests from fruit trees and other agro-forestry crops, such as cacao and coffee, can be highlighted as incentive for participants. Other environmental benefits, such as flood mitigation, erosion control, and carbon sequestration, can also be emphasized.

In Tawan-Tawan, conducting IECs on the Watershed Code, particularly for land owners and occupants residing along the riverbanks, was identified as a project need. Aside from taking into account Hedcor's proposed project in the barangay, the reforestation project also needs to be closely coordinated with the Barangay Local Government Unit (BLGU) for proper monitoring and records management purposes.

Overall, IEC campaigns should be properly framed to channel community perception towards environmental conservation and protection and to gain more community champions. It would benefit the project if volunteerism is emphasized, not paid services.

Gumalang, Tambobong, and Wines have expressed interest to enrol in the National Greening Program (NGP) of the Department of Environment and Natural Resources (DENR), with the coordination assistance of IDIS (Table 9). Tamugan already has several NGP projects and did not explicitly signify its interest to expand its NGP initiative.

In general, the FGD participants are open to the idea of getting the support of other stakeholders (e.g., private sector, schools) in carrying out the reforestation project.

D. Community Skills

All the five (5) barangays already have past experiences in implementing reforestation projects along riverbanks. Nonetheless, these experiences were mostly limited to nursery establishment and actual planting of the seedlings. After planting, those involved have not conducted any follow-through activities as these were mainly one-shot. At times, species planted involved fast growing-exotic species, like Mahogany and Rubber.

The five (5) identified barangays can build on their past experiences in implementing reforestation projects and activities. Tawan-Tawan has relatively the most extensive experience in implementing reforestation projects and activities, and can build on this in carrying out the riparian project.

At a minimum, expressed needs in the said barangays are planting of fruit-bearing trees and livestock-raising as potential sources of additional income for local residents. Other potential livelihood activities are identified in Table 8. As much as possible, livelihood should be considered only as an ancillary component of the project; its thrust should be anchored on environmental conservation and protection.

In addition, the BLGUs need assistance in networking with potential partners to address their need for community-based livelihood projects, particularly for residents living along the riverbanks. Tambobong specifically needs assistance in networking with potential funders to address its need for a tramline.

Community planning and resource mobilization for sustainability are skill sets needed by local leaders.

IV. Conclusion and Recommendations

The level of community knowledge on reforestation in the five (5) barangays is at least moderate, owing to the barangays' past involvements in tree-planting projects and activities, and partly because of floods and landslides they have experienced in the recent past.

On the other hand, the level of community attitude and perception needs to be improved and geared towards environmental conservation and protection. Volunteerism, rather than paid services, should be emphasized.

Although the five (5) identified barangays have at least moderate level of skills in terms of reforestation because of their past experiences in implementing the same, capacity-building interventions (e.g., on strategic and operational planning, resource mobilization, project management, operationalization, and sustainability) need to be conducted in order to ensure that local stakeholders can sustain the initiative beyond the project timeframe. It would likewise benefit the project if livelihood is relegated to just an ancillary project component to avert potential resource allocation issues and conflicts.

The study recommends the following activities:

1. Intensify IEC campaigns, particularly for land owners and occupants residing along riverbank areas, in order to increase community appreciation of watershed protection and project objectives and to foster “ownership”;
2. Conduct holistic values formation activities anchored on volunteerism for the target communities;
3. Capacitate the communities to sustain the initiative beyond the project timeframe;
4. Relegate livelihood to just an ancillary project component to avert potential resource allocation issues and conflicts;
 - 4.1 Package livelihood as a form of “in-kind” assistance for those who actively support and participate in project planning, implementation, and monitoring;
 - 4.2 Come up with clear-cut criteria in allocating livelihood assistance; and,
5. Come up with innovative incentive schemes, such as awards for barangays that have successfully implemented a riparian project and have developed an effective sustainability plan, among others.

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Table 1. SOCIO-ECONOMIC PROFILE

INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
Total population	4,770 as of 2010	5,920 ¹	8,393 as of 2012 ²	3,993	3,136 as of 2013
Total household (HH)	1,121 as of 2010	974	1,706 as of 2012	992	734
Forms of livelihood	<ul style="list-style-type: none"> • Farming • Agricultural labor 	<ul style="list-style-type: none"> • Farming • Agricultural labor 	<ul style="list-style-type: none"> • Farming • Plantation workers 	<ul style="list-style-type: none"> • Farming 	<ul style="list-style-type: none"> • Farming
Average HH income		Below Php 3,000.00	Less than Php 5,000.00	Php 5,000.00 - 6,000.00	Php 3,000.00
Gender (% distribution)		<ul style="list-style-type: none"> • Males - 2,764 • Females - 2,451 	<ul style="list-style-type: none"> • Males - 4,465 • Females - 4,057 		<ul style="list-style-type: none"> • Males - 1,570 • Females - 1,566
Age (% distribution)			<p>Toddlers (0-2)</p> <ul style="list-style-type: none"> • Male - 533 • Female - 519 <p>Pre-schoolers (3-5)</p> <ul style="list-style-type: none"> • Male - 709 • Female - 649 <p>Elementary school (6-12)</p> <ul style="list-style-type: none"> • Male - 960 • Female - 849 <p>High school (13-17)</p> <ul style="list-style-type: none"> • Male - 850 • Female - 756 <p>Working population (18-64)</p> <ul style="list-style-type: none"> • Male - 978 • Female - 777 <p>Senior citizens (65 and</p>	<p>Toddlers (0-2)</p> <ul style="list-style-type: none"> • Male - 105 • Female - 166 <p>Pre-schoolers (3-5)</p> <ul style="list-style-type: none"> • Male - 190 • Female - 209 <p>Elementary school (6-12)</p> <ul style="list-style-type: none"> • Male - 227 • Female - 263 <p>High school (13-17)</p> <ul style="list-style-type: none"> • Male - 123 • Female - 150 <p>Working population (18-64)</p> <ul style="list-style-type: none"> • Male -n/d • Female - n/d <p>Senior citizens (65 and</p>	

¹ An undated secondary data collated by barangay health workers indicated 5,215 total population.

² A secondary data indicated 8,523 total population as of CY 2010.

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INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
			above) <ul style="list-style-type: none"> Male - 408 Female - 405 	above) <ul style="list-style-type: none"> Male - n/d Female - n/d 	
Ethnic composition (% distribution)		<ul style="list-style-type: none"> Bagobo Obo - 50% Bisaya - 30% Clata - 15% Tagabawa - 5% 	<ul style="list-style-type: none"> Cebuano - 1,296 HHs Davaoëño - 119 HHs Tagalog - 13 HHs Bagobo (Guiangan) - 73 HHs Bagobo (Ubo) - 77 HHs Ata - 7 HHs Muslim - 47 HHs Others - 7HHs 		<ul style="list-style-type: none"> Obo Manobo - 40%
Educational background (% distribution)	Mostly high school graduates	<ul style="list-style-type: none"> Elementary - 30% High school - 30% Primary - 20% No education - 15% College level - 5% 	Mostly high school and elementary levels: <ul style="list-style-type: none"> Eight (8) elementary schools and one (1) high school in the area 81 teachers 2,666 pupils 		
Religious composition (% distribution)	Roman Catholic - 50%	<ul style="list-style-type: none"> Alliance (CAMACOP) - 40.61% Pentecostal - 18.05% Iglesia ni Cristo - 15.34% General Baptist - 7.67% Roman Catholic - 7.31% Christian Fellowship Center - 5.5% Apostolic - 2.34% One Way Reach - 2.26% 	About 80-90% Roman Catholic based on key informant interview (KII) Based on secondary data: <ul style="list-style-type: none"> Roman Catholic - 1,131 HHs Baptist - 260 HHs Protestant - 130 HHs Evangelical - 56 HHs SDA - 128 HHs Iglesia ni Cristo - 17 HHs 		Roman Catholic - 50%

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INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
		<ul style="list-style-type: none"> • Seventh Day Adventist - 0.9% • Pilipinista - 0.02% 	<ul style="list-style-type: none"> • Islam - 34 HHs 		

Table 2. PUROKS

INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
Number of puroks	13	34	19	20	15
Name of puroks beside the river	4/13 <ul style="list-style-type: none"> • Purok 9 • Purok 8 • Purok 1 • Purok 7 	6/34 <ul style="list-style-type: none"> • Purok Tuburan • Purok Lingi 	7/19	11/20 <ul style="list-style-type: none"> • Purok Mauswagon • Purok Samahan 	2/15 <ul style="list-style-type: none"> • Purok Pangpang • Purok Spring
Population (occupants) beside the river per purok	Less than 500	263	1,246	235	326
HH number beside the river per purok	100	10		51 HHs in Purok Samahan and Purok Mauswagon	About 71-100 HHs in Purok Pangpang and 10 HHs near the river

Table 3. ORGANIZATIONS

INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
Organizations present in the community ³	<ul style="list-style-type: none"> • Kasilak Foundation 	<ul style="list-style-type: none"> • Kasilak Foundation • DCWD 	<ul style="list-style-type: none"> • DCWD 	<ul style="list-style-type: none"> • IDIS • MTBKA 	The Barangay Watershed Management Council

³ Reportedly, the DCWD has presence in each barangay covered in this study.

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INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
				<ul style="list-style-type: none"> • Kasilak Foundation • DCWD 	<p>(BWMC) was recently formed.</p> <p>Other organizations present are:</p> <ul style="list-style-type: none"> • Wines water association • Small farmers coconut association • CUWASA • Senior Citizen • Kasilak Foundation
<p>Are there other agencies/organizations in your barangay already implementing reforestation? If yes, what are these agencies/organizations? What have they already done? Lessons learned?⁴</p>	<p>Kasilak Foundation</p> <p>Provided seedling for reforestation – along riverbanks, planted trees/shrubs around some plantation boundaries</p>	<p>Agencies/organizations:</p> <ul style="list-style-type: none"> • MISPI • DCWD • SUMIFRU • San Pedro College <p>Tree planting activities have been conducted since 2011 with the assistance of the DCWD and Sumifru.</p> <p>More than 2,000 seedlings were planted, including Narra, Malibago, Mahogany, and Gmelina⁵.</p>	<p>Tree-planting activities were conducted in the past with the support of the DCWD, which provided seedlings (Malibago, Mahogany, etc.), and the participation of the community, including the Tamugan High School.</p> <p>More than 50% of the seedlings planted in Sitios Patag, Acacia, Bala, and Sto. Niño were washed out by floods.</p>	<p>Past tree-planting activities were initiated by:</p> <p>URATEX:</p> <ul style="list-style-type: none"> • Cacaos planted near tramline area <p>NGP:</p> <ul style="list-style-type: none"> • Seedlings planted were Cacao, indigenous coffee • 84.8% survival rate <p>DCWD:</p> <ul style="list-style-type: none"> • Gave the following seedlings for planting: Malibago, Narra, Durian, Mangosteen, and Rubber 	<p>Kasilak Foundation provided seedlings to the community. The DCWD also provided 40 Malibago seedlings.</p> <p>Tree-planting activities were conducted in February and May 2014 with the active participation of barangay leaders and teachers from the Wines Elementary School.</p> <p>More than 2,500 seedlings (mostly Narra and Mahogany) were planted.</p>

⁴ There is a need to gather more information on areas planted, species planted, and actual survival rate.

⁵ It was noted during the FGD that this species should not be planted due to its negative environmental effects.

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INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
				<p>CENRO:</p> <ul style="list-style-type: none"> Gave the following seedlings for planting: Narra, Durian, Lansones, Mahogany, Langka <p>UCARE:</p> <ul style="list-style-type: none"> Indigenous trees were planted 80-90% survival rate <p>HEDCOR:</p> <ul style="list-style-type: none"> Trees planted were Cacao, Durian, and Rubber. <p>WOWOK (climbers):</p> <ul style="list-style-type: none"> No data as it did not coordinate with the BLGU 	<p>About 30% of the seedlings planted died due to the summer season. Hence, there is a need to replace these seedlings (as the barangay still has about 500 Mahogany seedlings in its nursery).</p> <p>Periodic monitoring is also necessary with the assistance of purok leaders.</p>
Area covered (has.)		Areas planted were points 287-289 of the delineation map. ⁶			Puroks Pangpang and Spring

Table 4. GEOGRAPHIC/GEOLOGICAL PROFILE

INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
Length of both sides of the river within the barangay (km.)	(didn't give estimate)	Points 281-289 of the delineation map	About 10 km (?)	(no estimate given)	The length of the river on the side of Wines is about 10 kms. The other side is located in Tamugan.
Size of the barangay	1,100	7,100	8,781 hectares	3,450	1026
Which puroks are	• Purok 8	• Purok Cawayan	• Sitio Acacia	• Sitio Sumpitan	• Purok Pangpang

⁶ Ground validation needs to be conducted to determine the exact names of the areas identified in the aforesaid points.

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INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
disaster-prone?	<ul style="list-style-type: none"> • Purok 9 	<ul style="list-style-type: none"> • Purok Tuburan • Purok Lingi 	<ul style="list-style-type: none"> • Sitio Pangya • Sitio Turyan 	<ul style="list-style-type: none"> • Purok Hanagpon • Purok Mabuhay • Purok Mauswagon • Purok Balite 	<ul style="list-style-type: none"> • Purok Spring
Which puroks are mostly populated?		Purok Camarag	Sitio Lower Patag	Purok Pag-asa	Purok Pangpang

Table 5. COMMUNITY KNOWLEDGE

INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
What is your idea of riverbank/riparian reforestation?	Planting of trees beside the river	Planting of trees beside the river	Planting of trees beside the river	Planting of trees beside the river	Planting of trees beside the river
What do you think are its benefits to the community and to the people in the barangay?	<ul style="list-style-type: none"> • Prevents floods and landslides • Restores coolness of the environment 	To prevent calamities, such as landslides and flash floods	Most sitios are located downstream; hence, they suffer the most during floods. Consequently,	To prevent floods, soil erosion, and landslides	Mainly for environmental conservation and protection and to prevent landslides and floods

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INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
	<ul style="list-style-type: none"> • Environmental protection • Facilitates underground water recharge of aquifers • Natural beauty and view 		<p>tree-planting should be done in upstream areas. It is pointless to plant trees downstream since seedlings planted in the past were mostly washed out by floods.</p> <p>The FGD participants also mentioned presence of huge boulders in the area.</p> <p>The following should be addressed first:</p> <ul style="list-style-type: none"> • Dredging • De-silting • Possible adoption of bio-engineering (use of coco net) to prevent landslides • Tree-planting in upstream sections of the barangay 		
<p>What do you think are its benefits in addressing:</p> <ul style="list-style-type: none"> - Flood control, disaster management, and other calamities - Climate change - Watershed protection - Lack of livelihood opportunities 	<p>Trees can absorb water hence they play a key role in minimizing floods</p> <p>Trees provide shade, contributes to cooling the surrounding</p> <p>Fruit trees provide food</p>	<p>Trees are able to hold the water, preventing landslide.</p> <p>Other benefits:</p> <ul style="list-style-type: none"> • River will not run out of water. • Fresh water and air which contribute to good health (e.g., no sickness) 	<p>Trees are very important in giving fresh air, cooling an area especially during prolong dry season</p>	<p>Helps in addressing climate change and watershed protection (although discussions on these still need to be laymanized and communicated to land owners and occupants), including those residing in Purok Bagong Lipunan</p>	<p>The roots of trees hold the water during heavy rains, preventing landslide and floods, particularly in disaster-prone puroks (i.e., Pangpang and Spring).</p> <p>Other benefits:</p> <ul style="list-style-type: none"> • Prevents air pollution • Helps address climate

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INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
		<ul style="list-style-type: none"> To restore the cool climate experienced before Presence of species (e.g., <i>kalaw</i>, <i>baboy halas</i>, <i>binaw</i>) Presence of trees, like Lawaan Benefits in terms of (fruit) harvests on the part of occupants and land owners <p>FGD participants defined watershed protection as “prohibition of cutting of trees.”</p>			<p>change</p> <ul style="list-style-type: none"> Can help provide livelihood for the community, e.g., planting of bamboos for furniture-making⁷
Crops planted/growing along river banks	<p>Trees abundant before:</p> <ul style="list-style-type: none"> Tubog <p>Fast declining:</p> <ul style="list-style-type: none"> Hanagdong Acacia Ulos <p>Locally Extinct:</p> <ul style="list-style-type: none"> Bamboo Tugas Narra Bitan-ag 	<p>There used to be about ten (10) species of rice planted in the area.</p> <p>Trees abundant before:</p> <ul style="list-style-type: none"> Buyo-Buyo Lansones Marang Santol Mangga <p>Fast declining:</p> <ul style="list-style-type: none"> Lumbang 	<p>Trees abundant in the past were:</p> <ul style="list-style-type: none"> Malibago Bitan-ag Acacia Buyo-Buyo Tubog Bamboo Fruit trees 	<p>Trees abundant in the past were:</p> <ul style="list-style-type: none"> Mahogany Acacia Narra Malibago Tubog 	<p>In the 1960s, the following trees/plants were abundant:</p> <ul style="list-style-type: none"> Kawayan Nagdong Balite Alim Acacia Hanagdong Talisay Buyo-Buyo Amogis Kumpay

⁷ Butong-type bamboos are ideal for furniture, while Laak-type bamboos can be used as poles in banana plantations. Bamboo seedlings can be sourced from Purok Kawayan, Barangay Wines.

Community Profiling & KAPS Study

INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
	<ul style="list-style-type: none"> • Lumbang • Yakal <p>Abundant at present:</p> <ul style="list-style-type: none"> • Buyo-Buyo • Cogon 	<ul style="list-style-type: none"> • Tubog/Basikong • Uway/Rattan • Ulos <p>Locally Extinct:</p> <ul style="list-style-type: none"> • Lawaan • Kamagong 			<ul style="list-style-type: none"> • Cogon <p>Locally Extinct:</p> <ul style="list-style-type: none"> • Apitong • Tugas • Lawaan • Yakal
Occurrences of floods: month, frequency/year; casualties/damages	<p>Floods usually occur in the months of June and December, usually causing damage to property.</p> <p>Best period to plant trees is September onwards.</p>	<p>Before, floods occurred in the months of January, May, June, and December.</p> <p>Floods in the 1980s which destroyed the bridge in the area could not be forgotten by the community. According to an FGD participant, logs (due to logging) damaged the bridge.</p> <p>At present, occurrences of floods are unpredictable. Best time to plant trees is during non-rainy season.</p>	<p>Floods started in the barangay in 2000, with the worst flood occurring in December of that year.</p> <p>Floods usually occur from December to February.</p> <p>Past floods had casualties.</p>	<p>Floods happen in the months of May, June, and December. However, occurrences of floods have become unpredictable recently. Huge flash floods frequently occur lately.</p> <p>April and May are best months to plant trees.</p>	<p>Floods started after companies started logging operations and plantations in the area.</p> <p>Floods usually occurred in the months of December and January. But due to climate change, the occurrences of floods have become unpredictable at present.</p>
ASSESSMENT	<p>Because of landslides and floods experienced in the community, the FGD participants are aware of the need to implement reforestation activities.</p>	<p>FGD participants have high level of awareness in light of floods and landslides experienced in their barangay. There is, however, a need to deepen understanding on watershed protection.</p>	<p>The FGD participants in Tamugan were the most emphatic on the need to dredge and de-silt the river. They highlighted the need to focus the tree-planting activities upstream as most seedlings planted</p>	<p>Considering the various reforestation projects implemented in the barangay, the FGD participants have a high level of knowledge on reforestation. Nonetheless, there is a need to sustain IEC</p>	<p>FGD participants have a fairly moderate level of knowledge.</p> <p>Information drive needs to be focused on the local communities, particularly in Puroks Pangpang and Spring.</p>

Community Profiling & KAPS Study

INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
			in the past were washed out by huge floods. They are also open to the idea of utilizing bio-engineering (e.g., use of coco net) to prevent erosion and landslides.	activities to educate ordinary people in the barangay, particularly those residing beside the river.	There is a need to relate the project objectives to disasters experienced by the community (e.g., floods, landslides) to increase their level of appreciation of the project objectives.

Table 6. COMMUNITY ATTITUDE

INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
Are you open and receptive to the idea of implementing a reforestation project beside the riverbank (20-40 meters in both sides of the river)? Why or why not?	<p>FGD participants are receptive to the idea, but indicated that there is a need to consult the occupants living along the riverbank.</p> <p>Aside from buffer zones, trees can also be planted along roads.</p>	Yes, in order to protect the environment.	<p>There is a need to conduct site/ ocular inspection at the sitio level.</p> <p>Priority puroks are:</p> <ul style="list-style-type: none"> • Bala • Sto. Niño • Lower Patag • Acacia • Tagbao • San Roque • Sabang <p>Some local residents are involved in charcoal-making as a source of their livelihood.</p>	FGD participants suggested to conduct site/ ocular inspection and to consult the local land occupants.	<p>The community is open to the idea of the riparian project because they have already experienced the effects of floods (e.g., the river has enlarged, meandered, and eaten up portions of their A&D areas).</p> <p>The barangay officials welcome the idea to take part in NGP, which requires no less than 50 hectares of land for reforestation. NGP can be jointly implemented with nearby barangays and seedlings can be sourced from community/ barangay nurseries.</p> <p>Residents in Puroks Spring and Pangpang are involved in charcoal-making as a source of livelihood. They also raise livestock (e.g., goats) which might damage the seedlings planted.</p>
ASSESSMENT	FGD participants are receptive to idea of	FGD participants generally have a	Site/ ocular inspection and IEC activities need	Site/ ocular inspection and consultations with	There is a need to have a community mapping

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INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
	<p>implementing a reforestation project in the barangay, but underscored the need to closely involve land owners and occupants near the river.</p>	<p>positive attitude about the proposed project.</p>	<p>to be conducted in identified priority puroks.</p>	<p>land owners and occupants need to be conducted.</p>	<p>of local stakeholders (particularly in Puroks Pangpang and Spring), and to conduct extensive information drive to get their support.</p> <p>“Daily survival” as an attitude and mentality (e.g., charcoal-making) needs to be changed.</p>

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Table 7. COMMUNITY PERCEPTION

INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
Do you think other members of the community are also open to participate in any reforestation of riverbank?	Yes	Yes, but there is a need to conduct IEC with local residents so that they will understand and support the project.	Aside from site/ ocular inspection, the affected sitios need to be consulted.	Need to conduct consultations and IECs to get community support	Extensive information drive is necessary to get community support.
What factors do you think will contribute to successful implementation of the reforestation project in your barangay?	<ul style="list-style-type: none"> • The barangay should spearhead the initiative. • Volunteerism • Unity 	<ul style="list-style-type: none"> • Unity • Coordination • Regular monitoring • Provision of seedlings • Consultation with locals, particularly in Purok Tuburan 	<p>There is a need to provide incentive to people taking care of the seedlings planted. In the past, the DCWD gave P2/seedling.</p> <p>Harvests from (fruit) trees planted can be highlighted as a form of future incentive during IECs.</p>	<ul style="list-style-type: none"> • Coordination • Regular monitoring and participation of all 	There is a need to focus on community education to reframe community perception towards environmental conservation and protection.
What problems do you think can impede its smooth implementation? How can these problems be addressed?	<p>There is a need to consult the landowners (e.g., Magbanua, Villanueva), and to explain the benefits to them. Land occupants should likewise be involved.</p> <p>A formal agreement needs to be made.</p>	<ul style="list-style-type: none"> • Lack of understanding about the project • Lack of coordination <p>Local stakeholders need to be properly informed and periodic coordination should be fostered.</p>	<ul style="list-style-type: none"> • Trees are cut down for charcoal-making • <i>“Pagtugway sa mga hayop”</i> 	<ul style="list-style-type: none"> • Lack of monitoring of seedlings planted especially if tree-planting activities are conducted by outsiders (e.g., school-based) • Need to properly coordinate activity with BLGU for proper records management of seedlings planted and for proper monitoring • Use of spray • Some seedlings 	<p>Livelihood should just be considered an ancillary activity rather than a major project component.</p> <p>Lack of political will should be addressed, particularly in policy enforcement (e.g., strict implementation of delineated areas).</p> <p>Barangay ordinances can be formulated and strictly enforced.</p>

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INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
				<p>planted were washed out by floods.</p> <ul style="list-style-type: none"> • “<i>Ginatugwayan sa mga kabayo</i>” <p>Proposed solutions:</p> <ul style="list-style-type: none"> • Conduct IECs on Watershed Code, and prioritize land occupants along riverbank areas • Coordinate activities with BLGU • Take into account Hedcor’s proposed project in the area 	<p>Awards can be given to barangays that have implemented the best riparian project and that have come up with the best management plan for sustainability. Rewards can be used as incentive for maintenance.</p>
<p>How can you effectively contribute to the successful implementation of the planned reforestation project?</p>	<p>Participation in the planting and monitoring</p>	<p>Active participation of everyone</p>	<p>Participate in the project</p>	<p>Participation in the project;</p> <p>Bantay Bukid to monitor the planting sites</p>	<p>The community can do its own share in enforcement of policies, e.g., reporting illegal loggers to authorities.</p> <p><i>Bantay gubat</i> or forest rangers can be formed and capacitated.</p> <p>Focus should be on volunteerism rather than paid services.</p>

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INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
ASSESSMENT	There is a need to explain the project and its benefits to land owners and occupants near the river, and to forge formal agreement with them. Unity, volunteerism, and leadership of the BLGU are important factors for its successful implementation.	Aside from IEC campaigns, fostering unity, understanding, and coordination is also necessary.	Due to the past experience of local residents of being paid by the DCWD a “monitoring fee” of P2.00 per seedling, the FGD participants inquired about monetary incentives for participating in the project. Hence, the IEC may need to rectify this incentive scheme. “Survival” mentality (e.g., charcoal-making) should be addressed as well.	IECs on the Watershed Code need to be conducted, particularly for land owners and occupants along the riverbanks. Aside from taking into Hedcor’s proposed project in the area, the reforestation should be closely coordinated with the BLGU for proper monitoring and records management purposes.	IEC campaigns need to reframe perception towards environmental conservation and protection. Community champions should have the correct perception to help make a difference in implementing the project. Volunteerism should be emphasized, not paid services.

Table 8. COMMUNITY SKILLS

INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
Have you been involved in any reforestation project?	Yes	Yes	Yes	Yes	Yes
What organizations can be tapped to implement a reforestation project in your barangay?	<p>The barangay is open to partnership-building to implement the initiative.</p> <ul style="list-style-type: none"> • Barangay functionaries • Gumalang High School • AFP • Karancho • KASILAK • Guardians • Coop • IDIS 	<ul style="list-style-type: none"> • Barangay officials and functionaries • Students (SPC; high school in the area) • Community (church; youth; women) • AFP • DCWD • Outsiders 	<ul style="list-style-type: none"> • Sitio leaders • Barangay officials • Residents • MINLAND • DCWD • AFP • Coop • Academe (ADDU, PWC, USEP) 	<ul style="list-style-type: none"> • Organizations/ programs involved in past tree-planting activities (URATEX, NGP, DCWD, CENRO, UCARE WOWOK, HEDCOR) • Land owners and occupants • MTBKA youth • Forest guards • Schools (within and outside the barangay) 	<ul style="list-style-type: none"> • Barangay • Kasilak Foundation • DCWD • Wines Elementary School
Who are the key leaders, sectors, and individuals who can spearhead its implementation?	Barangay officials and functionaries	Barangay officials and functionaries	Barangay officials and functionaries	Barangay officials and functionaries	<ul style="list-style-type: none"> • BWMC and barangay functionaries • Kasilak Foundation • Women's group • 4Ps • GKK
What trees do you suggest should be planted along the river banks?	<p>Trees listed in Table 5</p> <p>Highlighted during the FGD were:</p> <ul style="list-style-type: none"> • Bamboo • Cacao • Abaca • Idiok (for kaong production) • Fruit trees (Labana, 	Trees listed in Table 5	Trees listed in Table 5, especially Malibago and fruit trees	<p>Trees listed in Table 5, including:</p> <ul style="list-style-type: none"> • Fruit trees (Labana, Avocado) • Bamboo (export-type) • Suetes (food coloring) 	Trees listed in Table 5

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INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
	Lanzones, Durian, and Mangosteen)				
If the reforestation project will include a livelihood component, what ideas can you suggest for inclusion (e.g., non-timber products, bamboo furniture production, livestock production, etc.)?	<ul style="list-style-type: none"> • Fishpond (hituan) • Livestock (cows, chicken, ducks, pigs)⁸ • Vegetables (eggplant, squash) • Floriculture (ornamental plants, flowers, orchids) <p>Trainings on:</p> <ul style="list-style-type: none"> • Sewing • Rug production • Cacao production • Other forms of livelihood for women 	<ul style="list-style-type: none"> • Fruit trees (Rambutan, Durian, Lansones) • Cacao • Tiger grass/Tahiti • Abaca • Rubber • Bamboo (Butong, Laak, Bayog⁹) • Livestock (pato; manok; fishpond/tilapia) • Planting of hard wood (e.g., Lawaan) in steep areas • Mountain resort – develop tuburan/ busay area <p>FGD participants expressed the need to have a tramline for the barangay.</p>	<ul style="list-style-type: none"> • Cacao • Basak (in San Roque) • Livestock (goats, ducks) • Fishpond • Root crops • Sewing machine 	(not asked in Tawantawan anymore so as not to give emphasis on the livelihood support)	<ul style="list-style-type: none"> • Lumbang (for oil production) • Palm trees (for kaong production)
ASSESSMENT	<p>The barangay can built on its past experience in implementing a reforestation project.</p> <p>Moreover, the community needs assistance in</p>	<p>The barangay can built on its past experience in implementing a reforestation project.</p> <p>In terms of livelihood, expressed needs are planting of fruit-bearing</p>	<p>The barangay can built on its past experience in implementing a reforestation project.</p> <p>Potential livelihood projects identified are:</p> <ul style="list-style-type: none"> • Cacao production 	<p>The barangay has relatively the most extensive experience in implementing reforestation projects and activities, and can build on this in implementing the</p>	<p>Community skills in the following areas should to be enhanced:</p> <ul style="list-style-type: none"> • Community planning and resource mobilization • Sustainability

⁸ A strict policy on livestock production is necessary so that livestock raised will not damage the seedlings planted and other properties in the barangay.

⁹ Being made as charcoal

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INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
	<p>networking with potential partners to address the need for livelihood projects, particularly for residents residing along the river.</p>	<p>trees and livestock-raising as potential sources of additional income for local residents.</p> <p>The barangay likewise needs assistance in linking up with potential funders to address its need for a tramline.</p>	<ul style="list-style-type: none"> • Basak (in San Roque) • Livestock production • Fishpond • Root crops • Sewing machine 	<p>riparian project.</p>	<p>Livelihood should be considered only as an ancillary project component. The thrust of the project should be anchored on environmental conservation and protection.</p>

Table 9. OTHER INPUTS

INDICATORS	GUMALANG	TAMBOBONG	TAMUGAN	TAWAN-TAWAN	WINES
Other inputs/ comments/ ideas			The barangay is at present a beneficiary of NGP, with about 250 hectares planted.		Budget is necessary for maintenance of the riparian project.
ASSESSMENT	The barangay is interested to enrol in NGP with the coordination assistance of IDIS.	The barangay expressed interest to enrol in NGP. About 100 hectares have been identified in Purok Tuburan for it.	About 250 hectares are covered by NGP in the barangay.	The barangay is a recipient of NGP.	The community can be capacitated to access available resources, such as: <ul style="list-style-type: none"> • NGP funding • Barangay share from taxes paid by plantations operating at list 50 hectares in the area (as mandated by the Davao City Watershed Code)