Terminal Evaluation Report

2019

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Payment for Watershed Services in the Chishui River Basin

for the Conservation of Globally Significant Biodiversity

UNDP Project ID: 4822

GEF Project ID: 5096

Country:	Peoples' Republic of China
Region:	Asia & the Pacific
Focal Area:	Biodiversity (GEF-5)
GEF Agency:	United Nations Development Programme
Implementing Agency:	United Nations Development Programme (UNDP)
Executing Agencies:	Foreign Economic Cooperation Office, MEE
Other Implementing Partners:	Ecology and Environment Department of Guizhou Province

Prepared by:

Dr. Madhav Karki, International Consultant / Team Leader

Dr. Rong DAI, National Consultant

Co-consultants - TE Team

TERMINAL EVALUATION INFORMATIOM

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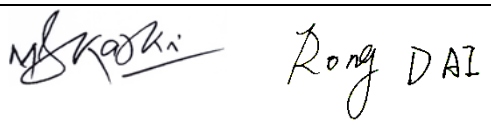
Signatures	

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Madhav Karki

Rong Dai

June, 2019

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Table 1 Project Summary

Table 1a Basic Information

UNDP Project ID (PIMS #):	4822	**GEF Project ID (PMIS #):**	5096
Award ID:	79397	**Country:**	China
Region:	Asia and the Pacific	**Focal Area:**	Biodiversity
GEF-5 Strategic Programs:	BD-2, Outcome 2.1 BD-2, Outcome2.2	**Trust Fund:**	GEF TF
Executing Agency:	International Environmental Cooperation Center (formerly known as Foreign Economic Cooperation Office), MEE		
Other execution partners:	Environmental Protection Department of Guizhou		

Table 1b: Financial information on the Project

Project Financing:	**at CEO endorsement (USD)**	**at Terminal Evaluation (USD)***
[1] GEF financing:	1,908,676	1,689,448.93
[2] UNDP contribution:	500,000	500,000
[3] Government:	15,500,000	15,500,000
[4] Other partners:	0	0
[5] Total co-financing [2 + 3+ 4]:	16,000,000	16,000,000
PROJECT TOTAL COSTS [1 + 5]	**17,908,676**	**17,689,449**

*Actual expenditures and co-financing contributions through March 2019

Table 1c:

Received by GEF:	24 Aug 2012	**PIF Approval Date:**	06 Jun 2013

CEO Endorsement Date:	01 Jul 2014	**Project Document (ProDoc) Signature Date (date project began):**	25 Sep 2014
Date project manager hired:	Oct 2014	**Midterm Review date:**	Sep 2016
Inception Workshop date:	Dec 2014	**Planned closing date:**	Sep 2019

Project Description

Chishui River is one of the most important tributaries of the upper Yangtze River. It has rich biodiversity, diverse landscapes and abundant water resources. It is the only major tributary of the Upper Yangtze River that remains free-flowing without a mainstream dam. The Chishui River Basin (CRB) is an important storehouse of biodiversity, lying within the Upper Yangtze Freshwater Eco region. The basin also is located on the eastern margin of the globally important biodiversity hotspot namely the Mountains of Southwest China. The basin has globally significant fish populations, with 112 species of which 28 are endemic to the Upper Yangtze (27.2% of its endemic fish diversity).

Significant environmental degradation had taken place in the CRB due to unsustainable land use practices of marginalized farmers. Due to poverty and economic pressure, farmers were increasingly cultivating steep slopes, resulting in deforestation, soil erosion, sediment loss and nutrient loading of the river, hydrological impacts and loss of biodiversity, especially endemic fish biodiversity. The Guizhou Provincial Government and riparian municipalities have made significant investments towards achieving environmental protection in the CRB to ensure clean water supply to downstream industries in Guizhou. However, this has been inadequate to address the extensive degradation of watershed due to intensification of agriculture. As a result, both water quality and dry season flows have been impacted, affecting downstream users, especially the Liquor industries.

It is with this realization that the PWS project was conceptualized, identified, designed and implemented jointly by GEF and the Govt. of China with support from the UNDP. The project was approved by the GEF on 01 July 2014 for a total grant amount of USD 1,908,676. The start date was 25 September 2014 and closing date is 24 September 2019 with one year extension (Table 1). The project aimed to develop a long term solution to the unsustainable land use practices and loss of ecosystem services by operationalizing and mainstreaming a market-based system for Payment for Watershed Services (PWS). The project aligns with China's eco-compensation policies that support a long term large scale changes in land use practices in important biodiversity areas using the concept of integrated watershed management taking into account the biodiversity and ecological functions as well as local community's development needs. The project faced two key barriers that hamper the realization of this long term solution. The first was weak enabling framework and institutional capacity within the systems and institutions to pilot PWS concept and upscale the pilot work, and the second was insufficient know-how and tools for the establishment and implementation of viable PWS mechanisms for biodiversity conservation and ecosystem service management in the CRB.

The Project was conceptualized using the GEF alternative scenario that plans a better future for both biodiversity and people through the accomplishment of river basin management objectives that include sustaining and restoring ecosystem services and biodiversity, rural poverty alleviation, sustainable land use management as well as appropriate economic development. It was felt by the relevant stakeholders that this premise will be realized through the introduction of a PWS mechanism in China which had the existing eco-civilization development philosophy and eco-compensation policy so that PWS could have greater cumulative impact. The potential of PWS to address large scale environmental degradation challenges, its potential for application in other parts of China, as well as the national conservation priority placed on the Chishui River Basin (CRB) led the Government of China to approach GEF for

support.

Therefore, the PWS project commands a significant national importance and provides a clear and direct assistance to MEE towards realizing its plan of implementing PES/PWS mechanism as an integral part of national eco-compensation policy and plans. It also fits with the Guizhou Province's plan to rehabilitate the ecology of the CRB which has been degrading over the past many years.

Goal and Objectives of the Project

The goal of the project is to contribute to the conservation and sustainable use of globally significant biodiversity in China. Its objective is to operationalize a replicable PWS scheme in the Chishui River Basin to stimulate land and natural resource use systems that conserve biodiversity and sustain ecosystem processes. This was to be accomplished by achieving two outcomes: a. to establish a systemic and institutional framework for PWS development and management at municipal and provincial levels by mainstreaming PWS and biodiversity conservation into relevant policies, plans and regulations at all levels. The second outcome aimed to demonstrate an operational PWS scheme in a sub-watershed of the Chishui River in Guizhou. With these goals and objectives, the PWS scheme was implemented in the Wuma river sub-watershed, in Sanyuan village by establishing a contractual relationship between upstream farming communities as ecosystem service providers and the downstream liquor companies as the watershed service users paying for the generated watershed services, especially regulating services (purified water) produced by the upstream community. The Ecology and Environmental Department (EED), (former EPD) of Guizhou was designated as the initial buyer and intermediary, to negotiate with the end users primarily the Liquor companies. The PWS pilot will be replicated and upscaled in the entire watershed in line with the objectives of a Wuma river catchment management plan by integrating it with eco-compensation schemes of the local and provincial governments.

The up-scaled PWS scheme and biodiversity compatible land use changes are expected to reduce human and development pressures on the ecology of the river basin, including protected areas that support an array of globally threatened and endemic floral and faunal species. The project aims to catalyze private sector financing for conservation, and the institutionalization of PWS as a watershed-based biodiversity conservation mechanism which at the same time delivers livelihood improvements in an equitable and inclusive manner. This has potential to leverage significant additional funding to support sustainable land management and biodiversity conservation across China.

Terminal Evaluation Purpose and Methodology

The objectives of the terminal evaluation are: a) to assess the achievement of project results, b) to draw lessons that can both improve the sustainability of benefits from this project, and c) aid in the overall enhancement of UNDP programming in China and beyond. The evaluation also aims to provide meaningful conclusions of the project covering the aspects of relevance, efficiency, effectiveness, sustainability, and impact of the project. The evaluation also identifies lessons learned from the Project experience to benefit future undertakings and to propose improvements in ensuring the sustainability of the results.

Evaluation approach and methods

The overall approach is based on the standard evaluation methods used for conducting project terminal evaluations of UNDP supported GEF financed projects which have been developed based on past experiences and learning. The evaluators framed the assessment exercise using the criteria of relevance, effectiveness, efficiency, sustainability, and impact, as defined and explained in the UNDP Guidelines for the evaluation work. The team used both desk-top review and evidence gathering to do an objective assessment of the achievements of the Project and relied on feedback from the Project manager, CTA, contracted experts, technical advisors, private sector executives as well as village community leaders, and local government officials for arriving at key findings and results. A set of evaluation questions covering each of these criteria were drafted and interview conducted (see Annex 5). The evaluator customized these questions according to the audience and the topics that were relevant or related to the interviewee's assigned tasks or assignment. Regarding considerations of gender empowerment and inclusion during the implementation process, the overall approach taken was to ask gender specific and sensitive questions in all interviews. The gender empowerment and social inclusion (GESI) tool used in implementing the second component of the project i.e. the pilot demonstration of the land use change and compensation paid to the farmers were specifically targeted. The evaluation covers both gender analysis and inclusion aspects to find out the depth and quality of the inclusion work carried out by the project. While conducting interview with the village committee officials in pilot village, questions were asked how gender integration was done in decisions regarding watershed service production and equitable benefit sharing of the compensation amount. The active and meaningful participation of ethnic minority during implementation phase was also assessed. The inclusion indicators include the aspects such as women's work load, equity in wages, access to resources, and gender sensitive and specific practices.

The TE team has made efforts to provide verifiable and evidence-based information that are also credible, reliable and useful. In this endeavor, the PMO, UNDP and SPMO provided useful feedback and organized the field visit in an efficient and effective manner. The evaluators have followed a consultative, participatory, listening and learning approach in their work ensuring close engagement with central and provincial government officials, expert contractors and provincial officials. The TE team undertook a field mission to the project demonstration sites in Guizhou Province and interviewed the villagers in an open and inclusive environment. The evaluators reviewed all relevant sources of data and information to get an in-depth understanding of the Project. Also reviewed were national strategic and legal documents, and any other materials that the evaluator considered useful for a professionally sound assessment. A list of documents that were reviewed is included in Annex 4.

Summary of findings and conclusions

Major findings of the evaluation are three: 1. a replicable PWS scheme in the Chishui River Basin to stimulate sustainable land use practices to conserve biodiversity and sustain ecosystem services and livelihood improvement has been operationalized. 2. Systemic and institutional framework for PWS development and management has been established at municipal and provincial levels in the Chishui River Basin within Guizhou Province and 3. Pilot PWS scheme has been demonstrated in Wuma sub-watersheds of Chishui River Basin in Guizhou Province (in this case Wuma sub-watershed). Systematic An eco-compensation or payment for watershed services (PWS) agreement has been signed by the

downstream water users led by the Maotai and other major liquor companies and upstream farming communities of Wuma sub-watershed. These three findings confirm that the project is on track to achieve the main objective and the two outcomes of the project. As evidence to these major findings, the TE team confirms the establishment of the PWS mechanism in the pilot village of Sanyuan located in the Wuma sub-watershed wherein 22 households have changed their land use in 100 mu (6.7 ha) of steep crop lands; more than 50 staff members working in the environment protection department (EPB) of Guizhou and environment protection bureaus (EPB) of, Chishui, Renhuai and Zunyi city and municipal governments have been trained on PWS implementation and monitoring of land use and socio-economic changes.

Regarding the mainstreaming of PWS mechanism in national, provincial and local government policy and plan - as described under outcome 1, as many as 6 policies, regulations, and plans of central, provincial and local governments have included eco-compensation/PWS mechanism as a tool to protect the watershed in Chishui River. A report of the Standing Committee of Communist Party of China issued on 18 October 2017 has called for establishment of diverse and market-based eco-compensation mechanism in China. The three provincial governments of Yunnan, Guizhou, and Sichuan signed a joint agreement on 1st February 2018 to establish a trans-provincial eco-compensation mechanism along the Chishui River Basin. Guizhou Provincial Government updated its Ecological Protection Redline in 2017 to accommodate the new guidelines of the Statue Council. In this updated Ecological Redline guideline, upper reaches of Chishui River Basin have been protected from industrial, residential or agricultural development.

Government spending in Chishui River Basin environment protection sector has consistently increased from RMB 50 (in 2016) to RMB 100 million in both 2017 and 2018. With different training workshops and interactive seminars, the project implementation officers in both provincial and county levels have built increased capability to develop and manage the PWS mechanism. Capacity Development Scorecards showed the level of both provincial EPD and local EPBs have increased substantially. Annual monitoring of fish biodiversity in the Wuma River increased based on the results of the scientifically conducted studies in the year 2016 and 2018. The study results indicated that as compared with the baseline figure of 2014, the overall fish biodiversity health and population has increased although the fish habitat as a whole is still disturbed.

The assessment of the performance of the project (2014-19) against indicators and targets as described in the Project's Logical Framework or the Results Framework provided performance and impact indicators after the project implementation along with their corresponding means of verification. The evaluation team assessed them across the criteria of: relevance, effectiveness, efficiency, sustainability, adaptive management and impact and report the summary findings in the Table 2 below:

Table 2 Evaluation ratings score for the PWS project, Chishui River Basin (CRB)

Criteria	**Rating/Score**	**Description of Performance**
1. Monitoring and Evaluation (M&E)		
M&E Design at Entry	**Satisfactory**	Overall, the M&E plan was well designed based on the standard GEF-financed UNDP supported project preparation guidelines. The Strategic Results Framework clearly describes the performance targets and indicators

M&E Plan Implementation	**Satisfactory**	along with their means of verifications. The BD-2 Tracking tool, Capacity Assessment Scorecards and Ecosystem Health Index (EHI) sheets were used. Project implementation reviews (PIR), Quarterly and Annual progress reports (QPR and APR) were produced and used by the UNDP-CO to review implementation of work. Annual progress review was done through the PSC meetings using the APR & PIR documents. The Project manager consulted relevant stakeholders especially the Guizhou EPD and Guizhou Institute of Environmental Sciences Research and Design (GIESRD) to prepare the QPR and APR. All the reports provided relevant information on the status of activities to enable a reasonable stocktaking of the performance of the Project. Constructive and adaptive adjustments were made by the PSC and the Project Manager in consultation with the UNDP-CR in making the management structure and process of the Project suitable to implement the recommendations made by the midterm review (MTR). The PSC convened annually and provided constructive feedback to the project team. There were a few shortcomings with respect to monitoring and evaluation, starting with the lack of critical review and adjustment of certain baselines data such as forest cover change. There were also some inconsistencies in the use of tools to carry out valuation of ecosystem services (also in the tracking tool assessments), indicating insufficient quality control and weak inclusive participation of the minority community in the land use transformation.
Overall Quality of M&E	**Satisfactory**	
2. Implementing Agency (IA) and Lead Implementing Partner (Executing Agency - EA) Execution		
Quality of IA (UNDP) Execution	**Satisfactory**	UNDP as the implementing agency has played an excellent supportive and collaborative role.
Quality of EA Execution	**Satisfactory**	High quality support, supervision and facilitation has been provided by the FECO (now IECO) as executing agency. Project was well managed especially post MTR period based on decentralization of activities and devolution of authorities. The decision to authorize the Guizhou EPD to manage the Component 2 was a wise decision that helped the project meets most of its targets; The PMO and Sub-national PMO supported each other and managed the project in a coordinated and coherent manner.
Quality of IA-EA Execution	**Satisfactory**	The project planned and executed a multi-sector and multi-disciplinary participation of provincial agencies; The quality of community engagement in effecting the land use change from agriculture to fruit orchards was good. The maintenance of the orchard could be further improved though. The participation of ethnic minority representative in the Village Committee could

		be also improved.
3. Assessment of Outcomes		
Overall Quality of Project Outputs and Outcomes	**Satisfactory**	The PWS project has achieved all the planned outputs and outcomes especially in mainstreaming market based PWS in the national and provincial policies, plans and programmes; it has also successfully piloted the market based PWS in the Wuma sub-watershed of the CRB. Overall, it achieved the expected outcomes reasonably well.
Quality of Design	**Satisfactory**	The project was innovatively designed to pilot and upscale market based PES/PWS in China by clearly identifying producers and buyers of ecosystem services. The fund transaction arrangements between the Liquor companies (buyers) and upstream farmers (sellers) through a quasi-govt. agency GESRDI establishes market based payment for ecosystem services (PES) scheme in Chishui River Basin. The project has a clear strategy to upscale the PWS mechanism to other two basin provinces of Sichuan and Yunnan due to the project's conceptual framework of River Basin Management and the design outline this concept in a very instructional manner. The project had identified the problems of unsustainable land use practices and high incidence of poverty as the two most appropriate 'pressure points' to address the underlying causes biodiversity loss. This is the right approach for achieving the success of the Project as recent IPBES assessment reports identified land use change, socio-economic change and unsustainable use as the most important direct and indirect drivers of biodiversity loss.
Relevance	**Relevant**	The project is relevant from all important perspectives. The Chishui River Basin (CRB) is one of the key national and global storehouses of biodiversity lying within global Mountain biodiversity hotspots and Upper Yangtze Fresh Water ecosystems. It is also relevant to China's national Eco-civilization development strategy and Eco-compensation policy. It is also relevant to GEF BD-2 and UNDAF Outcomes 1, 4 and 5. The two major issues and gaps that the PWS project aimed to address are well aligned to national and provincial development and environmental agenda: The mainstreaming of market based eco-compensation approach in national and sub-national policies, plans and programmes are aligned to 6 policies, regulations and plans that included eco-compensation/PWS as a tool to protect watersheds. The report of the Standing Committee of the Communist Party of China has called for the establishment of diverse and market based eco-compensation mechanism based on which three provincial governments of Yunnan, Guizhou and Sichuan signed a joint agreement on 1 February, 2018 to establish a trans-provincial eco-compensation mechanism along the CRB The outputs and outcomes generated by the Project pilot have high relevance

		in successfully implementing Guizhou provincial Government's policy and regulatory reforms such as Ecological Protection Redline, 2017 under which the upstream areas of the CRB is to be protected from industrial, residential and agriculture development. It is fair to assess that the PWS project has high relevance and significance in providing demonstrative effects and good guidelines in the conservation and sustainable use of globally significant biodiversity in China. The project's main themes are also included in national and provincial biodiversity strategy and action plans that include several Aichi Biodiversity Targets and Nagoya protocol on Access and Benefit Sharing.
Efficiency	**Satisfactory**	The project has achieved its objective, goal, two outcomes and 9 outputs although some results might take time to show their impacts. The project has successfully accomplished the main objective of project i.e., "Operationalization of a replicable PWS scheme in the Chishui River Basin to stimulate land and natural resource use systems…..". All the planned project activities have been implemented and the outputs delivered with efficient use of human and financial resources with strong value for money. The PMO used an adaptive and efficient management approach. Decentralization of the implementation work of the Component 2 to the SPMO in the province was a wise decision that expedited both the progress and improved local ownership and sustainability of the project activities.
Effectiveness	**Satisfactory**	1. All the planned outputs have been successfully generated. Biodiversity indicator system has been developed. Mainstreaming of PWS has been accomplished and 4 liquor companies have signed the agreement to pay for the water services. Private sector has been further incentivized to make financial commitments. Similarly under the outcome 2, PWS pilot mechanism is established, agreement signed with the byers, the plan to create more biodiversity friendly land use in Wuma river is under implementation and integration of the plan into overall catchment management has been done. There is a framework to integrate PWS with eco-compensation and regulatory mechanism of the local and provincials EPBs.
		2. There is strong evidence indicating that changes at national, provincial, local and private sector policies, plans and programmes as well as in different stakeholders' attitudes can be attributed wholly or to a large extent to the PWSC project. The project has been given high recognition by the MEE, China and gained good ownership of the Guizhou provincial government.
Impact/ Results.	**Significant**	Most outcomes relating to positive changes in the status of the conservation targets such as endangered fish species, forest ecosystems, and water related regulating ecosystem services are likely to be realized quantitatively. Achieving the impact at scale of the project attributed outcomes and outputs will

		depend on the qualitative achievement of the outcomes and outputs which will take some time. For example the full scale of the 12.6 % increase in forest cover and more than 10% increase in income of the Wuma watershed farmers will be measurable and verifiable after ecosystem services reach marketable stage.
4. Sustainability		
Overall likelihood risk to sustainability	**Likely**	1. All the factors critical for ensuring sustainability and continuity of the outcomes/impacts of the PWS scheme have been put in place or are in process of being established. Positive land use socio-economic changes observed are likely to lead to environmental and social sustainability. The fulfillment of fiscal transfer of RMB 100 million by Guizhou Govt. and RMB 50 million by Mao-Tai company and full ownership shown by different central, provincial and local government agencies give strong indication of financial and institutional sustainability 2. Scaling up mechanisms are ensured by the existence of agreement among riparian provinces of Yunnan, Guizhou and Sichuan signing of have been put in place with risks and assumptions re-assessed and addressed.
Financial sustainability	**Likely**	The existence of central and provincial eco-civilization and eco-compensation policies and plans that integrate market based payment for ecosystem services in Chishui River Basin provides a framework for ensuring a long term public-private finance for environment protection in the CBR. This assures good financial sustainability.
Social sustainability	**Likely**	Social sustainability is assured through the change in the attitude, knowledge, skill, awareness and respect to environment protection on the part of the CRB population largely due to the capacity building and the demonstration impact of the PWS pilot activities
Environmental sustainability	**Likely**	A combination of top-down (central and provincial environment protection policy and regulatory instruments) and Project led bottom-up actions in terms of land use change and watershed management activities assure environmental sustainability.
Institutional sustainability	**Likely**	The PWS has a very strong ownership of the MEE, different Guizhou provincial government agencies, liquor business in the area led by Maotai Co. and four local government EPBs. The creation and functioning of village committee in Wuma watershed and a NGO: Renhuai Env. Protection Promotion Association (REPPA) for coordination assures good likelihood of institutional sustainability.
5. Impact assessment		
Watershed	**Significant**	The TEEB based value estimation of 11 different watershed ecosystem services

services status		covering provisional, regulating, supporting and cultural services indicated that the ecological protection services had the highest value (12.59 Billion, RMB) followed by provisional services (11.95 Bil. RMB); the current land use had the lowest value (11.82 Bill. RMB) thus justifying the highest value for the watershed services promoted by the PWS i.e. regulation watershed services had the highest value of 62% of all.
Fish Biodiversity loss prevention	**Minimal**	Assessment of the monitoring report on the fish biodiversity change in the Wuma River indicated that there is a richer stock and higher number of fish species in 2018 compared to 2015. Fish biodiversity has increased but genetic diversity decreased meaning a single fish species is dominant. Study concluded that fish habitat is still `in disturbed condition'.
Progress towards stress/status change	**Minimal**	From the review of report, EHI scores show increasing trend of conservation value in pilot watershed. Progress toward achievement of progress on major targets however indicate that the impacts of PWS scheme on farmers' income and forest cover change will take time to show since the land-use change in Pilot watershed took place only in Feb of 2018 and is planned for completion in Feb of 2020. However, some uncertainties exist since the forest cover comprising of all the four fruit species in the stand will take some time to mature to be able to carry out forest ecosystem functions and deliver watershed services, especially pure water.
6. Adaptive Management Capacity		
Monitoring and Mid-course correction	**Significant**	Regular monitoring and site visits of project activities by PMO and SPMO were carried out. All the tasks sub-contracted to different agencies were presented to the TE team in a well prepared and quality manner. The GEF BD tracking targets were especially monitored well. The PMO faced some major challenges initially but the management team addressed them with adaptive management skills and capacity improvement. Delegating much of the Component 2 work to the SPMO based at Guizhou EPD ensured the delivery of the tasks within the project period.
Project Management	**Significant**	The GEF administrating agency UNDP diligently and professionally facilitated and supported the Project management by reviewing quarterly and annual progress reports and helping the PMO in improving project activities including the social safeguards and use of the GEF BD tracking tools. The PSC and the executing project teams were found to use the findings of the reports to improve the management.
Overall Project Results	**Satisfactory**	1. Regulatory and institutional framework for PWS implementation at the provincial and Chishui watershed levels has been established; necessary monitoring and supervision capacity has been developed and private sector involvement in PWS initiative is assured; and

		2. Pilot PWS scheme is demonstrated in Wuma river watershed; PWS agreements between local farming communities and the provincial government with public-private sector fund transfer arrangements put in place; target of achieving 10% increase in the vegetation cover and villagers' income on track.

Conclusion, Recommendations and Lessons Learned

Summary of Conclusion

The 5 year PWS project has raised awareness on the economic and non-economic value of biodiversity and watershed services in the Chishui River Basin (CRB) at the policy and planning level at both central and provincial governments. The concept of payment for watershed services (PWS) has also helped to operationalize the national and provincial policies in the CRB. Therefore it is concluded that the PWS project has resulted in more biodiversity friendly policies, regulations and land use practices. In Wuma sub-watershed it has led to improved quality of watershed services. The PWS project therefore has achieved its goal of "contributing to the conservation and sustainable use of globally significant biodiversity in China". It has also fulfilled its objective to "operationalize a replicable PWS scheme in the Chishui River Basin to stimulate land and natural resource use systems that conserve biodiversity and sustain ecosystem processes; in the process, also improve the livelihoods of poor farming communities". All the outputs were delivered and managed to achieve the two outcomes although some of the indicators and targets will take some time fully mature to create the desired impact. Multi-stakeholders comprising government, non-government, private and academic organizations participating in the implementation of the Project are found to be fully committed and ready to consolidate the efforts made by the project and replicate the PWS mechanism beyond the pilot watershed. The team is positive about the gradual improvement in the sustainability of benefits generated from the project led activities. The lesson learned from this project has also contributed to the overall enhancement of UNDP programming in China.

The project was justifiably extended by year to end in September 2019 due to the challenging nature of the market based payment for ecosystem services. The world wide experience show that a market or Pvt. Sector participated PES/PWS mechanism is difficult to establish and operationalize in a short period of 4 years. The project has been collaboratively implemented and adaptively managed by the UNDP and well executed by the International Environmental Cooperation Office, IECO (formerly FECO) of the Ministry of Ecology and Environment (MEE), China. The Guizhou Environmental Protection Department (GEPD) as the provincial implementing partner contributed professionally in implementing the Component 2. It has helped the project to successfully demonstrate the establishment of the PWS mechanism on the ground in the Wuma Sub-Watershed. The TE team concludes that the project has satisfactorily met the goal and objective of the project. A replicable and scalable PWS scheme has been created to stimulate sustainable land and natural resource use systems that conserve biodiversity and sustain ecosystem processes.

The TE team has used the standard UNDP-GEF evaluation methods and rating criteria to carry out the analysis of the information and data provided by the PMO and the SPMO. The TE team also conducted interview with key stakeholders by using the standard criteria of relevance, effectiveness, efficiency, sustainability and impacts according to the guidance, rules and procedures established by UNDP.

The TE Team assessed the gender empowerment and social inclusion (GESI) aspects in the second component of the project i.e. in the pilot demonstration of the land use change and compensation mechanism to the farmers. It is felt that the gender inclusion aspects need more depth and quality. Therefore, a standard gender analysis exercise is advised to assist the PMO in integrating and mainstreaming gender into watershed service production and equitable sharing of the benefits received. The active and meaningful participation of ethnic minority should also be an integral part of the land use change implementation plan. The inclusion method should include the aspects such as rights-based, disaggregated data, equity, access, and gender specific work.

Our overall conclusion is that the Project-- Payment for Watershed Services in the Chishui River Basin (CRB) for the Conservation of Globally Significant Biodiversity -- has been able to deliver good and replicable outputs and outcomes. Successful achievement of project outputs and outcomes by different implementing partners through the project financed activities has helped operationalize the PWS scheme. This will stimulate sustainable land management and wise natural resource use systems in the entire stretch of this trans-provincial river basin covering Yunnan, Guizhou and Sichuan provinces. We feel certain that the PWS project significantly contributes to China's mission to conserve biodiversity and sustain ecosystem processes in line with the larger Eco-civilization agenda and Eco-compensation national, sub-national and local policy.

Through the support of the project, a market-oriented mechanism for ecological compensation in the part of the CRB has been made operational gaining considerable recognition in China. This project also provides an innovative case, a research case study, and a potential replication model for the "Establishment of a market-oriented and diversified mechanism for ecological compensation" for future reference by UNDP and GEF in their global programmes.

Recommendations

The recommendations are being made based on the results of the series of interview, field observations, and above all as evaluators, our own expert judgment based on similar evaluation experience in other countries. In order to ensure a replicable, scalable, impactful and sustainable PWS/PES, local people's stewardship of natural and environmental resources and their contribution to sustained flows of watershed ecosystem goods and services – in this project in the form of regulating as well as provisioning services – must be adequately recognized and sufficiently rewarded. In line with this learning, our recommendations are presented in the Table 3 below:

Table 3 List of Key Recommendations along with the responsible organizations for follow-up

No.	Recommendations	Responsible Organizations
Appropriate revisions in the design, implementation, monitoring of the project will be necessary while scaling-up the pilot		

1	The PWS Project was planned within the framework of China's eco-compensation policy to implement an integrated management approach balancing conservation with economic development agenda. While PWS has been designed well, however in order to ensure its full implementation and achievement of the envisaged outcomes and impacts, timely correction and refinement in design and implementation are needed, especially at local level. Elements such as long-term partnership, trust, inclusion and transparency based relationship between buyers and sellers are necessary to upscale the PWS. It is suggested that local government agencies and NGO involved in the project are further sensitized and made aware of the brokering role of NGO in ensuring good environmental governance since it determines how ecosystem services contribute to good ecosystem health and human wellbeing.	MEE, GEPD
2	Based on the very useful and insightful interactions with the Sanyuan Village Committee, the TE team feels that while the village committee is gender inclusive and its process of decision making is participatory, the inclusion of ethnic minorities whose population is significant in CRB was not found in any structure and process of the Committee; this concern was shared with the REPPA and the PMO and we strongly recommend to design and conduct a tailored capacity building package comprising of community mobilization, awareness raising and land use training on promoting biodiversity friendly land management practices in the settlements dominated by ethnic minorities.	SPMO, GESRDI, Kweichow Maotai Co., EPBs
Further actions to consolidate the project interventions and to utilize the capacity built to achieve the true impact of land use change and socio-economy		
1	*Mainstreaming of PES/PWS in policies, plans and programmes across scales, sectors and disciplines:* While, the PWS mechanism has been integrated into the national and provincial Eco-compensation policy and a set of regulations and guidelines are found in place and the mainstreaming agenda is well on track, mainstreaming is still not apparent at local level. Although the TE team did not meet the four concerned EPBs, but based on the review of the available documents, it appears that there is a need to consolidate and correctly use the capacity built and awareness raised in proper enforcement of the provincial and local regulations in an effective and result oriented manner.	MEE, GEPD, PMO
2	We noted that the Department of Forestry and Department of Agriculture especially, Bureau of Fisheries do not seem to play an active role in the designing and guiding Project activities that fall under their domain. The project design itself seems to have vaguely allocated specific roles and responsibilities to these agencies. For example, for ensuring quality afforestation and reforestation work, Forest Department has a distinct role such as ensuring right kind of species selection. Similarly, for ensuring right kind of tree and fruit species and associated	PMO, SPMO, GEPD, MEE

	growing agro-technology, Agriculture Dept. can provide crucial support; and monitoring of fish biodiversity can be institutionalized and future biodiversity friendly action ensured if Bureau of Fishery is given a role. Land Management department can help in planning and regulating land use change in a legally and permanent manner. In future this aspect needs more attention.	
Effective institutional arrangements and good governance are necessary for sustainable flow of watershed ecosystem services		
	The basic premise of PWS is: 'ecosystem service producers as protectors and suppliers of service and service buyers or users as payers'. In this project, an agreement exists between the producers (Wuma watershed farmers) and water users (Maotai and other companies). Payment of compensation amount will be managed through an intermediary GESRDI and the ground level investment on ecosystem service enhancement will be managed by a NGO - REPPA on behalf of both the `producers' and Payers'. This way, the anticipated compensation funds are invested both in improving the ecosystem service stock and managing the flow of good quality provisioning and regulating ecosystem services as well as contributing to community wellbeing. However, TE team is concerned about the capacity of REPAA and effectiveness of the EPBs of Bijie, Chishui, Renhuai and Zunyi in ensuring this. We therefore recommend to continue capacity development, stakeholder engagement and most importantly enforcement of quality governance including stronger and inclusive engagement with community, enforcement of regulations for users including tourists, monitoring of water quality, fish biodiversity and watershed health.	SPMO, GESRDI, Maotai and other Liquor companies, REPPA
Effective Integrated River Basin Management to upscale the project based on the underlying objectives of the PWS		
1	The project goal of "Contributing to the conservation and sustainable use of globally significant biodiversity in China" is an ambitious and long-term goal which is possible through a series of scaling-out (expansion or extension of existing PWS pilots at a geographic and physical scale with an increase in land areas, population, investment and number of local, provincial and central level agencies) and Scaling up by using the pilot level good practice as evidence to influence policy and knowledge, information, lessons learned to build capacity and mobilize fund for large scale land-use intensification with tree and fruit plants and other commercial natural vegetation. We recommend three steps in this direction: a) implement the agreement among 3 riparian provinces of Chishui River – Yunnan, Guizhou and Sichuan – to do policy and institutional harmonization and share lessons learned from the PWS project so that all 3 provinces have compatible institutional arrangements to implement Basin scale Payment for watershed ecosystem services; b) the Guizhou Govt.	MEE, Guizhou Govt., GEPD

	should scale out and scale up the best land use change management practices and knowledge beyond Wuma watershed to cover the entire section of the Chishui river in Guizhou province and, c) Guizhou EPD helps develop a sustainable supply chain management through community-based new standardization and sales of ecosystem goods and services in the CRB.	
2	We note that the Project objective to "operationalize a replicable PWS scheme in the Chishui River Basin to stimulate land and natural resource use systems that conserve biodiversity and sustain ecosystem processes; in the process, also improve the livelihoods of poor farming communities" is on the right path towards achievement. However, for the impact, the full realization of the two project outcomes will be necessary. Necessary institutional framework for PWS development and management has been established at municipal and provincial levels for implementing PWS mechanism. However, the TE team feels that while the framework and the structure exist but process of actually implementing policy and enforcing compliances and regular monitoring work will need to be internalized in various layers of the provincial and local governments.	GEPD, City and local governments and EPBs
3	Similarly, based on the visit to the Pilot PWS scheme in Sanyuan village and assessing the quality the demonstrated land use conversion systems in the Wuma sub-watershed, we feel that the concerned farmers seem to be passive participants (wage workers) in the production of ecosystem services. However, the main essence of the outcome 2 is to have the local community as active co-producers of watershed services engaged meaningfully with the NGO REPPA and the land use experts who have been contracted to convert the current disturbed agro-ecosystem into a verdant or lush green and rich biodiversity land use system. This will be possible if the village committees in all sub-watersheds are given incentives to use their knowledge, skill and learning in an innovative and imaginative manner. We recommend to introduce a principle of `care and share' in managing the Plum, Cherry plum, Kiwi and Orange plantations by rewarding the good performers whose plots give best quality water or has high number of biodiversity species so as to create a peer learning and replicating environment.	GEPD, Bijie EPB, Chishui EPB, Renhuai EPB and Zunyi EPB
Regular monitoring and assessment of socio-economic as well as ecological impacts and response is necessary		
1	The Wuma sub-watershed generated clean water, green mountains, lush forest, diverse agricultural goods and cultural and aesthetic values continue need to be used and enjoyed over time and the physical sustainability of their use and replenishment needs to monitored, their impacts on local economy, social cohesion, food security, food resiliency and overall human wellbeing must also be measured, monitored and critically evaluated and good governance, inclusive wellbeing and adaptive management should be gradually improved for a balanced	PMO, IECO, GEPD

	conservation and development.	

GOOD PRACTICES AND LESSONS LEARNED

Good Practices:

The project has commissioned an impressive list of high quality case studies, reviews and eco-labeling and land use change schemes as well as created institutional arrangements that form good practices for community based biodiversity conservation and watershed services management. The successful development and operationalization of the market-based payment for watershed services will be highly sought after practice. The mainstreaming of the PWS concept and practice in national and provincial government policies and programmes is another noteworthy practice the project has developed. These achievements and good practices can be shared across the portfolio of GEF projects in China and also provide meaningful input for GEF global programmes and UNDP programmes. Few of the important good practices of the project are summarized below.

Cross-scale and cross-sector policy coordination

The PWS project has been inspired by China's current Ecological Civilization philosophy and enabled by the national eco-compensation policy at central level. The MEE has spearheaded the implementation of the national strategy and policy at the level of provinces and counties. The PWS piloting in Guizhou has been made possible by timely reform of the provincial policies and regulations to align with the national eco-compensation agenda and similar actions were taken by the four local city and county governments in Wuma watersheds. The lessons learned through this experience will be flowing back to the MEE for nationwide sharing. This is indeed a very good practice of policy coherence and coordination that has allowed GEF/UNDP project to make good progress.

Working with local watershed communities

The Component 2 of the PWS addressed the barrier concerning the relative absence of successful working PES/PWS models to secure ecosystem services and biodiversity in China and a Pilot PWS scheme has been demonstrated in Wuma sub-watershed. The project in collaboration with the Guizhou provincial government, 4 EPBs of the local governments and 4 Liquor companies led by Maotai co. and created an eco-compensation mechanism. A local NGO has been created to facilitate community engagement, improve participation and impart knowledge to change the land use practices. This is a good practice in China's local development context. Our dialogue with the NGO gave us to understand that the head of the NGO was willing and had experience in inclusive engagement with community. However, the local environment bureaus could be more active and REPPA could act as a good development partner to ensure a balanced inclusion of both women and ethnic minority population living in the watershed to make this good practice a replicable model elsewhere in China.

Project management structure, e.g., component managers

The project management office was staffed with qualified personnel and was functioning well. The PMO

funded by the governmental co-financing contributions, supported the project manager well. The PMO also provided experienced services in technical programme management, human resource management, financial management, procurement, and supervision of IT systems including communication and knowledge management. The creation of SPMO as an extended arm of the PMO and decentralizing and devolving Component 2 to them to handle ground level work was a very good decision as it allowed to gain efficiency as well as effectiveness in project activity planning and management.

Efficiently utilized and strengthened local capacity

The PMO gave ample opportunities for involvement of local and national service providers, including qualified biodiversity and ecosystem service professionals from national and provincial research and academic organizations, technology firms and IT consultancies. The civil society organization led by REPPA and students in promoting the PWS initiative in the annual Eco-Forum Global and other events as well as media and IT experts developing eco-labeling and e-commerce platforms, and land use construction companies being involved meaningfully provide the indicators of efficiency. Engaging with the local city and commune governments through their EPBs and townships and forest bureaus to implement the field interventions also was a good way to build local capacity and obtain local support and ownership for ensuring social and institutional sustainability.

Lessons Learned:

Cross-linkages with other initiatives should be pro-actively done

The project area - CRB – being a nationally and globally important biodiversity region, a large number of national and international partners are found actively pursuing relevant activities in the CRB. The EU, ADB, Conservation International, WWF and China's national and provincial research and academic institutes have ongoing or planned activities. Some linkages such as with the Mountain Institute in Chengdu have been made but more such collaboration need to be promoted. The TE team feels that broadening partnerships helps improve knowledge, identifies good practices and also promotes collaborative work thus improving efficiency in actions.

Multi-stakeholder engagement approach should be given more space in design phase

We find that the multi-stakeholder approach of river basin ecosystem or watershed management was not sufficiently detailed for certain stakeholders such as ethnic minorities and relevant line agencies such as forestry, livestock, fishery and agriculture agencies. Although there was involvement with local governmental stakeholders through EPBs but real engagement with local government agencies will help in ensuring the two most important targets of 10% increase in quality of land use change and 10% increase in local people's income and might help the PWS mechanism to get firmly established.

Gender issues and empowerment needs among local communities' especially ethnic minorities should be analyzed at the project preparation phase

In order to meaningfully integrate gender and social equality and inclusion objectives into the project design, a thorough gender and social analysis should be made at the project preparation phase. And,

analysis of gender and social issues within the minority communities should be made by experienced indigenous and local knowledge holders and practitioners, through culturally sensitive consultations.

Filling out tracking tools should be an inclusive process supported with adequate quality control

Preparation of tracking tools and capacity development scorecards should be more inclusive and reviewed thoroughly. There were some inconsistencies among the tracking tools at each stage, including the baseline, midterm, and endpoint assessments. The process of filling out tracking tools should be reconsidered as it conveys an exercise more in quantitative target fulfilling rather than qualitative outcome achievement. The quality process would enable the project management team to become more familiar with the quality aspect of the target before implementing the tracking.

Geographic Specifications based Eco-labeling has very good scope

The Project initiated eco-labeling approach is working well. Eco-labeling is a public management system closely related to the environmental protection of the production area. It involves many aspects of product protection. Presently available labeling systems that aim to protect the products in China include: a) Geographical Indication Protection Products of the PRC, b) geographical indication protection for agricultural products, c) geographical indication trademarks/labels, d) the pollution-free product protection system, e) the green food protection system, f) the organic product protection system, g) China's environmental protection product system, and h) the ecological place of origin protection product system. Each of these systems protects certain products through label identification and management. The geographical indication products system is one of the most inclusive and widely used systems of all and has been rightly promoted under the PWS. The Maotai Group is engaged in the PWS and eco-labeling scheme that was established by the project. Three companies, Maotai Group, Guizhou Xijiu, and Chishui Shaicu have been enrolled in the geographical origin label system and engaged in the PWS scheme. These provide a good lesson learned for future PES/PWS work.

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ABBREVIATION and ACRONYMS

ADB	Asian Development Bank
APR	Annual Progress Report
BD	Biodiversity
BTOR	Back To Office Report
BWP	Biennial Work Plan
CAS	Chinese Academy of Sciences
CBD	Convention on Biological Diversity
CDR	Combined Delivery Report
CI	Conservation International
CITES	Convention on International Trade in Endangered Species
CNR	County level Nature Reserve
CNY	Chinese currency unit (Renminbi or Yuan, also RMB)
CPAP	Country Programme Action Plan
CR	Critically Endangered (IUCN red list category)
CRB	Chishui River Basin
CWRC	Changjiang Water Resources Commission (under MWR)
EA	Executing Agency
EAAFP	East Asian - Australasian Flyway Partnership
ECBP	EU-China Biodiversity Programme
EHI	Ecosystem Health Index
EIA	Environmental Impact Assessment

EN	Endangered (IUCN red list category)
EPB	Environmental Protection Bureau
EU	European Union
GDF	Guizhou Department of Finance
GDP	Gross Domestic Product
GEF	Global Environment Facility
GEPD	Guizhou Environmental Protection Department
GFD	Guizhou Forestry Department
GFiD	Guizhou Provincial Financial Department
GIS	Geographical Information System
GPAC	Guizhou Provincial Agriculture Commission
GTA	Guizhou Tourism Administration
GWRD	Guizhou Water Resources Department
Ha	Hectare
IA	Implementing Agency
IBA	Important Bird Area
IAS	Invasive Alien Species
IUCN	International Union for the Conservation of Nature
IW	Inception Workshop
M&E	Monitoring and Evaluation
MEA	Multilateral Environmental Agreement
MEP	Ministry of Environmental Protection
MEE-FECO	Foreign Economic Cooperation Office of Ministry of Ecology and Environment
MOF	Ministry of Finance
MoU	Memorandum of Understanding

MSL	Mainstreams of Life (UNDP GEF Programme)
MWR	Ministry of Water Resources
NBCSAP	National Biodiversity Conservation Strategy and Action Plan
NIM	National Implementation Modality
NGO	Non-Governmental Organization
NNR	National Nature Reserve
NPD	National Project Director
NPMO	National Project Management Office
NR	Nature Reserve
NRDC	National Reform and Development Commission
NT	Near-threatened (IUCN Red List Category)
PA	Protected Area (6 IUCN categories including nature reserves)
PES	Payment for Environmental Services
PIF	Project Identification Form (for GEF)
PIMS	Project Information Management System
PIR	Project Implementation Review
PM	Project Manager
PNR	Provincial Nature Reserve
PPG	Project Preparation Grant (for GEF)
PPR	Project Progress Report
PRC	People's Republic of China
PSC	Project Steering Committee
PSCM	Project Steering Committee Meeting
PWS	Payment for Watershed Services
Ramsar	Ramsar Convention on Wetlands of International Importance

RCU (UNDP-GEF) Regional Coordinating Unit

RMB Chinese currency unit (Renminbi or Yuan, also CNY)

RTA Regional Technical Advisor (of UNDP)

SEA Strategic Environmental Assessment

SFA State Forestry Administration

SMART Specific, Measurable, Achievable, Relevant and Time-bound

SO Strategic Objective

SP Strategic Programme

SPMO Sub-Project Management Office

SRF Strategic Results Framework

TOR Terms of Reference

TNC The Nature Conservancy (international conservation NGO)

UN United Nations

UNDP United Nations Development Programme

UNDP-CO UNDP Country Office

UNDP EEG UNDP Environment and Energy Group

UNFCC United Nations Framework Convention on Climate Change

UNDAF United Nations Development Assistance Framework

USD / US$ United States Dollar

VU Vulnerable (IUCN Red List Category)

WWF World Wide Fund for Nature (international conservation NGO)

Y1, Y2, etc. Year 1, Year 2 , etc.

1. INTRODUCTION

1.1. Purpose of Evaluation

The objectives of the evaluation were (1) to assess the achievement of project results, with the following purposes:

- ✓ To promote accountability and transparency, and to assess and disclose the extent of project accomplishments;
- ✓ To contribute to the overall assessment of results in achieving GEF strategic objectives aimed at global environmental benefit;

and (2) to draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming:

- ✓ To synthesize lessons that can help to improve the selection, design and implementation of future GEF financed UNDP activities;
- ✓ To provide feedback on issues that are recurrent across the UNDP portfolio and need attention, and on improvements regarding previously identified issues;
- ✓ To gauge the extent of project convergence with other UN and UNDP priorities, including harmonization with other UN Development Assistance Framework (UNDAF).

1.2. Evaluation Scope and Methodology

First, the team appraised itself fully with the project document, project progress reports – including APRs and PIRs. The team also reviewed project budget, disbursement and subsequent amendments and revisions, midterm review report, technical consultant's reports, GEF focal area tracking tools, project monitoring reports and MTR report. The terminal evaluation (TE) was an evidence-based assessment and relied on feedback from persons who have been involved in the design, implementation, and supervision of the project, and also review of available documents and findings made during field visits. The TE assessed the project through the criteria of relevance, effectiveness, efficiency, sustainability, and impact, as defined and explained in the *UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects.*

The evaluation was carried out by a team of one international consultant/team leader and one national consultant, and included the following activities:

- ✓ A TE mission was carried out from 8-15 April 2019; the itinerary is compiled in Annex 1. The TE was included a field mission to China, including the project sites in Guizhou

Province. Interviews were hold with the UNDP, FECO, and Renhuai Environmental Protection Bureau in Guizhou Province.

- ✓ A set of questions covering each of these criteria have been drafted and are included in Annex 5. Evidence gathered during the fact-finding phase of the TE was cross-checked between as many sources as practicable, in order to validate the findings.

- ✓ The TE was provided evidence‐based information that is credible, reliable and useful. The evaluators were followed a participatory and consultative approach ensuring close engagement with government counterparts, in particular the GEF operational focal point, UNDP Country Office, project team, UNDP GEF Technical Adviser based in the region and key stakeholders. A list of interviewed persons is included in Annex 3, and they were interviewed for their feedback on the project.

- ✓ The TE team reviewed all relevant sources of information, such as the project document, project reports – including Annual APR/PIR, project budget revisions, midterm review, progress reports, GEF focal area tracking tools, project files, national strategic and legal documents, and any other materials that the evaluator considers useful for this evidence-based assessment. A complete list of information reviewed is compiled in Annex 4.

- ✓ During the TE mission, visits were made to a demonstration village within the Chishui River Basin (CRB). A summary of the focused group discussion (FGD) held with village committee leaders and individual famers is presented in Annex 5;

- ✓ The project logical results framework was also used as an evaluation tool, in assessing attainment of the project objective and outcomes in Annex 7;

- ✓ The TE team assessed the key financial aspects of the project, including the extent of co-financing planned and realized. Reported co-financing that has been realized during the lifespan of the project, from 2014 through April 2019, is summarized in the co-financing table presented in Table 13;

- ✓ The TE team while interacting with the Sanyuan village committee members ensured almost 50% participation of women in the focused group discussion (FGD) held with the villager. The village committee group was led Deputy Director General (Madam Tao Xie Xin) and the team primarily asked questions to the female participants. We also interviewed the head of the NGO overseeing the implementation of the pilot activities regarding different considerations taken to ensure gender inclusion during the implementation process. During our interview, we particularly focused on gender empowerment and social inclusion (GESI) aspects. The team observed on the ground or in actual practice the major role played by women specifically in managing the pilot demonstration area with the land use change. We also enquired about the compensation mechanism used to benefit the farmers in an equitable and inclusive manner. Table 4 describes the GESI tool used.

Table 4 Brief gender analysis tool used

Major aspects	Details
Gap analysis	Addressing the gaps and inequalities between women and men, boys and girls
Comprehensiveness	Developed on the basis of participatory approaches and inclusive processes
Disaggregated data	By sex, and wherever possible by age and by socio-economic group (or any other socially significant category in society)
Long-term perspectives to improve women's quality of life	Having a long-term, sustainable perspective, because social change takes time
Rights-based	In accordance with gender (women) rights, laws and standards

The project was approved under the GEF-5 replenishment cycle; tracking tools under Objective 2 of the GEF-5 Biodiversity Strategy were assessed at CEO endorsement (baseline), midterm, and project closure (terminal evaluation). The UNDP Capacity Development Scorecard was also used as one of the performance indicators. Evidence gathered during the fact-finding phase of the evaluation was cross-checked between as many sources as practicable, in order to validate the findings.

The rationale for implementing the utilized evaluation methodology is described as follows:

Component 1 aimed to address the weak adequacy of the enabling framework and institutional capacity for PWS implementation and up scaling within Guizhou province. Project deliverables were reviewed to support the evaluation of this component; documents included the Guizhou Provincial BSAP (2016-2026) which was approved by Guizhou Provincial Government, the Provincial 13th Five Year Plan for Development of Environmental Policies, the Chishui River Environmental Protection Action Plan and Guizhou Provincial 13th Five Year Plan for Environmental Protection, approved sector plans, and technical regulations.

Component 2 aimed to address the barrier concerning the relative absence of successful working PES/PWS models that secure ecosystem services and biodiversity in China. The methodology used to assess progress under this component included reviewing management effectiveness tracking tools and UNDP capacity development scorecards, as well as other key deliverables, including training records. The evaluation team focused on the sustainability of the results achieved, e.g., reviewing trends in financing and for evidence of sustained support after closure of the GEF project. The data gathering method included

collection of both primary (through interviews) and secondary data (through review of documents and presentations made by contractors or experts hired by the Project.

The data triangulation was done by asking the similar evaluation questions to multiple authorities and stakeholders at central, provincial and local levels especially regarding the cross cutting issues such as gender equality and empowerment. For example, the team wanted to gather data on participatory and inclusive decision making process. The questions at the centre were how decisions were made at the PMO and SPMO level and in the province at the SPMO and local NGO levels. But the data of interest was whether or not the understanding of gender inclusion was similar across the scale.

The field mission was well facilitated, in particular, by the GEF operational focal point, UNDP Country Office, Project management team, UNDP GEF Technical Adviser based in Beijing, Guiyang and key stakeholders in Sanyuan village, Renhuai city. Interviews were held with the following organizations and individual representing their entities: MEE, FECO, UNDP, Guizhou EPD, Maotai and other three liquor company representatives, the NGO: Renhuai Environment Protection Promotion Association (REPPA) and Sanyuan Village Committee officials and general farmers including women leaders (Annex 3 provides the list of people met). The team members individually interacted with project related partners and sub-contractors especially Guizhou Institute of Environmental Sciences Research and Design (GIESRD), Guizhou Academy of Agricultural Sciences, Guizhou Academy of Social Sciences, Chinese Research Academy of Environmental Sciences, Renmin University of China and Nanjing Institute of Environmental Science.

1.3. Structure of the Evaluation Report

The evaluation report follows the standard structure of the GEF/UNDP terminal evaluation. It comprises description of the project indicating the duration, main stakeholders, and the immediate and development objectives. The findings of the evaluation are broken down into the following sections in the report:

- ✓ Project Formulation
- ✓ Project Implementation
- ✓ Project Results

The discussion under project formulation focuses on an evaluation of how clear and practicable were the project's objectives and components, and whether project outcomes were designed according to SMART criteria in Table 5.

Table 5 SMART Criteria used in assessing indicators and targets

Specific (S)	Outcomes must use change language, describing a specific future condition

Measurable (M)	Results, whether quantitative or qualitative, must have measurable indicators, making it possible to assess whether they were achieved or not
Achievable (A)	Results must be within the capacity of the partners to achieve
Relevant (R)	Results must make a contribution to selected priorities of the national development framework
Time- bound (T)	Results are never open-ended. There should be an expected date of accomplishment
Source: Guidance for Conducting Terminal Evaluations of UNDP-Supported, GEF-Financed Projects, 2012, UNDP	

Project formulation also covers whether or not capacities of the implementation partners were sufficiently considered when designing the project, and if partnership arrangements were identified and negotiated prior to project approval. An assessment of how assumptions and risks were taken into account in the development phase is also included.

The report section on project implementation first looks at how the logical results framework was used as a Monitoring and Evaluation (M&E) tool during the course of the project. Also, the effectiveness of partnerships and the degree of involvement of stakeholders are evaluated. Project finance is assessed, by looking at the degree of co-financing that was materialized in comparison to what was committed, and also whether or not additional or leveraged financing was secured during the implementation phase. The cost-effectiveness of the project is evaluated by analyzing how the planned activities met or exceeded the expected outcomes over the designed timeframe, and whether an appropriate level of due diligence was maintained in managing project funds. Cost-effectiveness is not only based on how judiciously the funds were managed, but also examines compliance with respect to the incremental cost concept, i.e., the GEF funds were allocated for activities not supported under baseline conditions, with the goal of generating global environmental benefits.

The quality of execution by both the implementing agency and the lead implementing partner (executing agency) is also evaluated and rated in the project implementation section of the report. This evaluation considers whether there was sufficient focus on results, looks at the level of support provided, quality of risk management, and the candor and realism represented in the annual reports.

The project implementation section also contains an evaluation and rating of the project M&E system. The appropriateness of the M&E plan is assessed, as well as a review of how the plan was implemented, e.g., compliance with progress and financial reporting requirements, how were adaptive measures taken in line with M&E findings, and management response to the recommendations from the midterm review.

In GEF terms, project results include direct project outputs, short to medium-term outcomes,

and longer term impact, including global environmental benefits, replication efforts, and local effects. The main focus is at the outcome level, as most UNDP supported GEF financed projects are expected to achieve anticipated outcomes by project closing, and recognizing that global environmental benefit impacts are difficult to discern and measuring outputs is insufficient to capture project effectiveness.

Project outcomes are evaluated and rated according to relevance, effectiveness, and efficiency:

Relevance	The extent to which the activity is suited to local and national development priorities and organizational policies, including changes over time. Also, relevance considers the extent to which the project is in line with GEF Operational Programs or the strategic priorities under which the project was funded.
Effectiveness	The extent to which an objective has been achieved or how likely it is to be achieved.
Efficiency	The extent to which results have been delivered with the least costly resources possible; also called cost effectiveness or efficacy.

The quality of execution by both the implementing agency and the lead implementing partner (executing agency) is also evaluated and rated in the project implementation section of the report. This evaluation considers whether there was sufficient focus on results, looks at the level of support provided, quality of risk management, and the candor and realism represented in the annual reports.

With respect to mainstreaming, the evaluation assesses the extent to which the project was successfully mainstreamed with other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and gender.

In terms of impact, the evaluator assessed whether the project has demonstrated: (a) verifiable improvements in ecological status, (b) verifiable reductions in stress on ecological systems, and/or (c) demonstrated progress towards these impact achievements.

Finally, the evaluation presents recommendations for reinforcing and following up on initial project benefits. The report concludes with a discussion of good practices and lessons learned which should be considered for other GEF and UNDP interventions.

1.4. Ethics

The evaluation was conducted in accordance with the UNEG Ethical Guidelines for Evaluators, and the TE team members have signed the Evaluation Consultant Code of Conduct Agreement form in Annex 11A and Annex 11B. In particular, the TE team ensures the anonymity and confidentiality of individuals who were interviewed and surveyed. In respect to the UN Declaration of Human Rights, results are presented in a manner that clearly

respects stakeholders' dignity and self-worth.

1.5. Audit Trail

As a means to document an "audit trail" of the evaluation process, review comments to the draft report are compiled in Annex 10, along with responses from the evaluator. Relevant modifications to the report will be incorporated into the final version of the TE report.

1.6. Limitations

The evaluation was carried out in the months of March to May, 2019 during which evaluation preparation activities, field mission, desk review, and writing and revision of the evaluation report writing tasks were completed. Although the team diligently tried to follow the UNDP guidelines outlined in the Terms of Reference in Annex 11, some limitations remain in the report. The time provided to complete the work could have been bit longer.

There were no limitations with respect to language. The project deliverables were prepared primarily in Chinese, with progress reports and work plans in English. Considering that the team comprised one national consultant and one international consultant, there were no limitations with respect to language.

The field mission was rather short. We visited Guizhou province from 9 to 12 April including travel time. After the meetings in Guiyang, we visited Renhuai city and met stakeholders. We visited the pilot demonstration site in Sanyuan village located in the Wuma sub-watershed and briefly interacted with the farmers and the officials of the Deputy Chief of the Sanyuan village committee. We also met general farmers and held a brief but very productive focused group discussion with the villagers.

1.7. Evaluation Ratings

The findings of the evaluation are compared against the targets set forth in the logical results framework, and also analyzed in light of particular developments over the course of the project. The effectiveness and efficiency of project outcomes are rated according to the 6-point GEF scale, ranging from Highly Satisfactory (no shortcomings) to Highly Unsatisfactory (severe shortcomings). M&E and execution of the implementing and executing agencies were also rated according to this scale. Relevance is evaluated to be either relevant or not relevant. Sustainability is rated according to a 4-point scale, ranging from Likely (negligible risks to the likelihood of continued benefits after the project ends) to Unlikely (severe risks that project outcomes will not be sustained). Impact was rated according to a 3-point scale, including significant, minimal, and negligible. The rating scales are compiled below in Table 6.

Table 6 The rating scales used in the evaluation

<table>
<tr><td>Ratings for Outcomes, Effectiveness, Efficiency, M&E, I&E Execution</td><td>Sustainability ratings:</td><td>Relevance ratings</td></tr>
<tr><td rowspan="3">6: Highly Satisfactory (HS): No shortcomings
5: Satisfactory (S): minor shortcomings
4: Moderately Satisfactory (MS)
3.Moderately Unsatisfactory (MU): Significant shortcomings
2. Unsatisfactory (U): Major problems
1.Highly Unsatisfactory (HU): Severe problems</td><td>4. Likely (L): Negligible risks</td><td>2. Relevant (R)</td></tr>
<tr><td>3. Moderately Likely (ML): Moderate risks</td><td>1. Not relevant (NR)</td></tr>
<tr><td>2. Moderately Unlikely (MU): significant risks

1. Unlikely (U): Severe risks</td><td>Impact Ratings:
3. Significant (S)
2. Minimal (M)
1. Negligible (N)</td></tr>
<tr><td colspan="3">Additional ratings where relevant:
Not Applicable (N/A)
Unable to Assess (U/A)</td></tr>
</table>

2. PROJECT DESCRIPTION

2.1. Project Start and Duration

Key project dates are listed below:

Received by GEF:	24 Aug 2012
PIF Approval Date:	06 Jun 2013
CEO Endorsement Date:	01 Jul 2014
Project Document (ProDoc) Signature Date (date project began):	25 Sep 2014
Date project manager hired:	Oct 2014
Inception Workshop date:	Dec 2014
Midterm Review date:	September-October 2016
Terminal Evaluation:	March-May 2019
Planned closing date:	24 Sep 2019

The project concept (project identification form) was approved on 6 June 2013. The project document was endorsed by the GEF CEO on 01 July 2014, and later that year, on 25 September, considered the official start date of the project. The project manager was hired in October 2014, and shortly afterwards, on December 2014, the project inception workshop was held. The planned completion date is 24 September 2019.

2.2. Problems that the Project sought to Address

The project objective is to operationalize a replicable Payment for Watershed Services (PWS) scheme in the Chishui River Basin to stimulate land and natural resource use systems that conserve biodiversity and sustain ecosystem processes. In the process, it will also improve the livelihoods of poor farming communities.

There are multiple threats to biodiversity in the Chishui River basin. Firstly, decreased flow and inadequate water in the river greatly affected populations of fish and other aquatic life. Furthermore, the inadequate water flow is easily polluted, causing harm to aquatic organisms. Secondly, deforestation has destroyed native plants; and cultivation of crops in mountainous areas has converted habitats of wild animals. Large floods in the 1990s eroded soils from steep farmland, then the water decreased (some fishes disappeared) and animals such as leopard disappeared.

The long term solution proposed by this project was to operationalize and mainstream a market-based system for PWS within China's existing eco-compensation policies and programmes, thus protecting biodiversity and ecological stability within the process of national economic development. China's Eco-Compensation Programme provides an important contribution towards addressing the myriad of pressures facing China's biodiversity and ecological stability. However, it is insufficient in itself to provide the financial resources and incentivize economic behavior on a large enough scale to accomplish biodiversity conservation and environmental protection and rehabilitation policy goals. There is a need to augment such fiscal transfers with market-based PWS schemes that channel payments from corporate (business sector and government) buyers to local communities supplying ecosystem services, with a view to altering their economic behavior and curbing adverse changes in land use that are leading to the loss of biodiversity and ecosystem functions. The project aims to demonstrate the application of this approach to the Chishui River basin, focusing initially on the maintenance of water quality and river flows as key marketable ecosystem services, while simultaneously targeting biodiversity conservation and socio-economic goals.

Two main barriers were identified as hampering the realization of such a PWS scheme:

Barrier 1: Weak enabling framework and institutional capacity for PWS implementation and upscaling

A market based PES system requires the establishment of institutions responsible for brokering

Payments-mapping and monitoring ecosystem services and biodiversity values, making performance based payments based on changes in land use and corresponding ecosystem functionality, verification and certification of the services and the enforcement of contracts with buyers and sellers. Currently, the managerial capacity to undertake these various functions at provincial and municipal levels is a major constraint.

In particular, capacity for monitoring and assessing biodiversity status and pressures needs to be installed, in conjunction with measures to improve the monitoring of ecosystem services. Biodiversity monitoring and assessment is currently unsystematic, under-resourced and poorly equipped, especially in a poor province like Guizhou. It should principally focus on native habitats, fish populations and other nationally protected and globally threatened species. The capacity for biodiversity monitoring and management even in key nationally protected areas such as the Rare Fishes Protection Zone of the Upper Yangtze River NNR is chronically underfunded and under-staffed. Strengthened linkages between research organizations and management agencies and more efficient knowledge-sharing platforms are needed to inform the development of sustainable watershed management practices that help protect and restore biodiversity.

Market based PWS schemes need to be jointly programmed with fiscal transfer measures—with the latter funds being deployed to improve the development and enforcement of sustainable land use practices in addition to financing supporting infrastructure. There is a need to define acceptable biodiversity-friendly land uses and codify management measures to promote their uptake in land use plans. Clearly PES/PWS will not discourage all types of land uses—the trigger price for the uptake of biodiversity friendly land use versus incompatible land use impacting conservation needs to be determined based on ecosystem valuation (this will include the additional costs of intensifying agriculture in sustainable way to compensate for lands taken out of production). This price will need to be used as a benchmark to determine payment levels. Moreover, measures need to be put in place to regulate and mitigate land uses that cannot be compensated through PES/PWS payments, such as water engineering projects.

Finally, numerous government agencies regulate and support different aspects of land and natural resource use (agriculture, forestry, fisheries, and pollution control among others). There is an important need to mainstream biodiversity conservation into their strategies and operations and to coordinate activities to ensure that they are not working at cross purposes with PES/PWS schemes, but rather contribute towards their objectives in a streamlined manner.

Barrier 2: Insufficient know-how on the establishment and implementation of viable PWS mechanisms for biodiversity conservation

A key barrier to the operationalization of a market based PWS scheme is the lack of successful working models, which secure ecosystem services (water quality and supply) and biodiversity. While there are examples of eco-compensation schemes targeting water quality improvements in Guizhou and elsewhere in China (see Baseline section), PWS is as yet undemonstrated in China. Therefore, there is a clear need to demonstrate the full process involved in the initiation and implementation of a working PWS scheme at the local level that takes into account the Chinese policy, administrative, socio-economic, cultural and environmental conditions. This will include the need for development of local capacity for the full range of activities involved, from identifying prospective sellers and buyers of ecosystem services, to bundling of payments on the buyers' side and organizing suppliers into groups (e.g., village cooperatives), to sustainable land management techniques, the management of PWS contracts, and monitoring and evaluation of the services provided.

The integration of PWS and eco-compensation schemes also needs to be demonstrated at the local level, in order to show how different schemes can be combined towards achieving shared environmental and socio-economic objectives, including various government agencies, local communities and the private sector.

2.3. Immediate and Development Objectives of the Project

The Chishui River is one of the most important tributaries of the upper Yangtze River (Figure

1), because of its diverse landscapes, richness in biodiversity and abundance in water resources. It is also the only major free-flowing tributary of the Upper Yangtze, without a mainstream dam. Significant environmental degradation has taken place in the Chishui River basin, in common with many other parts of the Yangtze River Basin and other river basins in China. This has been due in large part to unsustainable land use practices which have seen marginalized poor farming communities increasingly cultivating steep slopes with annual crops, resulting in deforestation, soil erosion, sediment and nutrient loading of the river, and hydrological impacts.

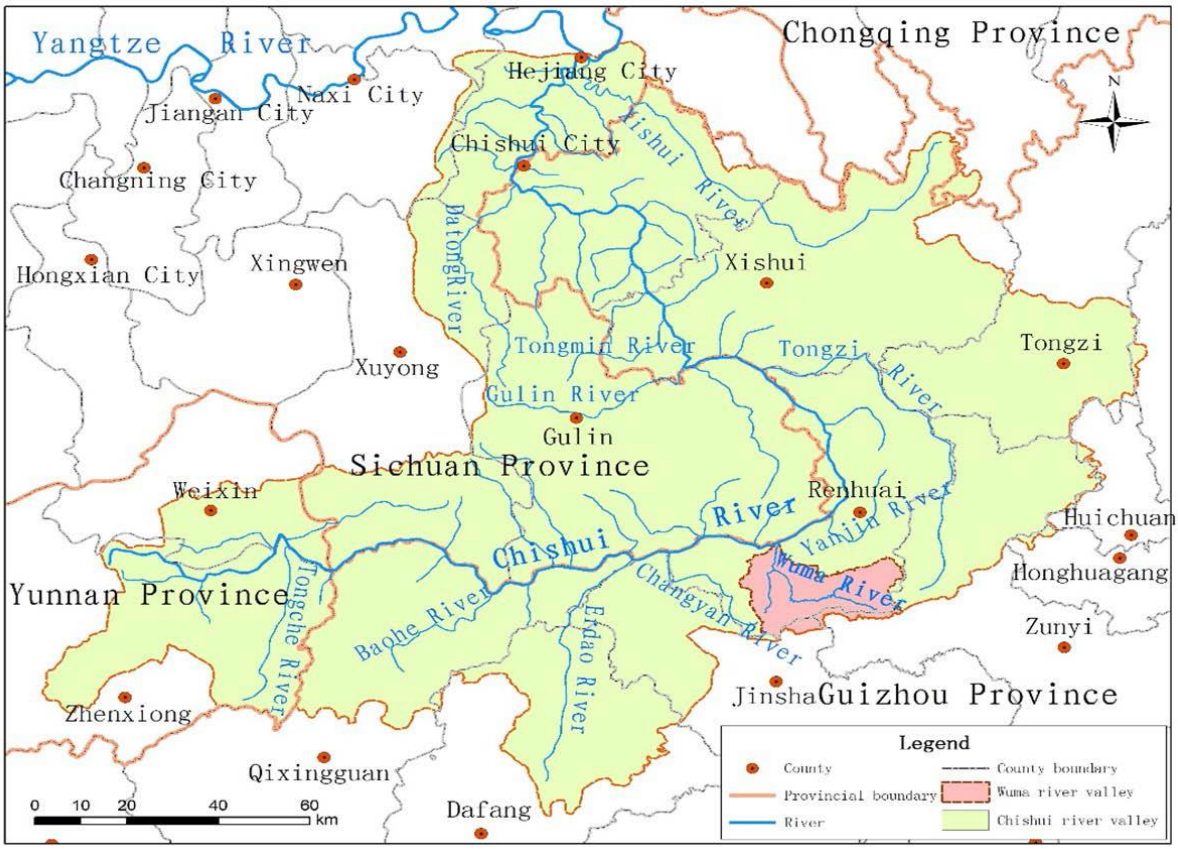


Figure 1 Map showing Chishui River Watershed and Wuma River Sub-Watershed

The Chishui River Basin is an important storehouse of biodiversity, lying within the Upper Yangtze Freshwater Eco region, and the Guizhou Plateau Broadleaf and Mixed Forests Eco region. The Guizhou Plateau is a cool, cloudy realm of jumbled limestone pinnacles and rivers. Karst limestone, derived from the calcareous shells of Paleozoic marine organisms, was deposited in deep sedimentary layers, and then forced to the surface as a result of the same tectonic activity that built the Himalaya. Subtropical vegetation clings to the steep slopes, and some rare animal species still find refuge here. Original forests have been almost completely destroyed, except for those within protected areas, and deforestation and poaching are ongoing threats to this Eco region. The river basin also lies on the eastern margin of Conservation International's Mountains of Southwest China biodiversity hotspot,

and contains the Chishui Danxia block (27,364 ha plus a buffer zone of 44,814 ha) of the China Danxia World Heritage Site (82,151 ha plus buffer zone of 218,357 ha) lies in the lower reaches of the Chishui. These rugged landscapes have helped to conserve sub-tropical broad-leaved evergreen forests, and host many species of flora and fauna, about 400 of which are considered rare or threatened.

The conservation significance of the area is amplified by the fact that the Chishui River is the only tributary in the upper reaches of the Yangtze that has not been dammed—meaning that key ecological processes have largely been maintained, although the river system faces significant stresses from land degradation and hydrological engineering development. The Chishui River Basin is a vital habitat and spawning place for precious and characteristic fish in the Upper Yangtze River Basin, as it was selected as the location of a National Nature Reserve for the Conservation of Rare and Endemic Fish in the Upper reaches of the Yangtze River. There are 17 families, 72 genera and 112 species of fish alone, of which 28 species are endemic to the Upper Yangtze River Basin, representing some 27.2% of the total endemic fish diversity of the Upper Yangtze River Basin. In addition, most of the cave fish and aquatic organisms in the upper watershed are Chinese endemic species. Some of these species have been extirpated elsewhere in the upper Yangtze as a result of the changes in hydrological and ecological conditions that have occurred following construction of the Three Gorges Reservoir.

2.4. Baseline Indicators Established

Baseline indicators included the following:

- ✓ PWS and biodiversity conservation are mainstreamed into national and Guizhou provincial policies, regulations and plans by the end of the project as indicated by the GEF Biodiversity Tracking Tool (Annex 12).
- ✓ Sustained presence of globally significant fish populations in the Chishui River system, as indicated by monitoring of river stretches immediately downstream of pilot PWS sites using a standardized monitoring protocol.
- ✓ Provincial government investment in eco-compensation / PWS schemes in Chishui River Basin is sustained at CNY 50 million per year from 2015 and supports replication of PWS to other watersheds.
- ✓ Land use change restrictions codified in provincial development / land use and water resource plans through inputs to the following 5 year plans reduce threats to aquatic habitats and biodiversity in the CRB.
- ✓ An office in charge of planning and managing PWS mechanisms along the Chishui River within Guizhou province is established within Guizhou provincial EPD.
- ✓ Improved capacities of provincial and municipal environmental protection offices for

implementing PES/PWS as shown by increased scores in the Capacity Development Scorecard.

- ✓ At least 12 staff from MEP-FECO, Guizhou EPD, Bijie EPB, Chishui EPB, Renhuai EPB and Zunyi EPB trained and given official mandate to monitor biodiversity and ecosystem services impacts arising through PWS schemes and harmonized eco-compensation programmes.
- ✓ An ecolabelling scheme is established for companies participating in PWS schemes and taken up by the private sector.
- ✓ Institutional capacity of Guizhou EPD reaches readiness for PWS implementation and replication.
- ✓ PWS agreement(s) for pilot areas within the demonstration sub watershed including a long-term financial agreement are agreed upon by buyers and sellers of specified watershed services and operationalized.
- ✓ Area of the selected demonstration sub-watershed under biodiversity friendly land use by community land managers.
- ✓ Change in land use supporting biodiversity within demonstration sub-watershed, indicated by a 10% increase in forest cover in pilot demonstration areas from the time of PWS agreement signature.
- ✓ 10% increase in average annual per capita income of farming households participating in PWS pilot demonstration.
- ✓ Improvements in ecosystem health as indicated by Ecosystem Health Index.
- ✓ Positive trend indicating improvement in status of key ecosystem services specified in PWS agreement(s).

2.5. Main Stakeholders

Table 7 List of project stakeholders and their envisaged roles and responsibilities

Stakeholder	Roles and Responsibilities

Stakeholder	Roles and Responsibilities
Ministry of Ecology and Environment (MEE)	Through its Foreign Economic Corporation Office (FECO), MEP is the national executing agency for this project providing the national project director, hosting the National Project Management Office and ensuring quality and timely results monitoring and reporting of the project. The bureau is also responsible for reporting to the CBD, and hosts the National GEF Secretariat office. Land management responsibility for the project area, however, rests with the provincial governments in the CRB (Guizhou, Yunnan and Sichuan).
Ministry of Finance	GEF Operational Focal Point (OFP). Coordination and implementation of GEF projects.
Changjiang Water Resources Commission	Under the Ministry of Water Resources (MWR), the CWMC enforces and exercises the water administrative functions as enacted in the Water Law and authorized by the MWR. Functions include integrated river basin management, flood control, soil conservation, basin master plan preparation, water resources protection and water project development.
Guizhou Provincial Government	Leadership and coordination for implementation of the project, hosting the project management office within its Environmental Protection Department. Responsible for provincial administration, development planning and implementation, as well as planning and financing for watershed management. Other provincial agencies such as the Development Reform Commission, Land Resources Department, Forestry Department, Tourism Department, Water Resources Department, etc., will coordinate with the EPD under the provincial government's guidance to implement the PES project. While their roles are summarized below, see Annex 3 for further information on their responsibilities.
Standing Committee of People's Congress of Guizhou Province	Responsible for coordination of legislation and regulation functions in Guizhou, including the provincial regulation for Chishui River Basin protection.

Stakeholder	Roles and Responsibilities
Yunnan and Sichuan Provincial Governments	Provincial governments for the other two riparian provinces of the Chishui River Basin. They represent key partners for trans boundary river basin cooperation under the Guizhou Province Chishui River Basin Conservation Ordinance, building on the Summit Forum on Conservation and Development of Chishui River Basin attended by the three riparian provinces in 2008. Their involvement in this project will concern familiarization and learning about the PWS approach, setting the stage for post-project up scaling and replication of the PWS approach to the whole river basin; as well as coordination with Guizhou provincial authorities on trans provincial river basin management issues.
Environmental Protection Department of Guizhou	The provincial executing agency for the project, hosting the Sub-Project Management Office. Responsible for environmental management, GEPD's functions include overseeing implementation of national environmental laws and standards in Chishui River Basin; drafting provincial regulations and standards on environmental protection; publishing the status of the environmental situation; drafting and implementing the environmental protection plan in the Chishui River Basin; drafting the environmental function zoning plan in the Chishui River Basin; managing environmental protection funds of various kinds; supervising water pollution control in the Chishui River Basin; supervising nature reserves; reviewing and approving EIA reports; and carrying out environmental monitoring and reporting of statistics.
Guizhou Development Reform Commission	Guizhou DRC is in charge of master plan and coordination of all the other sectors of Guizhou province, with the following responsibilities: draft the economic and social development master plan, long-term plan, five-year plan, and special plans for pillar industries and hi-technologies; balance development among regions; approve government investment projects; and manage circular economy and eco-compensation: policies and programs.
Guizhou Financial Department	Guizhou FD is in charge of the financial management of Guizhou provincial government, and it has much to do with the eco-compensation programs of the government. The main responsibilities of Guizhou FD include: manage government subsidies, and special funds; and manage grants and loans from international financial organizations and foreign governments. In the context of this project Guizhou FD is a key player in the design of financial mechanisms for PWS and eco-compensation schemes.

Stakeholder	Roles and Responsibilities
Guizhou Provincial Agricultural Commission (and Fisheries)	Guizhou PAC is in charge of agricultural management including crop farming, animal raising, fishery and aquaculture, etc. including the following responsibilities in the Chishui River Basin: supervise land tenure transfer and mediate land conflicts; propose agricultural structural change; assess the agricultural products quality: monitoring and standards; extend agricultural technologies; train rural laborers for both agricultural and non-agricultural skills; protect agricultural resources including wild aquatic resources; and draft agriculture and environmental protection plan. Guizhou Provincial Fishery Bureau affiliated with Guizhou PAC is in charge of the protection of the wild aquatic resources, and manages the NNR for Rare and Endemic Fishes in Upper Yangtze River Basin (Guizhou section). The PAC will be an important stakeholder in enabling transition towards more sustainable agricultural practices in the demonstration watershed, as well as a source of expertise for extension services and monitoring and conserving the Chishui's important fish populations.
Guizhou Forestry Department	Guizhou Forestry Department is in charge of forestry management, wetland management, and wild animal and plants management. Its functions include forest planning, management, protection, and reforestation including forest-related eco-compensation programmes. It also manages nature reserves and species protection programmes. An important partner for watershed management, in terms of reforestation, harmonizing eco-compensation schemes with PWS schemes and supporting biodiversity conservation.
Guizhou Water Resources Department	In charge of water resource management in CRB including: draft the provincial water resources plan, including water allocation, water supply, water utilization, and flood/drought control; draft water saving, water resource protection and water functional zoning plans; monitor water quantity and water quality of rivers and lakes; mediate water conflicts between regions; manage water and soil conservation: plan, monitoring, supervision, and control. A key player in watershed and river basin management, including hydrological monitoring, development control planning and maintenance of water quality and quantity in the river system.
Guizhou Tourism Administration	GTA is in charge of tourism management, including: carrying out national laws and policies and draft provincial tourism policies and development plans; manage tourism sites; and supervise rural tourism and eco-tourism.

Stakeholder	Roles and Responsibilities
Local Governments – Bijie, Zunyi, and Chishui Municipalities, Renhuai City, Wuma and other townships in Wuma Valley	The municipal Environmental Protection Bureaus will be target institutions for capacity building on the coordination and management of PWS/PES schemes. In particular, their potential roles include monitoring and evaluation of land use changes, environmental changes, poverty reduction and other impacts deriving from PWS related activities. The pilot demonstration project will focus on Wuma Township in the Wuma River valley, under Renhuai City. Therefore Renhuai Environmental Protection Bureau will play a key role in coordinating the demonstration activities.
National institutes of environmental sciences and local universities (including Guizhou Normal University, China Agricultural University, Yangtze Fisheries Institute.)	Key providers of technical expertise on geographical, hydrological, ecological and socio-economic issues, including fisheries and freshwater ecology. The project will collaborate with them for species and ecosystem conservation work, and they would collaborate for systematic biodiversity monitoring and knowledge sharing activities of the project.
Media	Key partners for publicity and information dissemination about the Project. Targeted efforts will be made to engage the media throughout project implementation.
Urban Communities	Key users and beneficiaries of the water resources and biodiversity. They have a potential role in local habitat conservation, controlling of poaching, and natural resource management. Key participants of the project at the local level.
Farming Communities	Key resource users and potential sellers of ecosystem services. Implementers of changes in land use patterns from subsistence agriculture to sustainable agriculture. Direct beneficiaries of alternative livelihood interventions and increasingly consulted during project planning processes.
International Agencies (ADB, EU, etc.) and NGOs (WWF, TNC, etc.)	Have capacity to provide technical advice on subjects including PES/PWS, watershed management tools, Eco regional assessment, biodiversity monitoring, community participation and education and awareness. These organizations can provide knowledge, experience and lessons learned, as well as technical support to the project.
Private businesses (manufacturing companies, water utility companies, tourism companies)	Potential end-buyers of the ecosystem services (primarily clean water supply for industries and urban areas; high quality landscapes and natural environment for tourism companies), which will work towards internalizing the related environmental costs in their operational costs.

2.6. Expected Results

The project's goal is to contribute to the conservation and sustainable use of globally significant biodiversity in China. The project objective is to operationalize a replicable PWS scheme in the Chishui River Basin to stimulate land and natural resource use systems that conserve biodiversity and sustain ecosystem processes. In the process, it will also improve the livelihoods of poor farming communities.

This project aims to achieve the objective through the implementation of two inter-connected components. Component 1 will address the weak adequacy of the enabling framework and institutional capacity for PWS implementation and upscaling within Guizhou province, including the managerial capacity to oversee PWS programmes, strengthened integration of biodiversity conservation within watershed management practices, improved capacity for monitoring, assessment and sharing of information on biodiversity, coordination of PWS with fiscal transfer schemes, strengthened regulation of land uses, mainstreaming of biodiversity conservation in the strategies and plans of sectoral agencies, and engagement of the private sector in supporting PWS. Component 2 aims to address the barrier concerning the relative absence of successful working PES/PWS models that secure ecosystem services and biodiversity in China – whereby insufficient experience and know-how on the establishment of viable PWS mechanisms is a constraint for its uptake as a potentially valuable mechanism to supplement and support the variety of eco-compensation programmes currently in progress.

These two components will be accomplished through two outcomes, the first aiming to establish a systemic and institutional framework for PWS development and management at municipal and provincial levels, including the mainstreaming of PWS and biodiversity conservation into relevant policies, plans and regulations of different departments. The second outcome aims to demonstrate an operational PWS scheme in a sub-watershed of the Chishui River in Guizhou that enhances both biodiversity and ecosystem services values through improved watershed management. With GEF support, the respect results necessary to achieve this outcome are described below.

- ✓ Capacity for planning and managing PWS mechanisms is developed within Guizhou Provincial EPD and Municipal EPBs within Chishui River Basin.
- ✓ A standardized biodiversity and ecosystem services indicator system is developed to assess the impacts of PWS schemes.
- ✓ PWS is mainstreamed into related policies, plans and regulations to regulate land uses, facilitate land use trade-offs, and integrate its implementation with eco-compensation

schemes.

- ✓ Private sector involvement in PWS is promoted and incentivized through introduction of an eco-labeling scheme.
- ✓ Best Practice guidelines, methodological protocols and lessons learned are shared for scaling-up and replicating PWS in additional watersheds in the Chishui River Basin and other watersheds in China.
- ✓ PWS pilot mechanism established in Wuma sub-watershed, generating uptake of biodiversity friendly land use options.
- ✓ PWS agreements are established for the provision of watershed services.
- ✓ The impacts of PWS implementation on land use changes, delivery of ecosystem services, biodiversity and livelihoods are monitored, assessed and reported.
- ✓ Catchment management plan for Wuma River valley demonstrates a framework for integrating PWS with eco-compensation and regulatory mechanisms for sustainable watershed management.

3. FINDINGS

3.1. Project Design / Formulation

3.1.1. Analysis of Project Design and Logical Results Framework:

The project identification and design was done in a sound and scientific manner. The project addressed the globally common issues of biodiversity loss such as unsustainable use of biodiversity and ecosystem services derived therefrom, land use conversion from forest and grasslands to agriculture for maintaining a subsistence living by farmers and forest users. This leads to a vicious cycle of ecosystem degradation, poverty and unsustainable extraction of biodiversity and other natural resources including water. The project rightly aimed to create an enabling environment which can convert the vicious cycle into virtuous cycle of increased flow of ecosystem services, improved livelihoods and sustainable use. The design team focused on conservation-compatible land use system in the biodiversity-rich Chishui River Basin in Guizhou Province, using payment for watershed services (PWS) as an incentivized mechanism to trigger change in the attitude of farmers from being unsustainable extractors to sustainable co-producers of ecosystem services – mainly purified water - through their active participation in the conversion of current water and biodiversity polluting land use practice into a bio-diversity friendly land use system. The project's objective to introduce market-oriented PWS mechanisms to complement the government-administered Eco-Compensation Programme is timely and strategic. This will increase the conservation value of the globally important biodiversity in the CRB through the application of globally accepted PES mechanism that is tailored to suit Chishui river basin's special circumstances and local environmental and socio-economic

imperatives.

Conservation compatible land use changes is expected to positively influence biodiversity conservation, in particular the aquatic biodiversity in the CRB. Through scaling out (physical expansion of the land use transformation) of good land management practices in the watersheds of the CRB, the project is directly reducing threats to both terrestrial and aquatic biodiversity within the protected areas in the basin. The project also directly addresses BD-2 Output 2.2: "National and sub-national land use plans that incorporate biodiversity and ecosystem services valuation". The valuation of watershed ecosystem services is a key component of the project particularly as a pilot which will be scaled up through enhanced knowledge-policy interface. This was demonstrated by the PWS with an aim of obtaining business agreement between buyers (liquor industry) and sellers (upstream farmers) of ecosystem services (stable flow of quality water). This agreement is being integrated in the local watershed sub-watershed community's land use plans.

The project design has created a cross-scale collaborative and interdisciplinary institutional arrangement involving the Ministry of Ecology and Environment (MEE) at the Centre, Guizhou Environment Protection department (GEPD) and the four environment protection bureaus (EPBs) at municipality levels which are jointly implementing a challenging project on Payment for Watershed Services (PWS). This is a first of its kind Project in China wherein a large river basin scale market based payment for ecosystem services scheme has been planned. The PWS project aims to eventually mainstream biodiversity and ecosystem services in the land use plan, realigning the key ecological function zones and protected areas in line with the Guizhou's three pillar strategic actions, i.e. poverty reduction, big data and ecological conservation.

Eventually, the scheme will be implemented in the entire Chishui River basin spanning over the provinces of Yunnan, Guizhou and Sichuan. Implementation of PWS schemes has already led to the mainstreaming of eco-compensation or PES concept into pilot biodiversity conservation and sustainable land use practice in upstream farming area and the middle stream liquor production sector of Chishui River – estimated to ultimately cover 670,000 ha with conservation friendly land use systems. The project also aims to catalyze private sector investment in China for biodiversity conservation in the long term. Furthermore, the Project is directly contributing to the achievement of the Aichi Biodiversity Targets in particular the target 3 and 4 under Strategic Goal A: "address underlying causes of biodiversity loss by mainstreaming biodiversity across government and society" and target 6, 7 and 8 under Strategic Goal B: "Reduce the direct pressures on biodiversity and promote sustainable use". The project interventions thus supports the implementation of China's National Biodiversity Strategy and Action Plan (NBSAP) and an equivalent provincial biodiversity plan in Guizhou province as a part of compliance to the CBD reporting.

The project design outlines an innovative, market-based payment for watershed services (PWS) scheme involving transactional arrangements between the business sector (buyers) and upstream farmers (sellers). Such a PWS scheme that engages the business sector with of particular interest to the Ministry of Ecology and Environment (MEE), in their planning of payment for ecosystem services

(PES) programs in the country may have weak local ownership and risk long-term sustainability. The project strategy was clearly articulated and the design outlined in a very instructional manner. The 4-year timeframe and the budget resources allocated for the project were insufficient, considering the objectives set forth to upscale the PWS mechanism. Negotiations with the key watershed service buyer, the Maotai Company which only happened after the Mid-term Review instead during the first year of the project or ideally even during the preparation phase as was felt by the ME team was fast tracked eventually and 4 companies have joined the project as buyers of the clean water.

Objective-level Indicators and Targets:

The objective of the project is to operationalize a replicable PWS scheme in the Chishui River Basin to stimulate land and natural resource use systems that conserve biodiversity and sustain ecosystem processes. In the process, it will also improve the livelihoods of poor farming communities. Since the project was designed under Objective 2 of the GEF-5 Biodiversity Strategy: "Mainstream Biodiversity Conservation and Sustainable Use into Production Landscapes, Seascapes and Sectors", and specifically Outcomes 2.1 and 2.2 of this objective. There are: Outcome 2.1: Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation; and Outcome 2.2: Measures to conserve and sustainably use biodiversity incorporated in policy and regulatory frameworks.

The strategic results framework for the project was assessed against "SMART" criteria, whether the indicators and targets were sufficiently specific, measurable, achievable, relevant, and time-bound. Annex 6 provides the objective wise target and indicator achievement analysis. There are four objective level, five outcome 1 level and 6 outcome 2 levels Indicators. A summary is presented in Tales below (more detailed information is provided in Annex 6).

Table 8 *Assessment of objective level indicators, targets and progress achieved*

Objective: To operationalize a replicable PWS scheme in the Chishui River Basin to stimulate land and natural resource use systems that conserve biodiversity and sustain ecosystem processes		
Indicator	***End-of-the project target***	***Cumulative progress to date***
PWS and biodiversity conservation are mainstreamed into national and Guizhou provincial policies, regulations and plans by the end of the project as indicated by the GEF Biodiversity Tracking Tool.	PWS and biodiversity conservation mainstreamed into national and Guizhou provincial policies, regulations and plans, including the Regulation on Ecological Compensation, Guizhou Provincial Chishui River Protection Act, 13th Five-Year Environmental Policy regulations, and Planning of Ecosystem Function Area in the Upstream of Chishui River Basin.	The target is achieved. Eco-compensation and/or PWS have been included in at least 6 government policy papers, regulations or plans. Eco-compensation and/or PWS has been included in the following policies, regulations or plans: - Guizhou Provincial BSAP (2016-2026) which was approved by Guizhou Provincial Government. - Provincial 13th Five Year Plan for Development of Environmental Policies - Chishui River Environmental Protection

	Official approval of the demonstration PWS scheme.	Action Plan - Guizhou Provincial 13th Five Year Plan for Environmental Protection The most important government policy paper so far "Report to the 19th Standing Committee of the Communist Party of China" on 18 October 2017 called for the establishment of market-based and diverse eco-compensation mechanism.
Sustained presence of globally significant fish populations in the Chishui River system, as indicated by monitoring of river stretches immediately downstream of pilot PWS sites using a standardized monitoring protocol.	Annual monitoring using standardized protocol confirms presence of the same species in stretches of the Chishui River system immediately downstream of pilot PWS sites	A Biodiversity and Ecosystem Services monitoring system was developed based on GIS and InVEST model. The provincial and local environmental protection departments have procured biodiversity and ecosystem monitoring equipment. The monitoring toke place in Mar. 2019 and confirmed the presence of the same species in stretches of the Chishui River system immediately downstream of pilot PWS sites.
Provincial government investment in eco-compensation / PWS schemes in Chishui River Basin is sustained at CNY 50 million per year from 2015 and supports replication of PWS to other watersheds	Guizhou Provincial Government Special Fund for Environmental Protection in Chishui River Basin – annual allocations consistently reach RMB 100 million in 2017 and support replication of PWS to other watersheds	Provincial government investment in eco-compensation / PWS schemes in Chishui River Basin has been reviewed and found consistently increased from RMB 40 million (2014) to 100 million (2018).
Land use change restrictions codified in provincial development / land use and water resource plans through inputs to the following 5 year plans reduce threats to aquatic habitats and biodiversity in the CRB.	Land use change restrictions codified in provincial development / land use and water resource plans through inputs to the following 5 year plans reduce threats to aquatic habitats and biodiversity in the CRB.	The implementation plan of Ecological Protection Redline of Guizhou Province in place (the plan has been reviewed)

Table 9 *Assessment of outcome 1 level indicators, targets and progress achieved*

Outcome 1. Systemic and institutional framework for PWS development and management established at

municipal and provincial levels for the Chishui River Basin within Guizhou Province.		
Indicator	***End-of-the project target***	***Cumulative progress to date***
An office in charge of planning and managing PWS mechanisms along the Chishui River within Guizhou province is established within Guizhou provincial EPD.	Dedicated PWS office established within Guizhou provincial EPD with at least 2 staff and an annual operational budget of at least USD 50,000 by end of Year 3.	A dedicated PWS office has been established within the EPD of Guizhou.
Improved capacities of provincial and municipal environmental protection offices for implementing PES/PWS as shown by increased scores in the Capacity Development Scorecard	Capacity Development Scorecard Targets:	
At least 12 staff from MEP-FECO, Guizhou EPD, Bijie EPB, Chishui EPB, Renhuai EPB and Zunyi EPB trained and given official mandate to monitor biodiversity and ecosystem services impacts arising through PWS schemes and harmonized eco-compensation programmes.	More than 12 staff trained and given official mandate to monitor biodiversity and ecosystem services impacts arising through PWS schemes and harmonized eco-compensation programmes.	Target is achieved. 50 staff members have been trained on biodiversity and ecosystem monitoring from Guizhou EPD, Bijie EPB, Chishui EPB, Renhuai EPB and Zunyi EPB.
An eco-labeling scheme is established for companies participating in PWS schemes and taken up by the private sector	Eco-labeling scheme is established and at least three companies meeting criteria for engagement in PWS schemes are awarded the label	Target is well achieved. More than 30 companies with 15 products have been enrolled the geographical origin label system and engaged in the PWS scheme.
Institutional capacity of Guizhou EPD reaches readiness for PWS implementation and replication	Management guidelines and methodological protocols for scaling-up and replicating PWS in additional watersheds along the Chishui River Basin are produced by Guizhou EPD, training in their application is provided to all provincial and municipal EPB offices in the river basin.	A Market-Oriented Eco-compensation Scheme in The Chishui River Basin: Practice and Experience (the sub-contractor has been interviewed)

Table 10 *Assessment of outcome 2 level indicators, targets and progress achieved*

Outcome 2. Pilot PWS scheme (s) are demonstrated in selected sub-watersheds of Chishui River Basin in Guizhou Province		
Indicator	***End-of-the project target***	***Cumulative progress to date***

PWS agreement(s) for pilot areas within the demonstration sub watershed including a long-term financial agreement are agreed upon by buyers and sellers of specified watershed services and operationalized.	PWS agreement(s) for the pilot areas within the demonstration sub-watershed including a long-term financial agreement are agreed upon by buyers and sellers of specified watershed services and operationalized.	Three companies have signed the PWS agreements with the upstream Sanyuan village committee to change into more biodiversity friendly land use pattern for the protection of watershed. 100 mu of 22 households have agreed to participate in the PWS scheme, which is now operational.
Area of the selected demonstration sub-watershed under biodiversity friendly land use by community land managers	No less than 7,000 hectares of the selected demonstration sub-watershed is under biodiversity friendly land use by community land managers	7,466.33 hectares farmlands have been under environmentally and biodiversity friendly land use.
Change in land use supporting biodiversity within demonstration sub-watershed, indicated by a 10% increase in forest cover in pilot demonstration areas from the time of PWS agreement signature	10% increase in forest cover in pilot demonstration areas from time of PWS agreement signature	More than 10% increase in forest cover in pilot demonstration areas from time of PWS agreement signature. (the data from the sub-contractor who has been interviewed)
10% increase in average annual per capita income of farming households participating in PWS pilot demonstration	Average annual per capita income increases at 10% per annum over baseline after 2 years into PWS pilot project.	Progressing toward achievement; however, the impacts of PWS scheme on farmers' income will take time to show since the land-use change with PWS took place only in Feb of 2018.
Improvements in ecosystem health as indicated by Ecosystem Health Index	EHI scores show increasing trend for selected area(s) based on annual assessments	From the sub-contractor's report, EHI scores show increasing trend for pilot area.
Positive trend indicating improvement in status of key ecosystem services specified in PWS agreement(s)* *Parameters and detailed baseline measurements to be determined in Year One of Project	Trend of stable or slight improvement in status of water quality / quantity provided by demonstration area by end of project, according to terms of PWS agreement(s).	On track toward the target. Test Report (the report has been shared and reviewed) indicate stable water quality data

3.1.2. Assumptions and Risks

The project strategy, described in detail within the project document, made the following key assumptions in proposing the GEF intervention:

1. Baseline conditions in the selected areas can be extrapolated with high confidence level to other watershed areas in China and lessons learnt can be successfully disseminated.
2. Increased awareness and capacity will lead to a change in behaviour with respect to the integration of biodiversity conservation concerns into watershed management policies and practices.
3. Payment for watershed services will gradually become a national priority for China as knowledge and information is made available.

The TE team critically examined these assumptions and found them all valid. The potential risk assessment done was thorough and risk management undertaken reasonably effective. The following eight categories of risks were identified: environmental, financial, operational, organizational, political, regulatory, and strategic issues. These were updated especially post MTR from what has been presented at the PIF stage, elaborated and classified according to UNDP/GEF Risk Standard Categories, and assessed according to criteria of 'impact' and 'likelihood' and necessary risk prevention and/or minimization measures taken. These risks and the mitigation measures were continuously monitored and updated throughout the project, and were also logged in the ATLAS and reported in the PIRs. The UNDP Environmental and Social Screening Procedure applied during project preparation did not identify any significant environmental or social risks associated with the proposed project. In general, the TE team finds that the risk management strategy adopted by the project will be effective in managing potential risks especially in terms of the accomplishment of the anticipated impact on the people's livelihood and quality and integrity of biodiversity.

The TE team feels that the project contributes positively towards the conservation of biodiversity and maintenance of ecological stability in the Chishui River Basin, as well as towards a strengthened policy and regulatory framework for PWS through which local communities have increased the project generated benefits – in terms of reward and compensation payments - from agreements with downstream water users i.e. Liquor companies, as well as from improved land use sustainability.

The water consuming industries mainly the Mao-Tai group of companies have not opted for engineering water purification solutions to ensure guaranteed water supplies to meet future production targets. Contrary to the assumption, they have taken larger part of their pure water needs from the naturally processed Chishui River source in view of their refined traditional processing techniques. Thus the PWS has become a viable mechanism for this reason. Also to protect water quality and flows for other downstream users, riparian provinces have agreed to upscale PWS in the entire CRN as per the overall policy and legal framework of the Yangtze River Commission. In addition, PWS is working well in the context of protecting catchment areas for water storage reservoirs. PWS has promoted by this project does therefore represent an economically viable solution both for the private sector and local and provincial governments.

The Guizhou provincial government has been identified as the buyer of the watershed services according to preliminary discussions, with potential to mediate and underwrite the contracting of services to other buyers (e.g. downstream industries). It is therefore clear that the buyer does have the capacity to pay a market price for the service. During the PPG, an assessment of potential service providers (pilot communities) was conducted, and capacity building plans were later developed to ensure the adequate capacity was built for successful PWS establishment. The TE team has confirmed that such capacity has been built. Table 11 explains the risk management assessment.

Table 11 The Risk management assessment, mitigation plan and TE's review comments

Identified Risks	Risk Assessment	Elaboration of Risks	Mitigation Measures	TE assessment
Potential buyers of PWS services opt for a different water supply solution	MEDIUM	Major water consuming industries opt for water engineering solutions to ensure guaranteed water supplies when they need it, instead of long term sustainable land use practices supported by PWS	Even if major water consuming industries opt for water engineering solutions to ensure guaranteed water supplies to meet future production targets, they are still likely to take some water from the Chishui River in view of their refined traditional processing techniques. PWS will remain viable for this reason, and also to protect water quality and flows for other downstream users. In addition, PWS works well in the context of protecting catchment areas for water storage reservoirs. PWS has promoted by this project should therefore represent a cost-beneficial solution for the private sector as well as local and provincial governments.	Under control and risk well managed
PWS buyers / sellers lack capacity to fulfill terms of agreement	LOW	Buyers and/or sellers of watershed services show willingness to participate in a PWS mechanism but lack the capacity to pay a market price for the service or to deliver the service adequately (failure of the contingency principle)	The Guizhou provincial government has been identified as the buyer of the watershed services according to preliminary discussions, with potential to mediate and underwrite the contracting of services to other buyers (e.g. downstream industries). It is therefore clear that the buyer does have the capacity to pay a market price for the service. During the PPG, an assessment of potential service providers (pilot communities) was conducted, and capacity building plans will be developed to ensure the adequate capacity will be in place for successful PWS establishment.	Well managed
Upstream communities lack willingness to	LOW	Upstream farming communities, as providers of the ecosystem services	The pilot communities selected for the initial PWS demonstration activities to be supported by the project were consulted during PPG phase and	Well controlled

change land uses as part of PWS agreements		covered in the PWS agreements through changes in land use patterns, are unwilling to participate in PWS initiatives.	expressed their willingness to participate in PWS activities as long as their income did not diminish. In the short term, technical assistance by the project should control this risk while PWS agreements are under development, and subsequently the terms of the PWS agreements should ensure that they are fully compensated and in fact benefit from changes towards more sustainable land use	
Long time needed to implement PWS effectively at scale may cause loss of interest	MEDIUM	The small scale of the pilot demonstration(s) and the time and resources required to achieve up scaling in order to deliver agreed ecosystem services at sufficient scale fail to raise interest of buyers and attract confidence in PWS as a viable approach at large watershed level	The project aims to mainstream PWS schemes into broader eco-compensation policies and programmes, thereby supporting its upscaling more rapidly over larger areas with land-use changes financed initially by other eco-compensation schemes that are targeted at achieving the same environmental and socio-economic goals.	The risk has been taken seriously and effective management plan in place
Long time required to achieve delivery of services under PWS may affect willingness of buyers to participate	MEDIUM	Mismatch of time scales between financial payments (relatively short to medium term) and environmental changes (relatively long term) impacts the credibility of the PWS mechanism. Financial benefits especially for sellers can be delivered in 1 to 4 years. Ecosystem restoration effectiveness to deliver services may take more than 10 years.	Demonstration sites must be planned so as to show in a relatively short time (4 years) both economic and ecological benefits of the mechanism at a reduced scale. Rigorous scaling up techniques will follow up showing with reasonable certainty the delivery of services within an acceptable time frame, with transitional support from eco-compensation schemes as needed. Cost benefit analysis conducted by the project managers jointly with buyers/sellers should show benefits across time which cannot be achieved under the “business as usual scenario”. Performance based payment schemes will structure financing to ensure that part payment (amount to be determined) will be paid upon certified delivery of ecosystem services. However, an *ex ante* component of the payment will also be needed to encourage uptake of new land use management systems and farming methods.	Risk mitigation measures are good and effective

Delays in establishing a suitable legal – institutional framework for PWS may impact implementation of PWS agreements	MEDIUM	Legal –Institutional framework might be either inadequate to establish formal contractual association between buyers and sellers, or required adjustments may take more time to be in place than buyers, sellers or the ecosystem can afford to wait without losing interests/confidence in the PWS mechanism.	An assessment of the legal and institutional framework for PWS establishment has been conducted and plans for improvements through the project have been proposed in Component 1. This included a capacity assessment of provincial and municipal level agencies to manage and oversee the implementation of a PWS system, and capacity development activities. This will reduce the risk of the PWS mechanism establishment prolonging beyond the project period.	risk understood and mitigating measures in place
Climate change impacts affect proposed land use changes under PWS	LOW	Climate change increases the risks of natural disasters (e.g. droughts, floods, landslides, fires) in project sites impacting the effectiveness of proposed land use changes.	The Project's demonstration activities will improve mitigation/adaptation measures in high risk areas vulnerable to droughts and floods. Project activities in selected sites will include water harvesting techniques to deal with droughts; and reforestation, agro-forestry, and terracing of slopes to deal with the latter. In addition, project managers will work in cooperation with China Biodiversity Partnership Framework (CBPF) Project which deals with climate change risks.	Well planned and managed

3.1.3. Lessons from other Relevant Projects:

The PES mechanism is of great significance for China due to its rapid economic development and risk to environment especially to its nationally and globally significant ecological assets such as the Chishui River basin ecosystems and larger Eastern Mountain Eco regions of China. This project therefore has conducted prevailing PWS cases in China and PES cases globally to draw relevant lessons to bear to the success of the PWS project. There are five aspects of lessons: a. context and background of the PES/PWS in China; b. practical application of PWS /PES outside China; c. legislative status of PWS cases in China, d. specific situation analysis of scope and potential of PWS in Guizhou province and Chishui river; and e. suggestions for incorporation in the PWS design and implementation.

3.1.4. Planned Stakeholder Participation

The project focused stakeholder engagement at two levels of intervention: (i) working with national, provincial and local public institutions and agencies in order to strengthen their capacity to

consolidate, expand and effectively manage the PA System and to align project activities with government's strategic priorities; and (ii) working directly with civil society organizations, formal and informal resource users (rights holders), private landowners and individuals to strengthen collaborative relationships for participatory PWS schemes, mitigate impacts of sectoral practices, and optimize the benefits arising from project activities. During the project preparation stage, a preliminary stakeholder analysis was undertaken in order to identify key stakeholders, assess their interests in the project and define their roles and responsibilities in project implementation. This included the collection of baseline socio-economic information on the proposed pilot communities, informing them about the project have planned PWS activities and confirming their willingness to participate in demonstration activities. A full Stakeholder Involvement Plan was prepared upon project inception. The TE team examined the Stakeholder Analysis section of the Situation Analysis in the Project document which describes the major categories of stakeholders identified, and their roles envisaged in the project. These were found largely followed.

3.1.5. Replication and Scaling Approach

The replication approach of the PWS mechanism is well laid out. First the mechanism was demonstrated in Wuma sub-watershed of the CRB where the demand for ecological especially regulating services is very high i.e. success probability is likely to be realized. The plan for replicated (the TE team rather suggests to scale out as well as scale up the good practices and learning) in neighboring sub-watersheds and gradually move to the Guizhou section of the CRB. Enabling policy, legislative, regulations and guidelines are already in place for this process. In the final stage upscaling will be done in the entire CRB by implementing the already existing agreement among the three riparian provinces of Yunnan, Guizhou and Sichuan.

3.1.6. UNDP Comparative Advantage

The UNDP comparative advantage as the GEF implementing agency was based on their extensive experience working in China, with in-country operations, their favorable standing among national stakeholders, their collective experience in supporting GEF biodiversity projects in China and elsewhere globally, as well as their institutional expertise in leading initiatives focused on broader human development issues, such as gender mainstreaming, social inclusion, and governance. UNDP's comparative advantage extends beyond providing management support during the implementation; the country office and regional center staff also provide technical / strategic support and timely back-stopping on key issues to the project.

3.1.7. Linkages between Project and other Interventions

As pointed out in the MTR, a large number of international agencies especially the Asian Development Bank (ADB), European Union (EU) and NGOs such as the WWF, IUCN, and TNC have activities in Guizhou and Chishui river basin. These organization have proven capacity and international and national experiences to provide contextual and suitable technical advice on subjects including PES/PWS, watershed management tools, regional, national and sub-national

biodiversity and ecosystem regional assessment, monitoring of terrestrial, freshwater and aquatic biodiversity monitoring, community mobilization and participation, value supply chain devotement of ecosystem services, valuation of natural capital, ecosystem governance, ecosystem based climate change adaptation, mitigation and disaster risk reduction, eco-system based and education and awareness raising. Since the up scaling to the entire CRB will require considerable financial, technical and environmental resources and assets, multi-pronged and innovative partnerships are clearly needed

3.1.8. Management Arrangements

The PWS project has been operationalized under the national implementation modality (NIM), in line with the Standard Basic Assistance Agreement between the UNDP and the Government of China, and in line with the Country Programme Action Plan (CPAP) approved by both the host Govt. and UNDP.

The UNDP, China Country Office is the implementation agency for the project and the Ministry of Ecology and Environment through its International Environment Co-operation Office, IECO (previously FECO) together with the Guizhou Provincial Government functioned as the executing agency and the sole co-financing partner. The Ministry of Finance of China (MoF) is the national GEF Focal Point for the project, and the national project director (NPD) is the senior official of the IECO (FECO). The Environment Protection Department of the Guizhou province hosted the SPMO and its senior official acted as the Deputy National Project Director. The regular project administration and management duties were handled by the PMO based in the IECO/FECO as well as a the GEPD and the Guizhou Environment Protection Promotion Research and Design Institute (GEPPRDI) to whom the execution of the Component was delegated by the Project Management Office (PMO/IECO) which coordinates implementation of international donor projects for the department. Strategic guidance was provided by the Project Steering Committee (PSC), which is comprised of representatives from MEE, FECO/IECO, UNDP, GPD, and representatives from related provincial departments. Based on the experience gathered with other donor projects, the PMO was an established and experienced entity at project entry. Supporting funding, staff, and facilities of the GEPD further enhanced and developed the management arrangements.

3.2. Project Implementation

3.2.1. Adaptive Management

After delays in initiating implementation of the project, the project has managed to accelerate the progress through adaptive management. The delays as noted by the MTR were in several areas starting with finalizing the first work plan which delays the subsequent actions. The PWS scheme also took time especially in setting up a workable water service fund and getting the farmers to sign over their land use rights to one or more land management companies. Created a market-based PWS mechanism as outlined in the approved project document also took time.

The MTR noted that "the project is facing significant challenges in achieving the intended results within the remaining timeframe" and recommended to do "critical path work planning..." to improve implementation. Therefore, the TE team felt that the PMO faced major challenges initially especially in mobilizing the required support and buy-in from the stakeholders in the provincial level causing delay in the approval and eventual implementation of the envisaged PWS scheme in the pilot watershed. There was also uncertainty regarding the type of land use activities to be implemented under the pilot which has now been resolved. The progress in developing payment mechanism with the potential buyer of the watershed services also was slow.

The PMO responded to the MTR by improving the management in the following areas: a) Coordination among the different stakeholders especially at the SPMO or provincial level; b) clarity in roles in implementation arrangements between the NPMO and SPMO; d) making the PMO a full time staff supported by the CTA; and e) improving communication strategy and field coordination arrangements; and f) carrying out regular monitoring and site visits of project activities by PMO and SPMO.

The TE team accessed all the major deliverables. All the tasks sub-contracted to different agencies were presented to the TE team in a well prepared and quality manner. The GEF BD tracking targets were especially monitored well. But the management team addressed them with adaptive management skills and capacity. Delegating much of the Component 2 work to the SPMO based at Guizhou EPD ensured the delivery of the tasks within the extended project period.

The GEF administrating agency UNDP was found to diligently facilitate and support the Project management by reviewing quarterly progress reports and helping the PMO in improving project activities including the social safeguards and use of the GEF BD tracking tools. The executing project team used the findings of the PIRs and the MTR seriously and followed on the recommendation professionally.

3.2.2. Partnership Arrangements

The project developed and implemented multi-pronged partnership as this project demanded cross-scale, cross-sector and cross-disciplinary national and international partnerships. At the central government level, the project was successful in facilitating linkages between relevant ministries. At the provincial level, different agencies of the Guizhou Provincial Government worked to together under an institutional arrangements of the sub-national Project Management Office (SPMO) housed by the Guizhou EPD. The Project Steering Committee (PSC) guided the whole arrangements resulting in mainstreaming of PWS mechanism including the eco-compensation principles and eco-labeling standards into the provincial policies, regulations and sector plans.

At the local and city government level, the partnership arrangements outlined in the community-private sector and government formed collaborative management agreements that helped in formalizing the participating of local communities in watershed management. The land use change agreements were signed off by three parties, including the village committee, the GEPD, and

the Private sector companies to establish the PWS mechanism. The high ownership of the project shown by the MEE demonstrated by show casing this project at the CBD COP 14 in 2018 significantly increases the likelihood that the partnership arrangements will be sustained after GEF funding ceases.

Local governments, the townships and counties in Wuma sub-water shed where the demonstration villages are located, were found involved, to varying degrees, in the project. There were certain gaps in formal partnership arrangements with village committee. For example, involvement of ethnic minorities in the Village Committee structures and functions remains a challenge and without their involvement, partnership arrangements will not be inclusive and perhaps conducive to establish conservation compatible land use system. Local governments through written agreements regarding roles and responsibilities associated with environment protection promotion in line with the PWS mechanism's needs are supported by the project.

There is one prominent Non-governmental organization (NGO) that is involved in the Project especially to implement the Component 2 of the project. This NGO REPPA has been promoted by the Private sector companies and therefore there are certain challenges associated with this type of NGO's involvement, in what is basically a social and environmental project. Therefore toward the end of the project the PMO and the SPMO were found to have gradually oriented the REPPA to work as a brokering partner between the farming communities and; private Liquor companies.

3.2.3. Feedback from M&E Activities used for Adaptive Management

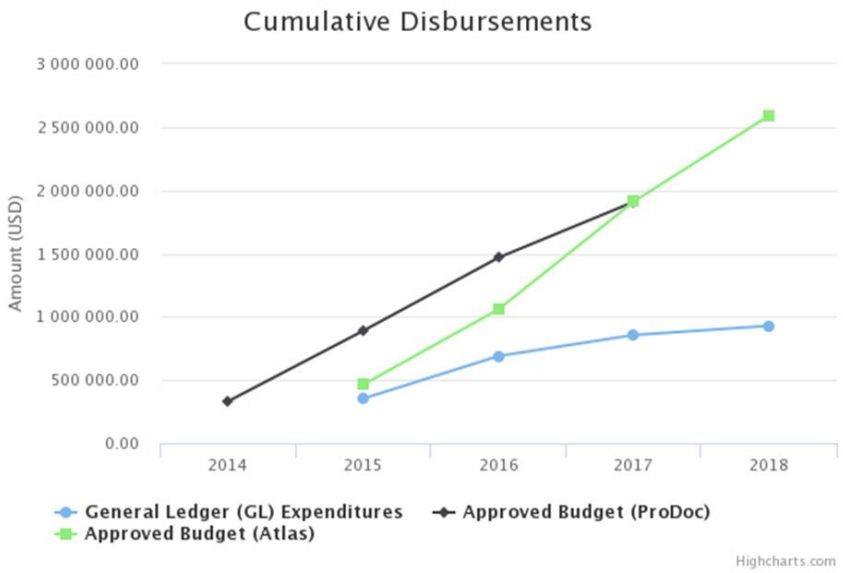
Constructive and adaptive adjustments were made by the PSC and the Project Manager in consultation with the UNDP-CR in the management structure and process of the Project in order to implement the recommendations made by the midterm review (MTR). The PSC convened annually and provided constructive feedback to the project team.

There were a few shortcomings with respect to monitoring and evaluation, starting with the lack of critical review and adjustment of certain baselines such as forest cover change. There were a number of inconsistencies such as in the valuation of ecosystem services also in the tracking tool assessments, indicating insufficient quality control and lack of inclusive participation in the assessment process.

3.2.4. Project Finance

The Project is making a satisfactory financial progress. The total expenditures as of Q1 2019 is US$ 1,555,972 (with addition of Q1 expenditures of $ 16,523 based on the 2019 Q1 CDR.) At the end of March, 2019, a total amount of 1,689,448.93 USD (89%) of the GEF fund has been delivered and spent. It is estimated that by the end of the project the delivery and expenditure will be 100%. The total balance of 219,227.07 USD is due by the end of 2019. The financial delivery trend as of the end of March is also illustrated below (Figure 2):

Figure 2 Cumulative Disbursements of GEF Funds (USD)



The financial delivery by the sub-national PMO (SPMO) is also 100% as shown in the table below:

Table 12 Financial delivery by the sub-national project management office (SPMO)

时间 Date		获得GEF赠款金额（RMB）	已使用GEF赠款金（RMB）	使用GEF资金比例
2015	June	¥530,960.63	¥948,625.18	97.79%
	December	¥437,989.00		
2016	July	¥820,125.55	¥572,804.43	69.84%
2018	September	¥965,480.92	¥1,945,712.85	92.52%
	November	¥1,146,537.73		
2019	March	¥952,493.98	¥791,141.50	83.06%
Total		¥6,664,587.11	¥6,664,587.11	100%

Project Finance

The project implementation budget is USD 5,354,545 (GEF grant). The total project management cost was USD 1,689,448.93. The co-finance support was broken down as follow: UNDP – USD 500,000; Govt. of China – USD 15,500,000 with the total amount of USD 16,000,000. Thus the total Project cost stood at USD 17,689,449. The co-finance commitments from the UNDP and the Government of China were fully met and the financial flow and management was satisfactory. The current financial expenditure level is 83% of the projected expenses and based on the planned expenditures and commitments, the book is very likely to be satisfactorily closed with near 100% revenue and

expenditure. As of the end of 2018, a total of 15,500,000 USD has been co-financed amounting to over 100% of the co-finance committed by the counterpart government in the Project Document as shown in the table 11 below:

Table 13 Co-financing commitments and fulfillment data

Co-financing (type/source)	UNDP own financing (mill. US$)		Government (mill. US$)		Partner Agency (mill. US$)		Total (mill. US$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
Grants	500,000	500,000	15,000,000	15,000,000	NA	NA	15,500,000	15,500,000
Loans/Concessions								
• In-kind support			500,000	500,000			500,000	500,000
• Other								
Totals	500,000	500,000	15,500,000	500,000			16,000,000	16,000,000

3.2.5. Monitoring & Evaluation

Overall Quality of Monitoring & Evaluation is rated as: Satisfactory

Evidence is given below:

Supporting evidence	
The monitoring and evaluation plan was prepared professionally using the standard template for UNDP GEF-financed projects.	+
PIR reports contained feedback from key stakeholders and provided detailed summaries of project performance.	+
Constructive adjustments were made following recommendations made by the midterm review.	+
The PSC convened regularly and provided constructive feedback to the project team.	+
Some of the baselines in the strategic results framework had not been validated by the time of the terminal evaluation.	–
There were some inconsistences in the tracking tool assessments.	–

Monitoring and Evaluation (M&E) design at entry is rated as: Satisfactory

The M&E plan was well designed based on the standard UNDP and GEF-financed project preparation guidelines. The Strategic Results Framework clearly describes the performance targets and indicators along with their means of verifications. The BD-2 Tracking tool, Capacity Assessment Scorecards and Ecosystem Health Index (EHI) scorecards were used (se Annex 11).

Implementation of the Monitoring and Evaluation Plan is rated as: Satisfactory

The monitoring and evaluation was conducted in accordance with established UNDP and GEF procedures and will be provided by the project team and the UNDP Country Office (UNDP-CO) with support from the UNDP/GEF Regional Coordination Unit, Bangkok. The Strategic Results Framework in Section II Part I provides performance and impact indicators for project implementation along with their corresponding means of verification. The BD-2 Tracking Tool (see Annex 9), Capacity Assessment Scorecards (see Annex 7) and Ecosystem Health Index scorecard (Annex 8) were used as instruments to monitor progress. The M&E plan includes: inception report, project implementation reviews, quarterly and annual review reports, and mid-term review and final evaluation. The M&E Plan was presented and finalized in the Project's Inception Report following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities. The following sections outline the principal components of the M&E Plan implementation:

A Project Inception Workshop was conducted with the full project team, relevant government counterparts, co-financing partners, the UNDP-CO and representation from the UNDP-GEF Regional Coordinating Unit as well as UNDP-GEF (HQs) staff as appropriate. A fundamental objective of the Inception Workshop was to assist the project team to understand and take ownership of the project's goal and objective, as well as finalize preparation of the project's first Biennial Work Plan (BWP) and annual and quarterly activity plans on the basis of the Strategic Results Framework. This include reviewing the log frame (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise, finalizing the BWP with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.

Monitoring responsibilities and events

A detailed schedule of project review meetings was developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Day-to-day monitoring of implementation progress is the responsibility of the Project Manager based on the project's BWP, activity plans and its indicators. Specific targets for the first year implementation progress indicators together with their means of verification was developed at the Inception Workshop and included in the BWP. Targets and indicators for subsequent years were defined annually as part of the internal evaluation and planning processes undertaken by the project team.

Measurement of impact indicators related to PWS targets were occur according to the schedules defined in the Inception Workshop. The measurement of these was undertaken through subcontracts or retainers with relevant institutions. Periodic monitoring of implementation progress was undertaken by the UNDP-CO through quarterly meetings with the Implementing Partner, or more frequently as deemed necessary. This allows parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

Annual Monitoring occurs through the PSC Meetings (PSCM). This is the highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to PSCMs at least two times a year. The first such meeting was held within the first six months of the start of full implementation.

The Project Manager in consultations with UNDP-CO and UNDP-GEF RCU prepared a UNDP/GEF PIR during the months of June-August. In addition, the Project Manager, in consultation with UNDP-CO prepares an Annual Review Report (ARR) by the end of January and submits it to PSC members at least two weeks prior to the PSCM for review and comments. The ARR was used as one of the basic documents for discussions in the PSCM. The Project Manager presents the ARR to the PSC, highlighting policy issues and recommendations for the decision of the PSCM participants. The Project Manager also informs the participants of any agreement reached by stakeholders during the PIR/ARR preparation on how to resolve operational issues. Separate reviews of each project component were also conducted. The PSC has the authority to suspend disbursement if project performance benchmarks are not met. Benchmarks were developed at the Inception Workshop, based on delivery rates, and qualitative assessments of achievements of outputs.

Project implementation reviews (PIR), Quarterly and Annual progress reports (QOR and APR) were used by the UNDP-CO to review implementation of work. Annual monitoring was done through the PSC meetings that used APR & PIR documents to conduct the review. The Project manager consulted relevant stakeholders especially the Guizhou EPD and Guizhou Environmental Protection Research and Design Institute to prepare the QPR and APR. All the reports provided relevant information on the status of activities to enable a reasonable understanding of the performance of the Project. The quality control and lack of inclusive participation in the assessment process remains a concern.

The M&E plan's satisfactory implementation, especially after the Mid-term review report, indicates that sufficient budget was allocated for the implementation of the plan. The availability of timely annual and quarterly reports and relevant information in the "Tracking Tool for Biodiversity Projects in GEF-3, GEF-4, and GEF-5" indicates that M&E roles and responsibilities were clearly assigned. Regarding the PIR ratings, although there are some difference between the MTR and TE ratings, the PIR and TE ratings are mostly similar. The higher TE ratings reflect the gradual improvement in the project management and deliverables after the implementation of the MTR recommendations as described in the TE team's assessment of the MTR findings below:

Table 14 MTR Ratings and Achievement Summary Table and Review and Rating by the TE team

Measure	MTR Rating	Achievement Description	Status review by the TE team	TE Rating
Project Strategy	Not Rated	The project design outlines an innovative, market-based payment for watershed services (PWS) scheme involving transactional arrangements between the business sector (buyers) and upstream farmers (sellers). Such a PWS scheme that engages the business sector with of particular interest to the Ministry of Environmental Protection, in their planning of payment for ecosystem services (PES) programs in the country. The project strategy was clearly articulated and the design outlined in a very instructional manner. The 4-year timeframe and the budget resources allocated for the project were insufficient, considering the objectives set forth. Negotiations with the key watershed service buyer, the Maotai company, should have started during the project preparation phase.	Based on the recommendations of the MTR, the negotiations were fast tracked. The TE team held discussion with representatives of 4 liquor companies: Maotai, Quinjin, GuoTai, and DiaoyuTai. The MaoTai had already transferred RMB 50 million to the compensation fund and others were fully committed to support based on their capacity. The Guizhou Govt. has already approved Ecological Protection Redline of Guizhou Province which was updated in 2017. The land use change restrictions for ecosystem protection and biodiversity conservation in the Chishui River Basin have been codified in this plan. Up-reaches of the Chishui River Basin are the protected areas with development restricted.	Not Rated
Progress towards Results	Objective Achievement: **Moderately Satisfactory**	After delays in initiating implementation of the project, the project has managed to facilitate some progress towards the baseline studies and analyses required to advance the PWS scheme. The subnational project management office has also supported the service providers working on the technical outputs and has facilitated discussions among local beneficiaries. Overall progress towards achieving the project objective, however, has been only moderately satisfactory. The PWS scheme currently under development, which involves setting up a water fund and requires farmers to sign over their land use rights to one or more land management companies under a 5-10 year contract arrangement, which would in turn consolidate the lands and possibly employ the farmers as laborers, is a potential deviation from the genuine market-based PWS scheme that was outlined in the approved project document. In the opinion of the MTR team, PWS is a finance mechanism between buyers and sellers exchanging values, and it is not donation by government or nongovernment stakeholders to improve water quality as being promoted through the proposed water fund. Furthermore, the project is focusing on developing a full-scale PWS scheme before implementing the pilot, which is also counter to the essence of the project design. Negotiations with the Maotai company, the largest and possibly only business sector buyer, have not yet started, and there are uncertainties regarding the specific land use activities for the pilot site.	The development of full scale PWS scheme is found developed. A compensation fund managed by the Guizhou Institute of Environmental Science Research and Design (GIESRD) has been created to which both the Guizhou government and Private sector have put the eco-compensation money. This can mobilize and motivate local farmers to practice land use practices that can generate quality watershed service, reduce pollution and protect the ecological environment of the Wuma River basin. In the discussion with the village committee representing Sanyuan Farmers the TE team were given specific information that farmers are already receiving fund equivalent to more than the double their baseline income. They have given their land management rights to the NGO created to facilitate the payment connect the benefits given to the farmers with the practice of improved land use management. The NGO is ensuring the intensive management of land. Biodiversity friendly fruit tree species and zero tillage method planting methods were found to be used to reduce the silt yield from the watershed. Consumption of pesticide	Satisfactory

Measure	MTR Rating	Achievement Description	Status review by the TE team	TE Rating
			and fertilizer has been reduced by using bio-fertilizers and bio-pesticides. This will lead to sustainable land management and ensure a healthy ecosystem in the Wuma River basin. The trust fund can bring sustainable benefits to the famers. In addition, the trust can also galvanize enterprises to participate in eco-environmental protection. Water resource of the Wuma River basin is the key means of production for local liquor companies. By making the farmers practice tree based farming clean and pure water discharge in the river will be possible. Thus liquor companies will be stimulated to protect the Wuma River and contribute to reduce water, soil and air pollution. However, this change will take some time to mature i.e. the improved land use practices have to be upscaled to the entire catch in an estimate area of 10,000 mu.	
	Outcome 1 Achievement: **Moderately Satisfactory**	Service providers have been contracted to carry out a number of activities under this component, including biodiversity and ecosystem services monitoring system development, baseline survey of the Chishui River and fish monitoring development, a national and international eco-compensation policy analysis, evaluating ecosystem and watershed services of the Wuma River sub-watershed. A Guizhou based service provider is developing a strategy for leveraging off an existing geographical origin labeling program. And, the PWS scheme is being developed by a separate service provider in Beijing. Some of the requisite steps in developing a PWS scheme have not yet been fulfilled. For example, there is no evidence that a cost-benefit analysis has been made to demonstrate the advantage of PWS. Institutional analyses have not effectively addressed specific local conditions and constraints. And the hydrological baseline study is not sufficiently targeted to the pilot area. The primary focus seems to be designing the full-scale PWS scheme, whereas the pilot has been somewhat overlooked, providing limited guidance for implementation of Outcome 2. Considering the shortcomings outlined above and the deviation of the PWS scheme compared to the project strategy, a moderately satisfactory rating of progress towards Outcome 1 is applied.	All the contracted services have been either completed or are in the process of final delivery. Their completion ensures designing of the full-scale or implementable PWS scheme. Since the scheme has already been piloted the Outcome 1 stands completed although scaling up remains to be one.	Satisfactory
	Outcome 2 Achievement:	Limited progress has been made under this component of the project. By midterm, there remain uncertainties regarding what specific land use activities will be implemented under the pilot. 20 ha of rose plantations	The progress has been satisfactory. A scientific forestry and fruit orchard based land use design was presented to the TE team. The full	Satisfactory

Measure	MTR Rating	Achievement Description	Status review by the TE team	TE Rating
	Moderately Unsatisfactory	were planted in the pilot demonstration village, with limited prior notification to the NPMO and without a conceptual design of the PWS scheme. The SPMO procured certain monitoring equipment, based upon advice provided by one of the service providers working under Component 1, and with no evidence of technical review by the NPMO or CTA. Negotiations with watershed service buyers, notably the Maotai company, have not yet started. The limited discussions that have been held with potential buyers seem to have focused on donation type arrangements, such as under a corporate social responsibility program, rather than a market-based PWS scheme.	implementation of this plan has already been contracted and the contractor in their presentation of the plan shared their approach of creating the new land use system scaling up the pilot work in the Wuma sub-watershed. In agreement with the Government, the Private sector partners have created a NGO: Renhuai Environmental Protection Promotion Association (REPPA) who has hired an expert to facilitate the participation of the villagers in the land use transition.	
Project Implementation and Adaptive Management	**Moderately Satisfactory**	The national project management office (NPMO) staff and project director are highly motivated, and the UNDP has consistently provided administrative and technical support. Overall, project implementation and adaptive management is rated as moderately satisfactory, partly because the PWS scheme has drifted away from the innovative approach in the project document. Also, outsourcing Component 2 to the GEPD with limited technical oversight has resulted in weak coordination between the NPMO and subnational project management office (SPMO). Coordination among service providers contracted under Component 1 has also been relatively weak, with limited knowledge sharing and uncoordinated communication. Awareness of PWS among interviewed stakeholders was low, indicating insufficient training. In general, technical oversight and guidance has been insufficient. There are also certain gaps with respect to stakeholder engagement, specifically a lack of involvement by relevant biodiversity conservation partners, including the Bureau of Fisheries, and by land resource planners. By midterm, 30 September 2016, 29% or USD 553,883 of the GEF grant had been expended. More than 50% of the co-financing of the project approval has been realized by midterm.	Based on the series of interactions with the Project Manager (PM) and the Deputy PM, the TE team has been informed that the SPMO is not a separate entity from the PMO. It is actually an extension office of the PMO and therefore there is a regular and effective communication between the IECO based PMO and the Sub-Project Management Office (SPMO) established in Guizhou Academy of Environmental Science and Designing (GAESD) which is under the management of Guizhou EPD which was established in 2015. Since 2017, Guizhou EPD director directly take the responsibility of managing the SPMO that has six staffs involved in SPMO part or full time. The Bureau of Fisheries is already part of the team over sighting the fishery related work.	Satisfactory
Sustainability	**Moderately Unlikely**	There are specific legal institutional barriers hindering the implementation of the PWS scheme, e.g., reportedly there are legal restrictions involving Maotai, a State-owned company, to distribute funds into a water fund type scheme. Based on anecdotal evidence, there seems to be a reluctance to participate in the PWS scheme by small and medium size liquor companies, due to a downturn in the market; this signifies low awareness of PWS, i.e., the companies see the scheme as a form of donation rather than payment for services rendered for their benefit. Governance of the PWS scheme is another concern. The market-based approach outlined in the project document calls for direct transactional arrangements between buyers and sellers. The scheme that is	The TE team verified this perceived legal barriers and found that they no longer exist. The high level of co-financing committed to this plan by the Guizhou Govt. is a strong assurance of Government's support for sustaining the project's outcomes after completion. In addition, the establishment of a new financial mechanism for watershed management through PWS and the reinvestment of funds obtained through PWS agreements into sustainable watershed management supported by this project, will provide	Likely

Measure	MTR Rating	Achievement Description	Status review by the TE team	TE Rating
		currently under development does not provide direct transactions between buyers and sellers, thus the additionally of the PWS will be difficult to ascertain, compared to other socioeconomic and environmental improvements being implemented in the region. Although the concept of farmers transferring their land use rights to companies has reportedly been implemented in China, there are intrinsic socioeconomic concerns. Farmers essentially cede their natural capital to these companies and their loose a certain control over their own livelihoods. Working only as laborers on the land also could result in complacency, i.e., they have no personal stake at being conscientious land stewards. Such uncertain behavioral risks could result in disruptions in the social cohesion of the communities.	a sustainable source of financial support in the long term that will contribute towards the conservation of global significant biodiversity, as well as increasing benefits to local communities. In the discussion with the mission, the representatives of all the 4 liquor companies expressed their full commitment to contribute to the PWS scheme. The Maotai Co. has already deposited RMB 50 million RMB.	

3.2.6. Implementing Agency (IA) and Executing Agency (EA) Execution

Overall IA-EA Execution Rating: Satisfactory

Table 15 Summary of Available Evidence

Type of evidence	quality
Strong involvement of major stakeholders throughout the entire project.	+
Consistent guidance provided by senior level MEE, FECO and UNDP officials.	+
Highly effective project management, well-staffed PMO, SPMO, qualified CTA and service providers.	+
Intended outcomes have been mostly achieved, within the allocated budget.	+
Annual progress reports and project implementation reviews generally contain candor and transparent description of project performance.	+
Coordination among service providers (contractors) was found somewhat weak resulting in overlap and redundancy in some project outputs.	-
Some shortfalls in quality control of especially land use change in pilot demonstration watershed.	-

Overall, there was an excellent team work among the UNDP, FECO AND GEPD that resulted in good quality and result-based management of the project. The proactive leadership and constructive guidance provided by the PMO and SPMO helped in brokering constructive and sustainable partnership among the local communities, government agencies at all levels and private sector which is a providing a satisfactory and result based performance of the partnership.

Implementing Partner UNDP's Role Rating: Highly Satisfactory

UNDP is the sole implementing agency (IA) of the project. Its experience in implementing GEF projects in developing countries provided good and enabling support to the project management. In China, UNDP has experience of implementing several biodiversity related projects which enabled it to provide relevant and timely advice and support to the Project Management Office (PMO). The UNDP Country Office was responsible for: (i) providing financial and audit services to the project; (ii) overseeing financial expenditures against project budgets approved by the PSC; (iii) appointment of independent financial auditors and evaluators; and (iv) ensuring that all activities including procurement and financial services are carried out in strict compliance with UNDP/GEF procedures. A UNDP staff member was assigned the responsibility for the day-to-day management and control over project finances.

UNDP actively participated in the Project Steering Committee (PSC) and provided a realistic and candid reporting on the progress and way forward to complete the project successfully. In the PAC meetings, it stressed the need to give maximum focus on producing quality results especially on the ground based on the review of examples of PES and PWS interventions in similar situations in other countries. The UNDP support to the implementing partner and project management team at the FECO (now IECC) is considered crucial and satisfactory. It extended a high quality technical support and facilitation to the project management office (PMO) in carrying out the supervision of the project activities. The facilitation extended to the executing agency helped improve the adaptive management of the project. UNDP ensured - at times working with the Project team members - quality production and timely submission of the reports. The high professionalism and quality technical expertise made available to the project helped the PMO to achieve the production of all the planned outputs of the project.

UNDP also helped in developing and overseeing the risk management strategy which was based on the risks identified during the PIF and project design stage. Although there were no major risks identified during the preparation phase, the possible risks and mitigation measures were continuously monitored and updated throughout the project. In general, the project was expected to contribute positively towards the conservation of biodiversity and maintenance of ecological stability in the Chishui River Basin, as well as towards a strengthened policy and regulatory framework for PWS. Therefore, it was possible that due to heavy emphasis on environmental benefits, socio-economic benefits might be at risk. TE team verified whether the indigenous and local communities were able to enjoy increased benefits from the payment for watershed service received by the local community as per the agreements with downstream water users. The PMO and UNDP both were aware of it.

Quality of the Executing Agency Execution is rated as: Satisfactory

The project is nationally executed (NEX), in line with the Standard Basic Assistance Agreement between the UNDP and the Government of China, and the Country Programme Action Plan (CPAP) of the UNDP. Other executing partners include: Guizhou Environmental Protection Department (GEPD) and the Environmental Protection Bureaus (EPBs) of Bijie, Chishui, Renhuai and Zunyi each of whom

have specific roles to play concerning the execution of the project components under their jurisdiction.

The MEE through FECO has the overall responsibility for project execution, and the timely and verifiable attainment of project objectives and outcomes. It reports to the PSC through the PD and PMO. MEE's role is to provide support to, and inputs for, the implementation of all project activities, and recruitment of project staff and contracting of consultants and service providers with the advice from and involvement of the UNDP. MEP created a high level official (Deputy Director-General of the Foreign Economic Cooperation Office (MEP-FECO)) who serves as the National Project Director (NPD) for project implementation. The NPD is responsible for providing government oversight and guidance for project implementation. The NPD – a government employee represents in-kind contribution to the Project.

The Project Management Office (PMO) is based at the FECO and Sub-PMO based at EPD. The FECO has experience in administering international donor supported projects and therefore experienced staff members were hired as the Project Manager and the Deputy Project Manager. Together with support staff they managed the PMO. The Project Manager heads the PMO and has provided effective leadership, delivering support to the PMO on a day-to-day basis. The national project director (NPD) has provided continuous and constructive strategic and technical guidance to the project, chairing the project steering committee and supporting implementation especially in obtaining provincial government's support.

An office in charge of planning and managing PWS mechanisms was established within the EPDG with capacity installed for developing, supervising and scaling up pro-conservation PWS mechanisms along the Chishui River within Guizhou province. This included capacity for mapping and monitoring ecosystem services and land use changes using GIS tools, establishing transparent payment mechanisms as well as independent verification and certification of watershed services rendered, and mechanisms for enforcement in case of non-compliance with contract provisions.

The CTA is a nationally recognized eco-compensation expert. He is a Professor at the China Agriculture University (CAU) and is Executive Director of the China Eco-compensation Policy Research Centre. He works part time as per the need of the project. His association with China's top eco-compensation policy discourse makes his role very crucial indeed in the Project. He is a member of number national level advisory boards and, hence, he is able to provide updated feedback on central government priorities and strategies, especially in payment for ecosystem services (PES). He also served as the PWS Strategy Development Specialist. A number of national and international consultants were involved by the PMO on various thematic areas, including Biodiversity and Ecosystem Services Monitoring and Communication. A number of institutions including Chinese Research Academy of Environmental Sciences, Beijing; Institute of Mountain Hazard and Environment, Chengdu; and Nanjing Institute of Environmental Science, Nanjing were engaged as sub-contractors to carry out specialized studies.

The TE team also observed some shortfalls with respect to quality control of the deliverables. Some of the completed interventions in the field were found to be not finished, e.g., Land use change contracted work in the Wuma watershed and ensuring equitable and inclusive access to the project derived benefits by ethnic minorities. There was also some gaps in providing the quality information in the completed tracking tools in the accomplishment of outcome 2 (Annex 11).

Over, the PWS project was well managed based on decentralization of activities and devolution of authorities. The decision to authorize the Guizhou EPD to manage the Component 2 was a wise decision that helped the project meets all its targets; The PMO and Sub-national PMO supported and advised the project timely, efficiently and in a quality manner.

Project management at the central level

The day-to-day administration of the project was carried out by a National Project Management Office (NPMO) hosted by MEE-FECO consisting of the NPD, Project Manager (PM), a Project Assistant, and other co-financed support staff as required. The project staff were recruited following UNDP and MEE/EPD recruitment procedures. The PM with the support of the Project Assistant, managed the implementation of all project activities, including: (i) preparation/updates of project work and budget plans, record keeping, accounting and quarterly and annual progress reporting; (ii) drafting of terms of reference, technical specifications and other documents as necessary; (iii) identification, proposal of project consultants to be approved by the PSC, coordination and supervision of consultants and suppliers; (iv) organization of duty travel, seminars, public outreach activities and other project events; and (v) maintaining working contacts with project partners at the central and provincial levels, including substantial time at the SPMO providing guidance, oversight and training to provincial level project staff.

The PM is accountable to the MEE and the PSC for the quality, timeliness and effectiveness of the activities carried out, as well as for the use of funds. The PM produced Biennial Work Plan and Budget Plans to be approved by the PSC. These plans provided the basis for allocating resources to planned activities. The PM further produced quarterly operational reports and Annual Progress Reports (APR) for submission to the PSC. These reports summarized the progress made by the project versus the expected results, explain any significant variances, detail the necessary adjustments and be the main reporting mechanism for monitoring project activities. The PM was technically supported by contracted national and international service providers. Recruitment of specialist services for the project was done by the PM in consultation with the UNDP and the MEE. The PM also liaised and worked closely with all partner institutions to ensure good coordination with other complementary national programmes and initiatives.

Project Management at the Provincial and Site Levels

MEE-FECO subcontracted the component 2 to the Guizhou EPD to undertake project management at provincial and local levels. Under this arrangement, a Sub-Project Management Office (SPMO) was hosted by Guizhou EPD. The SPMO was staffed by a co-financed Provincial Project Coordinator and

Provincial Project Assistant, with other co-financed support staff as required.

Under the supervision and coordination of the SPMO at Guizhou EPD, a capacity building programme was carried out for the four riparian EPB offices in Guizhou Province – Bijie, Chishui, Renhuai and Zunyi under the Component 1 of the project. Project management for the implementation of Component 2 activities located at the pilot demonstration sites in Wuma River sub-watershed was coordinated by the SPMO in collaboration with Renhuai Environmental Protection Bureau.

Stakeholder involvement at provincial and local levels was achieved through the convening of a Provincial Project Coordination Committee. This secured consultation and inputs from related provincial and local government departments, the private sector, demonstration area representatives, and technical experts from universities, NGOs, related projects, etc. The PPCC met at least twice each year and aim to keep stakeholders regularly informed about project plans and progress, to ensure that implementation team was well informed about related initiatives and opportunities, and seek opinions and inputs on technical issues.

Site level demonstration activities were guided by Village Committees, a NGO (REPPA) involving local government agencies and local community partners involved in implementing the activities in Wuma sub-watershed. There was equitable participation of women but ethnic minorities were not included in the committee in the pilot village of Sanyuan.

3.3. Project Results

3.3.1. Overall Results (Attainment of Objective); Overall Rating: Satisfactory

The strategic results framework of the project was assessed against the baseline scores and the results were found to indicate that the overall progress and Cumulative Results as shown in Annex 5 table 1 show satisfactory attainment of objectives, outcome and outputs. The detail explanation follows:

Project objective: Operationalize a replicable PWS scheme in the Chishui River Basin to stimulate land and natural resource use systems that conserve biodiversity and sustain ecosystem processes; in the process, also improve the livelihoods of poor farming communities.	Attainment of objective
	Satisfactory

To achieve the project objective, goals, outcomes and outputs, various activities were designed and implemented by mobilizing and supervising different high caliber professional teams. The programme design, implementation plans and progress were discussed by organizing international, national and sub-national workshops in line with the work plan (WP) approved by the PSC and the UNDP CO. Most planned activities have been delivered effectively and timely according to the WP

targets, except some individual ones that are still ongoing and expected to continue until they achieve their maturity. The eco-compensation agreement has been signed by the downstream water users and upstream communities, which indicated the establishment of the PWS mechanism in February 2018. 22 households have changed their land use in 100 mu of steep crop lands in the pilot area and at least 4 liquor companies in the downstream have agreed to pay for the upstream land use changers. 50 staffs have been trained for PWS implementation and monitoring. Outcome and output wise descriptions follow:

Outcome 1: Systemic and institutional framework for PWS development and management established at municipal and provincial levels for the Chishui River Basin within Guizhou Province.	Attainment of Outcome
	Satisfactory

This outcome supports the establishment of an enabling framework for biodiversity-oriented PWS mechanisms, so that the local governments and stakeholders have systemic and institutional capacity to use PWS to ensure sound management of biodiversity and ecosystem services. The institutional framework was designed so as to facilitate the removal of the aforementioned barrier (weak enabling framework and institutional capacity for PWS implementation and up scaling) which constrains the successful implementation of PWS in support of biodiversity conservation. With guidance and support from MEE-FECO, the project built the capacity of the provincial Environmental Protection Department (EPD) and municipal Environmental Protection Bureaus (EPB) and Liquor companies doing business within the Chishui River Basin (Output 1.1). An office in charge of planning and managing PWS mechanisms was established within the provincial EPD, with necessary capacity built for systematically developing, supervising and scaling up conservation compatible PWS mechanisms across the Chishui River Basin. This includes capacity for systematic monitoring of the expected biodiversity impacts arising through the implementation of PWS schemes (such as improvements in the conservation status of key habitats and species of aquatic biodiversity, through capacity building, application and evaluation of an Ecosystem Health Index (EHI) scorecard and development of a standardized biodiversity and ecosystem services indicator framework for PWS (Output 1.2).

At the policy level, the project has influenced the introduction of PWS in relevant regulations, policies, plans and budgets (Output 1.3). This has mainstreamed PWS within the broader national and provincial eco-compensation policy and planning frameworks, and creates enabling conditions to mainstream biodiversity conservation within watershed management and sectoral plans and programmes of the Guizhou province. It has potential to influence and help install mechanisms that regulate types of land uses that PWS cannot compensate (e.g. river engineering projects) and provide for tradeoffs between different land-uses. This has results in the Red Line codification of land use restrictions in the Guizhou provincial development plan and accompanying land use plan in the CRB.

The project has successfully stimulated Liquor Company's interest led by MaoTai Co.in supporting

PWS initiatives. The Pvt. Sector was found fully engaged through a specially created institution called Renhuai Environment Protection Promotion Association (REPPA) that is tasked to supervise the planned land use transformation from degraded agriculture crops to forest and horticultural tree and grass dominated land use system. The other outreach activities include linkage with existing and emerging business forums for creation of a conservation promoting private-public partnerships and the introduction of an eco-labeling scheme for companies that contribute to the production of (Output 1.4).

Finally, building on the experiences and lessons learned from the establishment of PWS under Outcome 2, the project is supporting MEE-FECO and the provincial EPD to scale up PWS through sharing of good practice guidelines and lessons learned. As envisaged in the Project design, the Project aims to facilitate the engagement of the Sichuan and Yunnan provincial governments to introduce PWS concepts and prepare the way for up scaling across the entire Chishui River Basin taking into account biodiversity conservation priorities (Output 1.5). An agreement among the three countries already exists to this effect.

Output 1.1: Capacity for planning and managing PWS mechanisms is developed within Guizhou Provincial EPD and Municipal EPBs within Chishui River Basin; (Achieved)

The project partners with support from the project and the NGO REPPA have organized a series of training events, workshops and seminars to build capacity of the farmers to policy makers. As a result of the project support, the project implementation officers in both provincial and county levels have increased their capacity and technical knowledge to manage and continue to develop the PWS mechanism in the sub-watershed. Capacity Development Scorecards showed the scores of both provincial EPD and local EPBs have increased meeting the targets set at the outset of the Project.

Output 1.2: A standardized biodiversity and ecosystem services indicator system is developed to assess the impacts of PWS schemes (Achieved)

In order to design a market oriented ecosystem compensation project the project contractor conducted a scientific study. Three methods of ecosystem valuations were used based on the standardized biodiversity and ecosystem services indicator system using The Economics of Ecosystems and Biodiversity (TEEB) tools and methods. Accordingly, the ecosystem services valuation of Wuma River - a tributary of Chishui River - was conducted to promote the establishment of ecological compensation mechanism in this area. Three types of land use change system based scenarios: a) current system, the economic development scenario and ecological protection scenario were used to analyze the potential change of ecosystem value under these three scenarios.

The land use/cover data of the study area were obtained by using the method of remote sensing image interpretation and field ground verification. It was found that the main land use/cover types in the study area were cultivated land and forest land, nearly 90% of the area is belonged to these two types. Based on the data collected of elevation, annual rainfall, annual evapotranspiration, soil, rainfall intensity, soil erodibility and biophysical parameters from the study area, the Conversion of

Land Use and its Effects at small Region Extent model (CLUE-S) was used to simulate the land use/cover status of the two future development scenarios (SED and SEP) of the study area. And Integrated Valuation of Environment Service and Tradeoffs (InVEST) was used to evaluate the ecosystem services under different land use/cover conditions in the study area, in order to get data of regional water production, water purification (reduction of nitrogen and phosphorus), soil conservation and other dynamic indicators.

The TEEB method, such as the market price method and the shadow engineering method were used to evaluate ecosystem services value of the water production, water purification (nitrogen and phosphorus reduction) and soil conservation. Also, based on the data of the assessment value of China's ecosystem services from Gaodi Xie et al., (2005), a corrected unit ecosystem service value was obtained of the 11 kinds of ecosystems, such as food production, gas regulation, soil conservation and aesthetic landscape of all the land cover types of the study area

The study results show that under the three land use/cover conditions: the changes of the total value of ecosystem services under the three land use/cover conditions for the three ecosystem services of water production, water purification and soil conservation was not much different. For example, the current land use/cover conditions had the maximum value of 418 million yuan; the economic development condition followed by 417 million yuan, the ecological protection had the minimum value of 416 million yuan. However, in terms of the total value of the 11 ecosystem services of food production, gas regulation, soil conservation and the aesthetic landscape, the ecological protection condition had the maximum of 12.59 billion yuan, followed by the economic development condition of 11.95 billion yuan, the current conditions of the minimum of 11.82 billion yuan. In terms of the individual service value of the four kind of services, the provisioning services, the regulating services, the support services and the cultural services, under all the three land use/cover conditions, the value of the regulating services is the largest, accounting 62% of the total value of ecosystem services under each of the three land use/cover conditions.

Output 1.3: PWS is mainstreamed into related policies, plans and regulations to regulate land uses, facilitate land use trade-offs, and integrate its implementation with eco-compensation schemes (Achieved)

As many as 6 policies, regulations, and plans now include eco-compensation and or PWS as a tool to protect the critical watersheds in CRB. In mainstreaming PWS mechanism, the report of the Standing Committee of Communist Part of China called for establishment of diverse and market-based eco-compensation mechanism on 18 October 2017. The three provincial governments of Yunnan, Guizhou, and Sichuan signed a joint agreement on 1 February 2018 to establish a trans-provincial eco-compensation mechanism along the Chishui River Basin.

Eco-compensation and/or PWS has been included in the following policies, regulations or plans at the provincial level:

- Guizhou Provincial BSAP (2016-2026) which was approved by Guizhou Provincial Government.

- Provincial 13th Five Year Plan for Development of Environmental Policies

- Chishui River Environmental Protection Action Plan

- Guizhou Provincial 13th Five Year Plan for Environmental Protection

The guiding policy paper issued by the State Council in 2016 "Opinions to improve Eco-compensation Mechanism", called for full use of market based approaches to improve eco-compensation mechanism in China.

Output 1.4: Private sector involvement in PWS is promoted and incentivized through introduction of an eco-labeling scheme (Achieved)

Eco-labeling is a public management system closely related to the environmental protection of the production area. It involves many aspects of product protection. At present, labeling systems in order to protect the products in China include: the geographical indication products system (Geographical Indication Protection Products of the People's Republic of China, geographical indication protection for agricultural products, and geographical indication trademarks/labels), the pollution-free product protection system, the green food protection system, the organic product protection system, China's environmental protection product system, and the ecological place of origin protection product system. Each of these systems protects certain products through label identification and management. The geographical indication products are one of the most inclusive and widely used systems of all. An example of which is the label "Geographical Indication Protection Products of the People's Republic of China" authorized by the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ). Therefore, the project implementation focused on the analysis of the AQSIQ's geographical indication labeling system.

The Chishui River Basin is a region rich in geographical indication products. To date, national geographical indication products in Guizhou (Chishui River Basin) include Maotai (Baijiu), Xijiu (Baijiu), Xishui Hong Bai (a native variety of Echinochloa crus-galli), Xishui Sun Vinegar (a traditional vinegar-making method), Chishui Jin Chai Shi Hu (D. nobile lindl), Xiao Zi La Jiao (hot chili), Yaxi Jiao, Bai Guo Rice, Tongzi Bamboo Shoots, Dafang Lacquerware, Dafang Yuanzhu Ban Xia (Pinellia ternata), Dafang Tianma (*Gastrodia elata*), Dangfang Dongsun (*Phallus impudicus*), Jinsha Huisha Jiu (baijiu), Yumo Vinegar, etc. The number of geographical indication products in the Chishui River Basin increases rapidly, and the average annual growth rate in the past three years is beyond 30%. If this trend continues, after 3 years, there will be more than 30 geographical indication products in the Chishui River Basin, making it one of the areas with the highest number of GI products in China. According to estimates, GI labels are being used on over 300 million pieces of products each year. The cost of per such label is 0.3-0.5 Chinese Yuan. The intermediaries charge 0.2-0.3 Chinese Yuan per label. According to project implementation, we believe that the government can create an agency to do what the intermediaries are currently doing. The agency could charge 0.1-0.2 Chinese Yuan for each label to pay for the ecosystem services used in making the product (the total amount of this could mount 3 million to 6 million Chinese Yuan, which could be used by the GI product

protection office to pay for the ecosystem services used). If this can be done, many of the current problems will be solved, the costs enterprises bear will be lower and the government can provide enterprises with new social services.

Output 1.5: Best Practice guidelines, methodological protocols and lessons learned are shared for scaling-up and replicating PWS in additional watersheds in the Chishui River Basin and other watersheds in China (Achieved)

The project has organized workshops on eco-compensation policy and practice exchange seminars and PWS contract management and technical training in Renhuai city every year during the project period. Trainees have come from the Guizhou Academy of Agricultural Sciences, Zunyi Environmental Protection Bureau, Bijie Environmental Protection Bureau, Renhuai Environmental Protection Bureau, Renhuai Environmental Protection Promotion Association, Wuma Town Government, Guizhou Diaoyutai Distillery, Qianjiu Co., Ltd., Guizhou Guotai Liquor Co., Ltd., as well as Sanyuan Village Committee. During the workshops, project experts used cases to explain the definition, model, method, alternative crops and other practical knowledge, which is very pertinent and practical.

In terms of project promotion, the Project Office has compiled promotion brochures with a focus on the successful signing of PWS agreement between the Wuma watershed community and the Liquor companies led by the Maotai Co. Also, the awareness raising of local farming communities and general public is done by placing larger advertising boards at the pilot site to further highlight the commitment of local farmers for promoting environment protection and expanding the influence of the project.

Outcome 2: Pilot PWS scheme(s) are demonstrated in selected sub-watersheds of the Chishui River Basin in Guizhou Province	Attainment of Outcome **Satisfactory**

In tandem with Outcome 1 and in order to remove the second barrier, the project supported the establishment of PWS schemes in sub-watersheds within the Chishui River Basin, in order to generate uptake of biodiversity friendly land use options. The project starts with piloting of a biodiversity-oriented PWS mechanism in the Wuma sub-watershed where buyers (the provincial government in the first instance, with potential to broker further agreements with downstream industries) and sellers' upstream (villages in the sub-watershed) have been identified and assessed during project preparation.

The PWS intervention in the selected section of the Chishui River watershed (the Wuma River sub-watershed) is a pilot test. The pilot informs relevant stakeholders about the conditions under which PWS best operates in a manner superior to other options aimed at solving the hydrological/livelihood problems in question. It also indicates the extent of the required intervention - scaling-up above and beyond the area covered in the pilot test) according to the needs of the water users downstream. Finally, it provides a valuation mechanism so that water service providers (sellers)

and water users (buyers) can enter into long term business agreements within institutional and policy frameworks operating or created as regulatory guidelines.

The Wuma River is one of the 27 main level tributaries of the Chishui River, and the most important tributary in Renhuai, entering the Chishui at Aokou, some 13 km upstream of the main water intake of Renhuai's largest industrial company. The 45 km long Wuma sub-watershed covers 43,185 ha including four townships – Changgang, Wuma, Luban and Maoba and a total population of 132,200 (in 2010), including Han (122,500), Miao (2525), Yilao (or Gelao)(2675), Yi (1530) and Buyi (2370) ethnicities. Thus part of the Wuma watershed is managed by ethnic minorities with land management and resource use rights. The terrain is steep, with sloping fields over 25o occupying 35% of the watershed. Forest cover in the watershed has been reduced to 16,678 ha (32.68%), well below the MEP's standard of 70% and the provincial government's standard of 47%. The situation in Wuma Town is more severe; with only 28.86% forest coverage and 41.07% of land occupied by sloping fields over 25o (comprising 82.27% of all its sloping fields). There is one nature reserve in the river basin – Zunyi Sunjia Dalin county nature reserve.

The Wuma watershed is a microcosm of watersheds in the Chishui River Basin, characterized by environmentally unsustainable and low-yield farming practices. Unsustainable land use causes severe water losses and soil erosion. In the last 10 years the erosion rate at the middle of the Chishui river basin has increased from 3% to 29%. Both the Chishui and Wuma Rivers are rain-fed, with available records showing a decline in dry season flows from the 1960s to present, largely attributable to the loss in water conservation capacity resulting from deforestation. The main recent driver for deforestation in Wuma watershed has been the steady increase in the price of sorghum, the main feedstock for a key local manufacturing industry, which is planted on steep slopes due to lack of available arable land in the steep valleys. Paradoxically, the industry itself is now feeling the impacts of these crop changes in the form of reduced dry season flows. The ecological degradation upstream is aggravated by significant economic disparities between upstream and downstream dwellers. Land tenure in the area is characterized by collective ownership of community land. Individuals and organizations can acquire land use rights to farm on some plots. Guizhou Province officials have been working in the area and have ascertained the local willingness to participate in a PWS mechanism.

The Wuma River watershed is highly suitable for the pilot demonstration of a PWS scheme for a number of reasons. First the core hydrological problem has been defined as a lack of adequate dry season flows of high quality (at least Class II) water in the Chishui River to support the growing demands of downstream industries and urban development in Renhuai City, while at the same time providing adequate baseline flows to support the river's ecological functions (especially its globally important fish populations). Secondly, the Wuma River discharges into the Chishui mainstream only 13 km upstream of the main water intake for Renhuai's key industrial park, providing a direct contribution to the quantity and quality of water available. Thirdly, the land use practices of farming communities in the Wuma valley are for the most part unsustainable and result in the systematic deterioration of the ecosystem and its service provision capacity, exemplifying similar problems

across the Chishui River Basin – it is therefore representative. These unsustainable practices directly affect downstream water users - a stable supply of good quality water in the Wuma River is an important contribution towards the security of the downstream industries in Renhuai. Fourthly, the farming communities in the Wuma valley live at or below the poverty line and are in need of development assistance to improve their livelihood security while simultaneously improving ecological stability and conditions for biodiversity. Having confirmed the willingness of the pilot communities to participate through PPG consultations, the PWS pilot component aims to demonstrate the viability of a long term mechanism to achieve these twin conservation and development goals.

Building on baseline studies during project preparation, the project will support public consultations in the pilot communities with a view to designing the PWS mechanism and a Memorandum of Understanding will be signed between potential buyers and sellers signaling their approval to enter into land use changes activities. The provincial government has agreed to buy the ecosystem services in the first instance, with the intention of brokering further agreements with downstream industries in due course.

The project facilitated the steps needed to establish a working PWS mechanism (Output 2.1), including the definition, assessment and valuation of the ecosystem services to be provided; establishment of village organizations to bundle the supply of ecosystem services; TA on capacity development of community land users to modify land use practices; and the brokering of PWS agreements (Output 2.2) between the communities and the provincial government. The project facilitated and supported their implementation, including the promotion of public-private partnerships where needed, and introduce scientific monitoring for biodiversity and ecosystem services to measure the impact of intervention (PWS mechanism) on livelihoods among upstream farmers and biodiversity in the area of intervention (Output 2.3). The financial impact of service provision (stable flow of quality water) among water users downstream will be also monitored. Finally, the project supports the development and initial implementation of a watershed-wide catchment management plan (Output 2.4) based on valuation of ecosystem services and the assessment of tradeoffs taking biodiversity conservation into account, providing a framework for expanding the pilot PWS work to other village communities within the Wuma catchment, especially those with minority ethnic groups. The project component development has fully taken into account the STAP advisory notes on PES.

Output 2.1: PWS pilot mechanism established in Wuma sub-watershed, generating uptake of biodiversity friendly land use options. (Achieved)

In this project, specific analysis on the market-oriented eco-compensation scheme for the Wuma River was carried out. Compensation in money should be the main approach whereas technical training should be the supplementary way. Compensation in money means that liquor enterprises should offer direct or indirect financial support to local community residents so as to help them cope with financial shortage problem. This can make up for the loss from ecological conservation, change

the type of land use, ecological construction capacity of the basin and restore and improve the functions of the ecosystem. Besides, a group of elite talents, including management talents, technological talents, senior technical workers, are needed for the ecological development of the Wuma River basin. Liquor enterprises should offer free technical consulting and guidance, cultivate technological talents and management talents and help neighboring residents improve their scientific and cultural quality as well as production skills.

There are two kinds of eco-compensation funds. One is non-profit foundation. In order to better address the prominent environmental issues in the Wuma River basin, prevent and control water pollution in the Wuma River basin and protect the important natural habitats, liquor enterprises should make voluntary donations to public welfare foundations that will set up a special Wuma River Basin Protection Foundation based on legal procedures. The foundation will be dedicated to carry out welfare activities for preventing and controlling pollutions and protecting natural habitats in the Wuma River basin, popularize the common knowledge of reducing water pollution and promote the importance of protecting habitats and biodiversity. Also, the foundation will encourage people to take actions to improve water quality in the Wuma River basin and enhance capabilities and skills of protecting natural habitats and biodiversity. The second one is trust fund that can mobilize and motivate local farmers, reduce pollution by farmers and protect the ecological environment of the Wuma River basin. Farmers will give their land management rights to the trust which will closely connect their benefits with the management of the basin. The trust company will participate in the intensive management of land. Green and pollution-free planting methods will be used to reduce the consumption of pesticide and fertilizer so as to realize a sustainable development of rural land management and ensure a healthy ecosystem in the Wuma River basin. The water foundation can bring several benefits to participating farmers: a stable cash flow that is the equivalent to the net farming profits earned before; less labor input and lower time cost; and new financing opportunities to develop other industries. In addition, the foundation can also galvanize enterprises to participate in eco-environmental protection. Water resource of the Wuma River basin is the key means of production for local liquor companies. So, by investing in the Wuma River basin water conservation foundation, liquor companies, on the one hand, are exerting the principle of “those who pollute the environment should pay for cleaning the pollution and those who benefit should make compensation for the ecosystem”; this way, liquor companies will be stimulated to protect the Wuma River and try to reduce pollution emission.

Output 2.2: PWS agreements are established for the provision of watershed services. (Achieved)

Based on the preliminary research and discussion, the Project has identified the PWS model in which the Sanyuan Village Committee will represent PWS sellers (villagers) and the Renhuai Environmental Protection Promotion Association will represent buyers (downstream liquor manufacturers). Three contracts, including “Authorized Commission Contract by Villagers of Sanyuan Village in Renhuai City”, “Authorized Commission Contract to Renhuai Environmental Protection Promotion Association” and “Ecological System Services Contract for Sanyuan Village in Wuma Town in The Chishui River Basin”, have been drafted. With the coordination of the Renhuai Environmental Protection Bureau and

Wuma Town Government, villager of Sanyuan Village and Sanyuan Village Committee, downstream liquor manufacturers in Renhuai city and Renhuai Environmental Protection Promotion Association, as well as Sanyuan Village Committee and Renhuai Environmental Protection Promotion Association have signed the three contracts respectively. This means that the core project target has been achieved.

Output 2.3: The impacts of PWS implementation on land use changes, delivery of ecosystem services, biodiversity and livelihoods are monitored, assessed and reported (Likely to be achieved)

In this project, efforts were made to explore the planning and design of land use change, or the alternative production, in the PWS pilot zone. Comprehensive investigations were carried out in the upstream region of the core pilot zone to understand the land use status quo and villagers' willingness towards land use change. After considering the climate and ecological environment as well as social and economic development status, alternative crops were selected and land use change models and methods were identified. With a proper planning and design, a scientific, reasonable and practical land use change implementation plan was drafted which could be widely applied in the Chishui River Basin. Such efforts can help to increase farmers' income, promote industry development and protect the ecological environment of the Chishui River Basin.

This activity covers a total land area of 111,995 mu, including a core area of 995 mu, an extension zone of 11,000 mu and a radiative zone of 100,000 mu. (The emphasis is on the core area and extension zone of the Sanyuan village of Wuma River town. The project area mentioned here mainly refers to the core area and extension zone.)

New standardized planting bases were constructed, including 1,429 mu for cherry plum, 2,043 mu for kiwi, 2,473 mu for cherry, 1,663 mu for dekopon orange and 137 mu as a demonstration park for the introduction of new varieties. The total investment is RMB 87.5459 million. And the total construction time is between February 2019~Februrary 2020.

Output 2.4: Catchment management plan for Wuma River valley demonstrates a framework for integrating PWS with eco-compensation and regulatory mechanisms for sustainable watershed management (Achieved)

As a tributary of the Chishui River, the Wuma River provides water for a large number of liquor manufacturers. However, agricultural production activities in the upstream region have had a certain impact on water quality. Therefore, a market-oriented eco-compensation scheme can be a feasible way to balance the interests between farmers in the upstream region and liquor manufacturers in the downstream region and address the water quality issue in the Wuma River.

The Wuma River is 39.3km long. The Wuma River watershed covers Changgang, Luban, Wuma and Maba, 4 towns in Renhuai city of Guizhou Province. The area of the Wuma watershed is estimated at 45,075 hm2. The Wuma River basin is quite steep with 35% of its areas situated on 25+ degree slopes. Its forest coverage rate is 32.68%. Thanks to the unique natural ecological environment in the Wuma

River basin, such as water, soil, climate and atmospheric microorganism, quality baijiu products, including China's national liquor Maotai, are made there. With the facilitated development of resources and urbanization in the upper reaches of the Chishui River, local government has done many efforts to ensure that industries in the downstream region can have access to clean water resources and facilitate the governance of the Wuma River basin, especially the production base of Maotai as well as its neighboring environment. However, this still cannot solve the ecological degradation problem faced by the Wuma River basin. If the ecological degradation continues, there will be negative impact on the Wuma River, not only on its water quality and water flow during dry season, but also on the downstream stakeholders as well as their access to safe water. As the Wuma River basin is facing increasing challenges in its sustainable development, it is very urgent to develop an eco-compensation scheme in the Wuma River basin.

While designing a market-oriented eco-compensation scheme for the Wuma River basin, the most important thing is to identify the eco-compensation standards. First, in this project, three methods were used to calculate the eco-compensation standards respectively.

Method 1. CLUE-S (Conversion of Land Use and its Effects at Small Region Extent)) model was used to simulate the land use/cover change in the current stage and in future (till 2030) under the two scenarios of economic development and ecological conservation. Then through the InVEST (Integrated Valuation of Ecosystem Services and Trade-offs) model, evaluations were done on three kinds of ecosystem services in this region, including water yield, nitrogen and phosphorus abatement and sediment retention.

Method 2. Semi-Structured Interviews were carried out for upstream and downstream stakeholders, including farmer and liquor manufacturers, to understand key eco-compensation issues in the Wuma River basin. Questionnaire on the eco-compensation model, method and standard in the Wuma River basin were also designed to understand stakeholders' attitude and willingness toward eco-compensation. This helps to build a foundation for developing a market-oriented eco-compensation scheme for this basin. According to the survey, local residents generally agreed to do intensive land management through land transfer at the standard of RMB12,000~15,000/hm2. If adopting the highest standard of RMB15,000/hm2, then all residents will be satisfied. According to the land use/cover data of the target region, there are altogether 1,215hm2 paddy fields and 17,024hm2 dry lands. So, based on the willingness of local residents, the eco-compensation standard is RMB274 million. In addition, in terms of the compensation pattern, 39% of farmers prefer technical training, 26% prefer compensation in money, 20% choose compensation in kind whereas 15% wish the government could offer them employment opportunities.

Method 3. In order to protect the ecological environment in the basin, some severe measures, such as changing the production pattern and closing down the heavily polluting enterprises, must be implemented. However, this might exert a heavy blow to the economic development of Maoba, Luban, Wuma and Changgang. Therefore, the Development Opportunity method was used to calculate the loss of the right to development that might occur due to the protection of the

ecological environment in this area, which was taken as the lower limit of the eco-compensation standard. In 2015, the loss of right to development in the Wuma River basin was estimated to be RMB178 million.

The current ecosystem services value of the Wuma River basin is RMB418.25 million. Through the eco-compensation willingness survey on local residents and liquor enterprises, the highest eco-compensation amount acceptable for all stakeholders is RMB274 million. The loss of the right to development in this component, based on the Development Opportunity method, stands at RMB178 million. Therefore, when deciding the eco-compensation standard, the upper limit can be the ecosystem services value whereas the lower limit can be the developmental opportunity cost of local farmers. Since 274 million falls between 178 million and 418.25 million and is closer to the lower limit, the eco-compensation amount requested by local residents is very reasonable and should be referred to in the final eco-compensation standard.

3.3.2. Effectiveness:

Effectiveness is rate as: Satisfactory

As described above and also demonstrated with indicators and target achievement using SMART criteria below (Table 5), the project has achieved its main objective "to operationalize a replicable PWS scheme in the Chishui River Basin to stimulate land and natural resource use systems that conserve biodiversity and sustain ecosystem processes in a satisfactory manner". This achievement has been possible due to mainstreaming of the concept of eco-compensation in the policy, plan and programme of the central, provincial and local governments. A total of 6 (six) policies, regulations, or plans included eco-compensation/PWS as a tool to protect the watershed. In mainstreaming PWS mechanism, the report of the Standing Committee of Communist Part of China called for establishment of diverse and market-based eco-compensation mechanism on 18 October 2017. Three provincial governments of Yunnan, Guizhou, and Sichuan have signed a joint agreement on 1st February, 2018 to establish a trans-provincial eco-compensation mechanism along the entire Chishui River Basin. Replicating and scaling up the pilot PWS mechanism to the entire CRB and realizing the national and global biodiversity standards and indicators will take time due to the fact that 10% increase in forestry land use on the previously practiced agriculture land use will take time to provide its full service potentials. Effective monitoring and quality control will be needed to achieve the targeted land use change that restores and enhances biodiversity value in the entire Chishui River Basin (CRB). Table 16 explains the effectiveness of the objective level target and indicator delivery.

Table 16 Evidence showing effective delivery of the objective level indicators and targets

Evidence showing operationalization of a replicable PWS scheme in the Chishui River Basin to stimulate land and natural resource use systems that conserve biodiversity and sustain ecosystem processes	

Indicator	*End-of-the project target*	*Cumulative progress to date*	*TE assessment*
PWS and biodiversity conservation are mainstreamed into national & provincial policies, regulations and plans .	PWS and biodiversity conservation mainstreamed into national and provincial policies, regulations and plans, including the Regulation on Ecological Compensation and official approval of the demonstration PWS scheme (see Tracking Tool).	The target is achieved. Eco-compensation and/or PWS has been included in at least 6 government policy papers, regulations or plans including the Provincial 13th 5-year plan	**Achieved**
Sustained presence of globally significant fish populations in the Chishui River system,	Annual monitoring using standardized protocol confirms presence of the same species in stretches of the Chishui River system immediately downstream of pilot PWS sites	A Biodiversity and Ecosystem Services monitoring system was developed based on GIS and InVEST model. The monitoring took place in March, 2019 and confirmed the presence of the same species in stretches of the Chishui River system immediately downstream of pilot PWS sites.	**Achieved**
Provincial government investment in eco-compensation / PWS schemes in Chishui River Basin is sustained at CNY 50 million per year from 2015	Guizhou Provincial Government Special Fund for Environmental Protection in Chishui River Basin – annual allocations consistently reach RMB 100 million in 2017 and support replication of PWS to other watersheds	Provincial government investment in eco-compensation / PWS schemes in Chishui River Basin has been reviewed and found consistently increased from RMB 40 million (2014) to 100 million (2018).	**Achieved**
Land use change restrictions codified in provincial development / land use and water resource plans.	Done through inputs to the following 5 year plans reduce threats to aquatic habitats and biodiversity in the CRB.	The implementation plan of Ecological Protection Redline of Guizhou Province in place (the plan has been reviewed)	**Achieved**

2. Regulatory and institutional framework for PWS implementation at the provincial and Chishui watershed levels has been established, necessary monitoring and supervision capacity developed

and private sector involvement in PWS initiative is assured. Pilot PWS scheme is demonstrated in Wuma river watershed; PWS agreements between local farming communities and the provincial government with public-private sector fund transfer arrangements put in place; the target of achieving 10% increase in both the vegetation cover and villagers' income is on track although it will take some time to achieve the full outcome. All the planned outputs have been successfully generated. Biodiversity indicator system has been developed, mainstreaming of PWS has been accomplished and 4 liquor companies have signed the agreement to pay for the water services. Private sector has been further incentivized by the provincial government by committing equal amount of fund for the payment for watershed services. Similarly under the outcome 2, PWS pilot mechanism is established, agreement signed with the buyers, the plan to create more biodiversity friendly land use in Wuma river catchment is under implementation. Upscaling of the successful pilot work in the Wuma sub-watershed to the entire Wuma watershed and eventually in the Guizhou section of the Chishui River remains to be done. However, integration of the pilot watershed land use change plan into overall Catchment management has been done. There is a framework to integrate PWS with eco-compensation and regulatory mechanism of the local and provincials EPBs.

3. There is strong evidence indicating that changes at national, provincial, local and private sector policies, plans and programmes as well as in different stakeholders' awareness, knowledge, and attitudes can be attributed wholly or to a large extent to the PWSC project. The project has been given high recognition by the MEE, China and gained good ownership of the Guizhou provincial government.

3.3.3. Relevance

Relevance is rated as: Relevant

Supporting Evidence:

The project is relevant from perspectives of local, provincial, national and global criteria and perspectives as shown in the table 17 below:

Table 17 Relevance of the project for national and global biodiversity and wetland conservation

GEF BD-2 objective:	Expected outcomes	Relevant GEF-5 BD Indicators	Project relevance
Mainstream Biodiversity Conservation and Sustainable Use into Production Landscapes, Seascapes and Sectors	Outcome 2.1: Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation	Landscapes and seascapes certified by internationally or nationally recognized environmental standards that incorporate biodiversity considerations measures in hectares and recorded by GEF tracking tool.	The GEF project contributes directly towards the sustainable management of watersheds in the Chishui River Basin and specifically towards the improved management of a demonstration area of at least 7,000 ha in the Wuma River watershed through a PWS

GEF BD-2 objective:	Expected outcomes	Relevant GEF-5 BD Indicators	Project relevance
			mechanism
	Outcome 2.2: Measures to conserve and sustainably use biodiversity incorporated in policy and regulatory frameworks	Policies and regulations governing sectoral activities that integrate biodiversity conservation as recorded by the GEF tracking tool as a score.	PWS and biodiversity conservation is mainstreamed into Guizhou provincial policies, regulations and plans, including the Regulation on Ecological Compensation, Guizhou Provincial Chishui River Protection Act, 13th Five-Year Environmental Policy regulations, and Planning of Ecosystem Function Area in the Upstream of Chishui River Basin

The project is relevant to China's national Eco-civilization development strategy and Eco-compensation policy. It is also relevant to GEF BD-2 and UNDAF Outcomes 1, 4 and 5. The project advances the goals of GEF BD-2: "Mainstream Biodiversity Conservation and Sustainable Use into Production Landscapes, Seascapes and Sectors". It is aligned with GEF BD-2 related outcome 2.1: "Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation", by clearly addressing the issue of currently non-sustainable agricultural land use practices of poor farmers in upstream Chishui River. The project also directly addresses BD-2 Output 2.2: "National and sub-national land use plans that incorporate biodiversity and ecosystem services valuation". The valuation of watershed ecosystem services is a key component of the PWS project as the successful pilot will be scaled up through enhanced knowledge-policy interface and enabling national policy.

The project also contributes towards national implementation of CBD Articles 6 (General measures for conservation and sustainable use – including integrating biological diversity into relevant sectoral or cross-sectoral plans, programmes and policies), 8 (In situ conservation), and 11 (Incentive measures for the conservation and sustainable use of biodiversity). In addition, the project directly addresses CBD Decision X/2 on the CBD Strategic Plan for Biodiversity 2011-2020 and the Aichi Biodiversity Targets, contributing towards Targets 3 and 4 under Strategic Goal A "address underlying causes of biodiversity loss by mainstreaming biodiversity across government and society" and Targets 6, 7 and 8 under Strategic Goal B "Reduce the direct pressures on biodiversity and promote sustainable use".

The project's emphasis on improving the sustainability of watershed management will directly contribute towards national implementation of a range of Ramsar Resolutions, including the

following: X.1 - The Ramsar Strategic Plan 2009 – 2015 (especially strategies 1.3 (Policy, legislation and institutions), 1.4 (Cross-sectoral recognition of wetland services), 1.10 (Private Sector) and 1.11 (Incentive measures)); X.3 - The Changwon Declaration (including ensuring adequate water to support ecological functions, role of wetlands in buffering impacts of climate change on society, and innovative financing instruments); XI.13 and X.28 (Poverty alleviation); XI.20 (Promoting sustainable investment by public and private sectors); and X.19 (guidance on integrated river basin management).

3.3.4. Efficiency

Efficiency is rated as: Satisfactory

Supporting Evidence:

Evidence	measure
The GEF funding addressed the key barriers that were hindering the introduction of the market based payment for ecosystem or watershed services in the CRB.	+
The Project has been able to satisfactorily achieve the majority of intended outcomes within the allocated budget.	+
Provincial and local governments' capacity was efficiently utilized and strengthened in implementation of the project.	+
The ear marked government fund for Chishui Watershed protection has increased from RMB50 million in 2016 to RMB100 million in both 2017 and 2018.	+
The timely completion of the project was not possible since the project experienced some delay and was extended by a year.	–

Based on the above mostly positive evidence the project has been implemented in a cost effective manner achieving its goal, objective, outcomes and most of the outputs although some results might take time to show their impacts. After the initial delays, the project has successfully accomplished the main objective of project "Operationalization of a replicable PWS scheme in the Chishui River Basin to stimulate land and natural resource use systems that conserve biodiversity". The twin identified barriers constraining the implementation of the market based payment for watershed services were largely removed. All the planned project activities have been implemented and the outputs delivered with efficient use of human and financial resources and with strong value for money as all the set targets such as the number of government staff to be trained, co-finance to be mobilized, biodiversity friendly land use percentage and local peoples' income to be raised have been achieved or likely to be achieved.

The Project Management Office adapted a flexible and efficient management system and procedures. In order to address the initial delay in implementing the work on schedule, coordination among service providers contracted under Component 1 was improved and communication made more regular. This was verified by the TE team as awareness of PWS among interviewed stakeholders was high, indicating sufficient awareness building and training. In general, technical oversight and guidance has been good. 100% of the co-financing at project approval has been realized by the project. During the implementation of the project, the project risk is well controlled. The risk level

has not increased, and there are no other risks affecting the implementation of the project. The NPMO's decision to decentralize the work and devolving the authority to implement the Component 2 to the SPMO in the GEPD in final analysis is assessed as a wise decision that not only reduced the cost of travel but also gained provincial government's ownership, expedited both the progress and stakeholder engagement in the project activities leading to cost effective production of project outputs. This is evidenced from the fact that the SPMO was staffed by a co-financed Provincial Project Coordinator and Provincial Project Assistant, with other co-financed support staff.

3.3.4. Country Ownership

The project has high country (national and provincial) ownership. The PWS was show cased at the 14th Conference of Party (COP14) held in Egypt in November, 2018. The PWS project also has high provincial ownership in not only in Guizhou but also in Yunnan and Sichuan as all the three provinces have agreed to upscale the PWS in the entire CRB. The strongest proof of the provincial ownership is indicated by the fact that the Government spending in Chishui River Basin environment protection has significantly increased from 2017. The ear marked government fund for Chishui Watershed protection has increased from RMB50 million in 2016 to RMB100 million in both 2017 and 2018. Also, the project is being regularly featured in annually organized Eco-Forum Global (EFG) event in the capital city of Guiyang. Last year it was presented in China-Swiss Environment related event. It also has high ownership among wide ranging stakeholders in the Wuma watershed with whom the TE team had an opportunity to interact. The Sanyuan Village Committee, the local NGO REPPA, the 4 Liquor companies led by a well know Maotai brand and an array of provincial research, academic and private sector partners especially the PSC members showed high approval and ownership of the PWS initiated work.

3.3.5. Mainstreaming

The PWS has been mainstreamed in national, provincial and local political, economic, environmental and social agenda, policy, plans and programmes at local and national levels. 6 policies, regulations, and plans have included eco-compensation and PWS as a tool to protect the watershed. In national mainstreaming of PWS mechanism, the report of the Standing Committee of Communist Part of China called for establishment of diverse and market-based eco-compensation mechanism on 18 October 2017. The three provincial governments of Yunnan, Guizhou, and Sichuan signed a joint agreement on 1 February 2018 to establish a trans-provincial eco-compensation mechanism along the Chishui River Basin.

Supporting Evidence:

1. Eco-compensation and/or PWS has been included in the following policies, regulations or plans: - Guizhou Provincial BSAP (2016-2026) which was approved by Guizhou Provincial Government.	+

- Provincial 13th Five Year Plan for Development of Environmental Policies - Chishui River Environmental Protection Action Plan - Guizhou Provincial 13th Five Year Plan for Environmental Protection 2. The guiding policy paper issued by the State Council in 2016 "Opinions to improve Eco-compensation Mechanism", called for full use of market based approaches to improve eco-compensation mechanism in China.	+

In addition, the project by directly addressing the underlying causes of biodiversity loss i/e/ unsustainable land use practices and poverty is mainstreaming biodiversity across national, provincial and local government as well as society level. It is also reducing the direct pressures on biodiversity by promote sustainable use of the land and water.

The PWS has also been mainstreamed in local community's development plans and programmes. The farming communities in the Wuma valley live at or below the poverty line and are in need of development assistance to improve their livelihood security while simultaneously improving ecological stability and conditions for biodiversity. Having confirmed the willingness of the pilot communities to participate through public-private-government (PPG) consultations, the PWS pilot component at Sanyuan village demonstrates the viability of a long term mechanism to achieve these twin conservation and development goals. Household incomes are increasing with the joint government and private effort of poverty alleviation and other rural development policies. For the impacts of PWS scheme on farmers' income, it has not been ready for observation since the land-use change with PWS took place only in Feb of 2018 and is expected to start showing results in 2020. However, the income of the participating households has already been doubled through the payment from the compensation fund. The people are using the increased income in improving their individual and community welfare.

The gender inclusion has also been improved since the women hold important positions in the Village committee that negotiates with the NGO (Renhuai Environment Protection Promotion Association (RPPA) created by the private liquor companies. The women also are using their extra income for better health and education of their children. In our interaction with the Sanyuan village committee Madam Tao Xiexin – Deputy Director General cum Secretary took lead in explaining the benefits they were getting as a result of the piloting of the PWS project in the village. The presence of large number of women participants during the interaction also demonstrates good gender inclusion.

The project does lack the active and meaningful participation of ethnic minorities in the pilot since none of the 22 households participating in the land use change belongs to ethnic minority although their population in the Wuma watershed is significant. The TE team raised this issue and was informed that the project was aware of the issue and has taken steps to ensure both social and

gender inclusion. The SPMO has recruited a gender and minority inclusion specialist, who has been gathering gender disaggregated information in the pilot demonstration area, as part of the baseline and project activity related investigation.

The NPMO has maintained gender disaggregated information on participation during workshops and trainings. A significant number of women (> 50%) are found among the implementation partners, including the former and current national project director, the PMO Manager, the SPMO coordinator, majority of the NPMO staff, the UNDP Environment and Energy Team include women, including staff colleagues who are actively involved on the project. The PMO regularly tracks women participation among contractors selected to support the technical reports. A gender and social inclusion specialist has been recruited for the activities in the pilot demonstration area at Sanyuan village. They also are engaging Masters' students to support data collection. The SPMO actively supported the service provider teams under Outcome 1 by providing requested gender inclusion related data and information.

3.3.6. Sustainability

Sustainability is understood to be the likelihood of continuity in terms of improvement in terms watershed ecosystem services – both material and non-material and the availability of increased and inclusive benefits to the local community and beyond after the funding ends.

Overall:
Likelihood that benefits will continue to flow after project completion: Likely
Supporting evidence:

Evidence	measure
+ mainstreaming of eco-compensation policy and PWS in the policies, plans and programmes of Guizhou Government;	+
+ Fulfillment of fiscal transfer of RMB 100 million by Guizhou Govt. and RMB 50 million by Maotai company.	+
+ High ownership shown by different central, provincial and local government agencies	+
+ Scaling up mechanisms are in place as there is already an agreement among riparian provinces of Yunnan, Guizhou and Sichuan and within Guizhou, 4 liquor companies have signed on the PWS mechanism.	+
+ The existence of central and provincial eco-civilization and eco-compensation policies and plans that integrate market based payment for ecosystem services in Chishui River Basin;	+
+ A long term public-private finance for environment protection in the CBR.	+
+ Creation and functioning of village committee and a NGO: Renhuai Env. Protection Promotion	

Association for coordination assures good likelihood of institutional sustainability - Although positive land use and socio-economic changes observed in the pilot sub-watershed in Sanyuan village but strong likelihood of achieving impact at scale is not assured; - Participation of ethnic minority is not satisfactory and likelihood of full social sustainability cannot be assumed.	–

Under the GEF criteria each dimension of sustainability has to be described and analyzed which is done below*:*

Environmental sustainability: will be achieved through improved watershed management within the scope of PWS agreements and catchment management plans; the project will provide financial and technical support for changes in land use, especially towards protecting steep slopes through reforestation, agro-silviculture, silvipasture, improved terracing, and other measures, thus improving soil conservation and the water quality. Areas requiring intervention will be prioritized, including the strengthening of riparian buffer zones and buffer zones for protected areas, as well as connecting habitat blocks as far as possible. The project will seek to mainstream biodiversity conservation within watershed management practices. Watershed rehabilitation will also increase the resilience of the natural environment, local communities and downstream industries in the face of climate change, anticipated future developments and environmental change, and improve conditions for globally significant native fish populations.

Social sustainability: will be improved through the project's demonstration interventions to build the capacity of local communities for sustainable and integrated watershed management. PWS provides a mechanism whereby downstream users of ecosystem services pay upstream providers for guaranteed supply of good quality water. This source of financing can support transitions to more sustainable land uses, alternative livelihoods, introduction of new technologies and provision of extension services, providing direct benefits to the communities involved through equitable disbursement mechanisms. The participatory and multi-sectoral approach will help to bridge differences and create stronger shared understanding of the nexus between environmental sustainability and socio-economic well-being. Strong gender equality and empowerment exists in both the project management team and beneficiary community that also strengthen social sustainability. The inclusion of minority community in empowering and sharing PWS generated benefits equitably needs further improvement to ensure full likelihood of social sustainability. Social sustainability is also underpinned by the fact that baseline activities during project preparation have already included extensive consultation with local communities and that the project will support a continued inclusive and consultative approach supported by awareness raising measures in order to achieve gender and social inclusive approach.

Financial sustainability: The multiple layers of central policy and provincial plans for the Chishui River Basin in Guizhou provide a framework for the significant baseline investment in environmental protection in the CRB in Guizhou, demonstrating the provincial government's strong commitment

towards goals consistent with the PWS project's objective. The high level of co-financing (1:8) provided to the project within the eco-compensation/PWS framework is strong assurance of its continued support for sustaining the project's outcomes after completion.

In addition, the establishment of a new financial mechanism for watershed management through PWS and the reinvestment of funds obtained through PWS agreements into sustainable watershed management supported by this project, will provide a sustainable source of financial support in the long term that will contribute towards the conservation of global significant biodiversity, as well as increasing benefits to local communities. The project will provide ecological stability including a sustainable flow of ecosystem services, reducing constraints for downstream economic development and eco-tourism.

Institutional sustainability: The project has the strong ownership and support of MEE and Guizhou provincial government, and is well aligned towards supporting the implementation of the national policy and programme on eco-compensation under MEE, as well as a range of regulations and plans for the Chishui River Basin including the Chishui River Basin Master Plan (2011), the Ecological Function Protection Plan for Upper Reaches of Chishui River in Guizhou Province (2007), Guizhou Chishui River Basin Protection Regulation (2011) and Guizhou Chishui River Basin Protection Plan (2013) (see the institutional and policy context and baseline sections). The project will establish an office for PWS planning, management and oversight in Guizhou EPD and build capacity for PWS management amongst staff of the provincial EPD and the EPBs of the three riparian municipalities in the Chishui River Basin. The project's management arrangements will ensure that all institutional levels are involved in project coordination and working closely together.

3.3.7. Catalytic Role

The purpose of GEF funding is catalytic, providing incremental funding for delivering national and global environmental benefits. The PWS project was planned and designed to facilitate the catalytic role of GEF funds including creating enabling policy and institutional conditions at the provincial government level through mainstreaming PWS into provincial polies and plans. The GEF funding also has catalyzed China's eco-civilization national agenda and eco-compensation policy into concrete watershed and river basin level projects. The PWS project has identified a right agenda and opportunity to design and establish a modified market based mechanism to suit the specific national situation of China. Indeed this is aligned with the accepted principal of nationally driven process which is also enshrined in GEF process. By establishing a clear and sustainable relationship between water service producers who are being nurtured as environmental stewards and buyers (the Liquor business operating in the CRB) as well as the users and beneficiaries of the regulating watershed services (naturally purified water thus saving costs), the PWS has catalyzed the latent potential of ecosystem service development, value appreciation, and capitalization by strengthening the three pillars of sustainable development – environmental, economic and social. It has achieved catalization in many aspects – public-private-community partnership; promotion of ecological protection among wide ranging stakeholders and creating evidence and good practice for scaling up the success in

knowledge and capacity into policy arena and scaling out the physical watershed based land use change success in the entire Chishui River Basin connecting three provinces. This way, the PWS is also catalyzing the inter-province co-operation in biodiversity conservation in China.

3.3.9. Impact

Most outcomes relating to positive changes in the status of the conservation targets such as endangered fish species, forest and watershed ecosystem services, and water related regulating ecosystem services have been realized albeit at the sub-watershed scale. Achieving the impact at scale of the project attributed outcomes and outputs will depend on the qualitative achievement of the outcomes and outputs which will take some time. For example the full scale of the reported 12.6 % increase in forest cover and more than 10% increase in income of the Wuma sub-watershed farmers will be measurable and verifiable after ecosystem services reach marketable stage. However, some indicators that are helpful in doing impact assessment of ecosystem service value appreciation, stability of fish population and improvement water quality are showing high likelihood of impact.

The TEEB based value estimation of 11 different watershed ecosystem services covering provisional, regulating, supporting and cultural services indicated that the ecological protection services had the highest value (12.59 Bil, RMB) followed by provisional services (11.95 Bil. RMB); the current or Business as usual had the lowest (11.82 Bil. RMB) thus justifying the highest value for the watershed services promoted by the PWS i.e. regulation watershed services had the highest value of 62% of all.

Monitoring of fish biodiversity in the Wuma River by the contractor indicated that there is richer stock and higher number of fish species in 2018 compared to 2015. Although fish biodiversity increased but genetic diversity decreased meaning single fish species is dominant. Study concluded that fish habitat is still `in disturbed condition'.

From the review of report, EHI scores show increasing trend of conservation value in pilot watershed. Progress toward achievement of progress on major targets however indicate that the impacts of PWS scheme on farmers' income and forest cover change will take time to show positive and sustainable increase since the land-use change in Pilot watershed took place only in Feb of 2018 and is expected to complete in Feb of 2020.

4. CONCLUSIONS, RECOMMENDATIONS, LESSONS, GOOD PRACTICES

4.1. Conclusions

The 5 year long UNDP supported GEF-financed Payment for Watershed Services (PWS) project aimed to restore and transform the entire Chishui River Basin – the only undammed river in China a sustainably and collaboratively managed river basin for the Conservation of Globally Significant Biodiversity and ecosystem services. Nearing completion, the project has delivered good and encouraging achievements by implementing many activities focusing on operationalizing a replicable PWS scheme in the Chishui River Basin to stimulate land and natural resource use systems that

conserve biodiversity and sustain ecosystem processes.

Through the support received from the project, a market-oriented mechanism for ecological compensation in the form of watershed services in a pilot watershed of Chishui River basin has been established. The result has gained a considerable significance in China, providing an innovative case, a research sample, and a potential replication model for the "Establishment of a market-oriented and diversified mechanism for ecological compensation" proposed in the report of the 19th National Peoples' Congress, China.

The concerned government, private and academic agencies participating in the implementation of the Project, especially at the provincial level are found to be fully committed and ready to consolidate the efforts made by the project and replicate the PWS mechanism beyond the pilot watershed. The team is reasonably positive regarding the gradual improvement in the sustainability of benefits generated from the project led activities. The lesson learned from this project is also likely to contribute to the overall enhancement of UNDP programming in China.

The project was justifiably extended by one year to be completed in September 2019 since the world wide experience show that a market or private sector participated PES/PWS mechanism is difficult to establish and make it operational and sustainable in a short period of 4 years. In China, this has been possible due to existence of clear policy space in the context of the President Xi Jinping's Ecological Civilization agenda and central government's eco-compensation policy. It led to speedy creation of enabling policies and regulatory mechanism at the provincial level in Guizhou. The project has been collaboratively implemented and adaptively managed by the UNDP and well executed by the International Environmental Cooperation Office (formerly FECO) under the Ministry of Ecology and Environment (MEE), China. The Environmental Protection Department of Guizhou as the provincial implementing partner - especially responsible for implementing the Component 2 - has demonstrated the successful establishment of the PWS mechanism on the ground in the Wuma Sub-Watershed. The TE team concludes that the project has successfully met the set objective of operationalizing a replicable PWS scheme in the Chishui River Basin to stimulate land and natural resource use systems that conserve biodiversity and sustain ecosystem processes.

There are some concerns and uncertainties in the midst of impressive output delivery. The most crucial aspects for the full scale success of the PWS project are the real, participatory, lasting and quality ecological and social change in the CRB. The unsustainable predominantly agricultural land use is to be fully converted into tree and shrub dominated biodiversity rich watersheds so that the watershed service flow can be sustained. So far the PWS has been able to convert 100 mu of farmland into forest land use. A total of 7,466.33 hectares farmlands are under environmentally and biodiversity sound land use conversion supported by either the government programs and/or the PWS project related fund. An agreement between upstream sellers and downstream buyers was reached under which four companies in the downstream river basin have agreed to contribute some funds to the PWS scheme for the upstream Sanyuan village to change their land use pattern for the watershed protection. However, only Maotai co. has deposited the RMB 50 million and others are yet

to deposit their contribution. The government and company's regular contribution is tied up with the 10% income raise the community households have enjoyed so far. However, there is some uncertainty regarding the honoring of the commitment by the liquor companies in making annual payment for the watershed services. Similarly, there is some uncertainty whether improvement in land use practices and water quality can be achieved and sustained as per the expectation of the buyers or not.

Nevertheless, the TE team has used the standard UNDP-GEF evaluation methods and rating criteria based on its analysis of comprehensive and detailed data and information provided by the PMO. The TE team also conducted interview with all stakeholders and by using criteria of relevance, effectiveness, efficiency, sustainability and impacts according to the guidance, rules and procedures established by UNDP and GEF has rated the project performance as `Satisfactory'.

Our final conclusion is that the Project-- Payment for Watershed Services in the Chishui River Basin (CRB) for the Conservation of Globally Significant Biodiversity -- has been able to deliver good and replicable outputs and outcomes. Successful achievement of project outputs and outcomes by different implementing and/or contracted partners through the project financed activities has helped operationalize the PWS scheme. This, we feel will, stimulate sustainable land management and wise natural resource use systems in the entire stretch of this trans-provincial river basin covering Yunnan, Guizhou and Sichuan provinces. We feel reasonably confident that the PWS project significantly contributes to China's mission to conserve biodiversity and sustain ecosystem processes in line with the larger Eco-civilization agenda and Eco-compensation national, sub-national and local policy.

Through the support of the project, a market-oriented mechanism for ecological compensation in the part of the CRB has been made operational gaining considerable recognition in China. This project also provides an innovative example, a research case study, and a potential replication model for the "Establishment of a market-oriented and diversified mechanism for ecological compensation" for future reference by UNDP and GEF in their global programmes.

4.2 Recommendations

These recommendations are being made based on comprehensive analysis of the project design, implementation process, results accomplished and the findings of the MTR. Certain assumptions are made based on the identification of some gaps and uncertainties and intention to improve the risk management and risk aversion by the management. The TE team has also used its own expert judgment based on the experience and insights gained in similar project experience in other countries. In order to ensure a replicable, scalable, impactful and sustainable PWS/PES, local people's stewardship of natural and environmental resources and their contribution to sustained flows of watershed ecosystem goods and services must be adequately recognized and sufficiently rewarded. In line with this learning, our recommendations are presented below:

Table 18 Recommendations for improved management of the watershed services and sustainability

1. Suitable refinement in the design, implementation, monitoring and evaluation of the project should be done to maximize the benefits of the enabling policy

The PWS Project was planned within the framework of China's eco-compensation policy to implement an integrated management approach balancing conservation with economic development agenda. While PWS has been designed well, however in order to ensure its full implementation and achievement of the envisaged outcomes and impacts, timely correction and refinement in design and implementation are needed, especially at local level. Elements such as long-term partnership, trust, inclusion and transparency based relationship between buyers and sellers are necessary to upscale the PWS. While the creation of a facilitating NGO (REPPA) can build and nurture partnership between liquor business and local community at the ground level (Wuma sub-watershed) but for this the local environment bureaus and REPPA need to work as a honest broker between the Liquor companies (buyers) and the local communities (sellers). It is suggested that local government agencies and NGO are further sensitized and made aware of the brokering role of NGO in ensuring good environmental governance since it determines how ecosystem services contribute to good ecosystem health and human wellbeing.

This calls for constant dialogue among the stakeholders especially the Liquor companies and other private/public sectors so that the buyers are diverse and ample in number as the project is scaled-up. This recommendation has been based on the TE team's interactions with the four major Liquor companies which gave us the impression that the companies were linking their fund transfer or payment only if the company made profit. It is clear that if the book of a company does not show profit they would not make any contribution which does not bode well for a stable payment mechanism. However, since the large liquor business has been growing, it is safe to assume that the private sector payment to the watershed community is assured provided constant dialogue between buyers, sellers and fund manager is necessary.

2 Intensify mainstreaming and integration actions to upscale the project interventions and achieve impact at scale

Mainstreaming of PES/PWS in policies, plans and programmes across scales, sectors and disciplines: While, the PWS mechanism has been integrated into the national and provincial Eco-compensation policy and a set of regulations and guidelines are found in place and the mainstreaming agenda is well on track, mainstreaming is still not apparent at local level. Although the TE team did not meet the four concerned EPBs, but based on the review of the available documents, it appears that there is a need to consolidate and correctly use the capacity built and awareness raised in proper enforcement of the provincial and local regulations in an effective and result oriented manner. We noted that the Guizhou Forestry and Agriculture Department (especially Bureau of Fisheries) as well as Land Management Department do not seem to play an active role in the Project. The project design itself seems to have missed out in allocating specific roles and responsibilities to them. For example, for intensifying afforestation and reforestation work, Forest Dept. has distinct role; for ensuring right kind of fruit species and associated growing agro-technology, Agriculture Dept. can provide crucial support; and monitoring of fish biodiversity can be enhanced and future action ensured if Bureau of Fishery is given role. Land Management department can help in planning and regulating land use change in a legally and permanent manner.

3. **Improve institutional arrangements and Governance for effective reinvestment of compensation funds to ecosystem service enhancement**

The basic premise of PWS is: 'ecosystem service producers as protectors and suppliers of service and service buyers or users as payers'. In this project, an agreement exists between the producers (Wuma watershed farmers) and water users (Maotai and other companies). Payment of compensation amount will be managed through an intermediary GESRDI and the ground level investment on ecosystem service enhancement will be managed by a NGO - REPPA on behalf of both the `producers' and Payers'. This way, the anticipated compensation funds are invested both in improving the ecosystem service stock and managing the flow of good quality provisioning and regulating ecosystem services as well as contributing to community wellbeing. However, TE team is concerned about the capacity of REPAA and effectiveness of the EPBs of Bijie, Chishui, Renhuai and Zunyi in ensuring this. We therefore recommend to continue capacity development, stakeholder engagement and most importantly enforcement of quality governance including stronger and inclusive engagement with community, enforcement of regulations for users including tourists, monitoring of water quality, fish biodiversity and watershed health.

This is necessary since institutions, especially government ones experience staff turnover or technical staff leave for professional development. Similarly, the training content itself undergoes change to accommodate new phenomenon such as climate change impacts

4. Proposals for future directions underlying the main objectives of the PWS

The project goal of "Contributing to the conservation and sustainable use of globally significant biodiversity in China" is an ambitious and long-term goal which is possible through a series of scaling-out (expansion or extension of existing PWS pilots at a geographic and physical scale with an increase in land areas, population, investment and number of local, provincial and central level agencies) and Scaling up by using the pilot level good practice as evidence to influence policy and knowledge, information, lessons learned to build capacity and mobilize fund for large scale land-use intensification with tree and fruit plants and other commercial natural vegetation.

We recommend three steps in this direction: a) implement the agreement among 3 riparian provinces of Chishui River – Yunnan, Guizhou and Sichuan – to do policy and institutional harmonization and share lessons learned from the PWS project so that all 3 provinces have compatible institutional arrangements to implement Basin scale Payment for watershed ecosystem services; b) the Guizhou Govt. should scale out and scale up the best land use change management practices and knowledge beyond Wuma watershed to cover the entire section of the Chishui river in Guizhou province and, c) Guizhou EPD helps develop a sustainable supply chain management through community-based new standardization and sales of ecosystem goods and services in the CRB.

Necessary institutional framework for PWS development and management has been established at municipal and provincial levels for implementing PWS mechanism. However, the TE team feels that while the framework and the structure exist but process of actually implementing policy and enforcing compliances and regular monitoring work will need to be internalized in various layers of the provincial and local governments, especially in local EPBs.

Similarly, based on the visit to the Pilot PWS scheme in Sanyuan village and assessing the quality the demonstrated land use conversion systems in the Wuma sub-watershed, we feel that the concerned farmers seem to be passive participants (wage workers) in the production of ecosystem services. However, the main essence of the outcome 2 is to have the local community as active co-producers of watershed services engaged meaningfully with the NGO REPPA and the land use experts who have been contracted to convert the current disturbed agro-ecosystem into a verdant or lush green and rich biodiversity land use system. This will be possible if the village committees in all sub-watersheds are given incentives to use their knowledge, skill and learning in an innovative and imaginative manner. We recommend to introduce a principle of `care and share' in managing the Plum, Cherry plum, Kiwi and Orange plantations by rewarding the good performers whose plots give best quality water or has high number of biodiversity species so as to create a peer learning and replicating environment.

The TE team feels that while the village committee is functioning well and its process of decision making is participatory but its social inclusion practice is weak because the inclusion of ethnic minorities whose population is significant in CRB is not found in any structure and process of the Committee. This concern was shared with the PMO. Therefore we strongly recommend to design and conduct a targeted capacity building training and awareness raising and land use improvement training on bring them on board to practice biodiversity friendly land management practices in their settlement areas.

Monitoring and measurement of socio-economic and gender impacts of the PWS mechanism is equally important
The Wuma sub-watershed generated clean water, green mountains, lush forest, diverse agricultural goods and cultural and aesthetic values continue need to be used and enjoyed over time and the physical sustainability of their use and replenishment needs to monitored, their impacts on local economy, social cohesion, food security, food resiliency and overall human wellbeing must also be measured, monitored and critically evaluated and good governance, inclusive wellbeing and adaptive management should be gradually improved for a balanced conservation and development.
The PWS managers should be regularly trained and exposed to constantly improving environmental, social, developmental and cultural harmonization and facilitation skills
Local communities in Wuma and other replicating sub-watersheds will be needing training on sustainable land use change related skills covering understanding ecosystem functions, processes, trends and impacts. The facilitating and empowering organization REPPA also needs to constantly update its skills to run an inclusive land use change management programmes ensuring that marginalized people (e.g. ethnic minorities) are on board and have a voice in the PWS decision making process.
Socially marginalized groups should be empowered and actively supported to participate in environmental decision making
The experience gained from a social learning process in Lake Baiyangdian catchment in China (see ESPA, 2018) which was heavily polluted and degraded catchment show that building relationships and raising awareness of social-ecological dependencies among key groups of water managers. This relationship has reframed watershed management and empowered local communities as water catchment managers. Similar long-term social-ecological process dependency exist in Wuma and other sub-watershed in CRB and this dependency can be made stable by making the participation of local communities meaningful.

4.3. Good practices and lessons learned

Good Practices:

The project has commissioned an impressive list of high quality case studies, reviews and eco-labeling and land use change schemes as well as created institutional arrangements that form good practices for further replication and learning. One of the most interesting good practices is the successful development and operationalization of the market-based payment for watershed services. These achievements and good practices can be shared across the portfolio of GEF projects in China and also provide meaningful input for GEF global programmes and UNDP programmes. A few of the good practices of the project are summarized below.

Organizing and working with local communities in an inclusive manner

The Component 2 of the PWS addressed the barrier concerning the relative absence of successful

working PES/PWS models to secure ecosystem services and biodiversity in China and a Pilot PWS scheme has been demonstrated in Wuma sub-watershed. The project in collaboration with the Guizhou provincial government, 4 EPBs of the local governments and 4 Liquor companies led by Maotai co. has also created an eco-compensation mechanism, A local NGO called REPPA has been created which although still in its development stage of operation, is a good practice in China's local development context. Our dialogue with the NGO gave us to understand that the head of the NGO was willing and had experience in inclusive engagement with community. However, REPPA has to ensure in inclusion of the representative of the ethnic minority population living in the watershed to make this good practice a replicable model elsewhere in China.

Project management structure, e.g., component managers

The project management office was staffed with qualified personnel and was functioning well. The PMO funded by the governmental co-financing contributions, supported the project manager well. The PMO also provided experienced services in technical programme management, human resource management, financial management, procurement, and supervision of IT systems including communication and knowledge management. The creation of SPMO as an extended arm of the PMO and decentralizing and devolving Component 2 to them to handle ground level work was a very good decision as it allowed to gain efficiency as well as effectiveness in project activity planning and management.

Efficiently utilized and strengthened local capacity

The PMO gave ample opportunities for involvement of local and national service providers, including qualified biodiversity and ecosystem service professionals from national and provincial research and academic organizations, technology firms and IT consultancies. The civil society organization led by REPPA and students in promoting the PWS initiative in the annual Eco-Forum Global and other events as well as media and IT experts developing eco-labeling and e-commerce platforms, and land use construction companies being involved meaningfully provide the indicators of efficiency. Engaging with the local city and commune governments through their EPBs and townships and forest bureaus to implement the field interventions also was a good way to build local capacity and obtain local support and ownership for ensuring social and institutional sustainability.

Lessons Learned:

Cross-scale and cross-sector policy coordination

The PWS project has been inspired by China's current Ecological Civilization philosophy and enabled by the national eco-compensation policy at central level. The MEE has spearheaded the implementation of the national strategy and policy at the level of provinces and counties. The PWS piloting in Guizhou has been made possible by timely reform of the provincial policies and regulations to align with the national eco-compensation agenda and similar actions were taken by the four local city and county governments in Wuma watersheds. The lessons learned through this

experience will be flowing back to the MEE for nationwide sharing. This is indeed a very good practice of policy coherence and coordination that has allowed GEF/UNDP project to make good progress.

Cross-linkages with other initiatives should be pro-actively done

The project area – CRB, being a nationally and globally important biodiversity region, a large number of national and international partners are found actively pursuing relevant activities in the Chishui Basin. The EU, ADB, Conservation International, WWF and China's national and provincial research and academic institutes have ongoing or planned activities. Some linkages such as with the Mountain Environment and Hazard Institute in Chengdu are found useful but more such collaboration need to be promoted and partnership broadened. The TE team agrees with the MTR recommendations to strengthen linkage especially with EU and ADB supported initiatives which the TE team also reiterates as a good lesson learned from collaborative work.

Multi-stakeholder engagement approach should be given more space in design phase

We find that the multi-stakeholder approach of river basin ecosystem or watershed management was not sufficiently detailed for certain stakeholders such as ethnic minorities and relevant line agencies such as forestry, livestock, fishery and agriculture agencies. Although there was involvement with local governmental stakeholders through EPBs but real engagement with local government agencies will help in ensuring the two most important targets of 10% quality land use change and 10% increase in local people's income and might help the PWS mechanism to get firmly established.

Gender issues and empowerment needs among local community's especially ethnic minorities should be analyzed at the project preparation phase

In order to meaningfully integrate gender and social equality and inclusion objectives into the project design, a thorough gender and social analysis should be made at the project preparation phase. And, analysis of gender and social issues within the minority communities should be made by experienced indigenous and local knowledge holders and practitioners, through culturally sensitive consultations.

Filling out tracking tools should be an inclusive process supported with adequate quality control

Preparation of tracking tools and capacity development scorecards should be more inclusive and reviewed thoroughly. There were some inconsistencies among the tracking tools at each stage, including the baseline, midterm, and endpoint assessments. The process of filling out tracking tools should be reconsidered as it conveys an exercise more in quantitative target fulfilling rather than qualitative outcome achievement. The quality process would enable the project management team to become more familiar with the quality aspect of the target before implementing the tracking.

Geographic Specifications based Eco-labeling has very good scope

The Project initiated eco-labeling approach is working well. Eco-labeling is a public management

system closely related to the environmental protection of the production area. It involves many aspects of product protection. Presently available labeling systems that aim to protect the products in China include: a) Geographical Indication Protection Products of the PRC, b) geographical indication protection for agricultural products, c) geographical indication trademarks/labels, d) the pollution-free product protection system, e) the green food protection system, f) the organic product protection system, g) China's environmental protection product system, and h) the ecological place of origin protection product system. Each of these systems protects certain products through label identification and management. The geographical indication products system is one of the most inclusive and widely used systems of all and has been rightly promoted under the PWS. The Maotai Group is engaged in the PWS and eco-labeling scheme that was established by the project. Three companies, Maotai Group, Guizhou Xijiu, and Chishui Shaicu have been enrolled in the geographical origin label system and engaged in the PWS scheme. These provide a good lesson learned for future PES/PWS work.

Innovative Private sector partnership can leverage funding for biodiversity conservation and environment protection

Experiences from around the world indicate that biodiversity conservation projects often face financial crunch after the external funding stops. In the case PWS, the good practice of hitting the `right environmental pressure points" such as gradual deterioration of water quality and river discharge. The business of the Liquor companies was critically dependent on clean water supply through natural means to maintain the geographic specification quality of the product. This opportunity was captured by the PWS project and an innovative partnership among the Guizhou government, Liquor companies and CRB ecosystem service producing communities have been innovated. This is indeed a good practice that is leveraging conservation and social development finance needed to ensure the sustainability of the PWS.

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ANNEXES

Annex 1: TE mission itinerary

Schedule of the Terminal Assessment of

GEF PWS Project

(8th April-15th April)

DATE	ACTIVITY	VENUE	PARTICIPANTS	LOGISTICS
DAY1 8th April Monday	09:00-10:00 Pre-meeting with UNDP	UNDP	Experts, UNDP	
	10:30-12:00 Kick off meeting with PWS PMO	FECO	Experts, National Project Director (Fang Li), PMO (Yang Lirong, Wang Ye, Nan Xi), interpreter	
	14:00-16:00 Meeting with member of PSC 16:00-18:00 Meeting with chief technical adviser	FECO	PSC member, sub-contractor, Experts, PMO (Wang Ye, Nan Xi), interpreter	
DAY2 9th April Tuesday	Flight from Beijing to Guiyang CA1461 (08:55-12:15) Meeting with sub-PMO and provincial PAC members	Guizhou Institute of Environmental Sciences Research and Design	Experts, PMO (Wang Ye, Nan Xi),Sub-PMO, provincial PAC, interpreter	

DATE	ACTIVITY	VENUE	PARTICIPANTS	LOGISTICS
DAY3 10th April Wednesday	Field visit from Guiyang to Renhuai Meeting with local stakeholders, including local communities and land use specialist	Renhuai Environmental Protection Bureau	Experts, PMO (Wang Ye, Nan Xi), Sub-PMO, representatives of local stakeholders, interpreter	
DAY4 11th April Thursday	Meeting with local stakeholders, including alcohol enterprises and local associations Return to Guiyang	Renhuai Environmental Protection Bureau	Experts, PMO (Wang Ye, Nan Xi), Sub-PMO, representatives of local stakeholders, interpreter	
DAY5 12th April Friday	Meeting with provincial sub-contractors, including Guizhou Academy of Agricultural Sciences, Guizhou Academy of Social Sciences，sunztech company and local technical advisers Flight from Guiyang to Beijing CA1464 (19:25-22:25)	Guizhou Institute of Environmental Sciences Research and Design	Experts, PMO (Wang Ye, Nan Xi),Sub-PMO, sub-contractor, local technical adviser, interpreter	
DAY6 13th April Saturday	09:30-12:00 Meeting with sub-contractor Chinese Research Academy of Environmental Sciences	FECO	Sub-contractor, Experts, PMO (Wang Ye, Nan Xi), interpreter	

DATE	ACTIVITY	VENUE	PARTICIPANTS	LOGISTICS
	14:00-16:00 Meeting with sub-contractor Renmin University of China 16:00-18:00 Meeting with sub-contractor Nanjing Institute of Environmental Science	FECO	Sub-contractor, Experts, PMO (Wang Ye, Nan Xi), interpreter	
DAY7 14th April Sunday	Desk review, discussion and preparing for the debrief meeting	FECO	Experts, PMO (Wang Ye, Nan Xi), interpreter	
DAY8 15th April Monday	9:00-10:30 Debrief meeting	FECO	National Project Director (Fang Li), PMO (Yang Lirong, Wang Ye, Nan Xi), interpreter	
	11:00-12:00 Debrief meeting	UNDP	Experts, UNDP	

Annex 2: Evaluation Matrix

Evaluation Criteria Questions	Indicators	Sources	Methodology
Relevance: Is the project relevant with respect to the environmental and development priorities at the local, regional and national levels?			
To what extent is the principle of the project in	Level of participation of the concerned	Minutes of meetings, Project	Desk review, interviews

Evaluation Criteria Questions	Indicators	Sources	Methodology
line with subnational and national priorities?	agencies in project activities. Consistency with relevant strategies and policies.	progress reports, national and regional strategy and policy documents	
To what extent is the project aligned to the main objectives of the GEF focal area?	Consistency with GEF strategic objectives	GEF Strategy documents, PIRs, Tracking Tools	Desk review, interview with UNDP-GEF RTA
To what extent is the project aligned to the strategic objectives of UNDP?	Consistency with UNDP strategic objectives	UNDP Strategic Plan, Country Programme Document	Desk review, interview
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?			
Assessment of progress made toward achieving the indicator targets agreed upon in the logical results framework			
Sustainability: To what extent are there financial, institutional, social-economic, and/or environmental risks to sustaining long-term project results?			
Is there evidence that sufficient funding has been secured to sustain project results?	Financial risks	Progress reports, sectoral plans, budget allocation reports, testimonial evidence	Desk review, interviews
Have individual and institutional capacities been strengthened, and are governance structures capacitated and in place to sustain project results?	Institutional and individual capacities	Progress reports, testimonial evidence, training records	Desk review, interviews
Are there social or political risks that may threaten the sustainability of project results?	Socio-economic risks	Socio-economic studies, macroeconomic information	Desk review, interviews

Evaluation Criteria Questions	Indicators	Sources	Methodology
Are there ongoing circumstances and/or activities that pose threats to the sustainability of project results?	Risks to sustainability	Sectoral plans, progress reports, macroeconomic information	Desk review, interviews, field visits
Have delays affected project outcomes and/or sustainability, and, if so, in what ways and through what causal linkages?	Impact of project delays	Progress reports	Desk review, interviews
Impact: Are there indications that the project has contributed to, or enabled progress toward long lasting desired changes?			
Has the project made verifiable environmental improvements	Verifiable environmental improvements	Progress reports, sectoral plans, municipal development plans	Desk review, interviews, theory of change analysis
Has the project made verifiable reductions in stress on environmental systems	Verifiable reductions in stress on environmental systems	Progress reports, sectoral plans, municipal development plans	Desk review, interviews, theory of change analysis
Has the project demonstrated progress towards these impact achievements?	Progress toward impact achievements	Progress reports, sectoral plans, municipal development plans	Desk review, interviews, theory of change analysis
Efficiency: Was the Project implemented efficiently, in-line with international and national norms and standards?			
Was the project efficient with respect to incremental cost criteria?	Incremental cost	National strategies and plans, progress reports	Desk review, interviews

Evaluation Criteria Questions	Indicators	Sources	Methodology
Was the achievement of project objective and results realized according to the proposed budget and timeline	Efficient utilization of project resources	Progress reports, financial records	Desk review, interviews
Country Ownership:			
How are project results contributing to national and subnational development plans and priorities?	Development planning	Government approved plans and policies	Desk review, interviews
Have governments approved policies or regulatory frameworks in line with the project objective?	Policy reform	Government approved plans and policies	Desk review, interviews
Have governmental and other co-financing partners maintained their financial commitment to the project?	Committed co-financing realized	Audit reports, project accounting records	Desk review, interviews
Stakeholder Involvement and Partnership Arrangements:			
Has the project consulted with and made use of the skills, experience, and knowledge of the appropriate government entities, NGOs, community groups, private sector entities, local governments, and academic institutions?	Effective stakeholder involvement	Meeting minutes, reports, interview records	Desk review, interviews, field visits
Were partnership arrangements properly identified and roles and responsibilities negotiated prior to project approval?	Partnership arrangements	Memorandums of understanding, agreements	Desk review, interviews
How have partnerships influenced the effectiveness and efficiency of project implementation?	Effective partnerships	Progress reports, interview records	Desk review, interviews, field visits

Evaluation Criteria Questions	Indicators	Sources	Methodology
Have relevant vulnerable groups and powerful supporters and opponents of the processes been properly involved?	Inclusive stakeholder involvement	Meeting minutes, reports, interview records	Desk review, interviews, field visits
Has the project sought participation from stakeholders in (1) project design, (2) implementation, and (3) monitoring & evaluation?	Stakeholder involvement	Plans, reports	Desk review, interviews, field visits
Catalytic Role:			
How has the project had a catalytic or replication effect in the country?	Catalytic effect	Interview records, municipal development plans	Desk review, interviews
Synergy with Other Projects/Programs			
How were synergies with other projects/programs incorporated in the design and/or implementation of the project?	Collaboration with other projects/programs	Plans, reports, meeting minutes	Desk review, interviews
Preparation and Readiness			
Were project objective and components clear, practicable, and feasible within its time frame?	Project coherence	Logical results framework	Desk review, interviews
Were the capacities of the executing institution(s) and its counterparts properly considered when the project was designed?	Execution capacity	Progress reports, audit results	Desk review, interviews
Were counterpart resources, enabling legislation, and adequate project management arrangements in place at Project entry?	Readiness	Interview records, progress reports	Desk review, interviews, field visits
Financial Planning			
Did the project have the appropriate financial	Financial control	Audit reports, project accounting	Desk review,

Evaluation Criteria Questions	Indicators	Sources	Methodology
controls, including reporting and planning, that allowed management to make informed decisions regarding the budget and allowed for timely flow of funds?		records	interviews
Has there been due diligence in the management of funds and financial audits?	Financial management	Audit reports, project accounting records	Desk review, interviews, field visits
Has promised co-financing materialized?	Realization of cofinancing	Audit reports, project accounting records	Desk review, interviews
Supervision and Backstopping			
Has GEF agency staff members identified problems in a timely fashion and accurately estimate their seriousness?	Supervision effectiveness	Progress reports	Desk review, interviews
Has GEF agency staff members provided quality support, approved modifications in time, and restructured the project when needed?	Project oversight	Progress reports	Desk review, interviews
Has the implementing agency provided the right staffing levels, continuity, skill mix, and frequency of field visits for the project?	Project backstopping	Progress reports, back-to-office reports, internal appraisals	Desk review, interviews, field visits
Monitoring & Evaluation			
Were intended results (outputs, outcomes) adequately defined, appropriate and stated in measurable terms, and were the results verifiable?	Monitoring and evaluation plan at entry	Project document, inception report	Desk review, interviews
Has the project monitoring & evaluation plan been	Effective monitoring and evaluation	Progress reports, monitoring reports	Desk review, interviews

Evaluation Criteria Questions	Indicators	Sources	Methodology
implemented as planned?			
Has there been sufficient focus on results-based management?	Results based management	Progress reports, monitoring reports	Desk review, interviews
Mainstreaming			
Were gender issues had been taken into account in project design and implementation?	Greater consideration of gender aspects.	Project document, progress reports, monitoring reports	Desk review, interviews, field visits
Were effects on local populations taken into account in project design and implementation?	Positive or negative effects of the project on local populations.	Project document, progress reports, monitoring reports	Desk review, interviews, field visits

Annex 3: List of persons interviewed and/or met during the field mission

No.	Name	Organization	Position
01	Yang Lirong	International Environmental Cooperation Office, Ministry of Ecology and Environment (IECO)	Division Chief
02	Wang Ye	PMO	Project Manager
03	Nan Xi	PMO	Project Assistant
04	Zeng Xiangang	Renmin University of China	Professor
05	Mingjie Huang	GEPD	Director of Ecological Division
06	Mingjie Zheng	GRESID	Deputy Director
07	Beilei Wang	GFID	Deputy Director
08	Hui Chen	GDRC	Officer
09	Zhenyu Cao	GWRD	Officer

10	Mao Tang	GPAC	Officer
11	Qundun Guo	GFD	Officer
12	Wei Hou	GEPD	Officer
13	Yu Shi	GEPD	Officer
14	Yonghong Wang	GRESID	Officer
15	Yiyu Zhao	GRESID	Engineer
16	Kaifu Xie	GRESID	
17	Lunyuan lei	Renhuai Green Council	President
18	Honddeng Wang	Renhuai EPD	Officer
19	Zhenmo Zhou	Maotai Distillery	
20	Xu Xiao	Diaoyutai Distillery	
21	Hanyu Zhang	Guizhou Liquor Shares	
22	Yuanjin Lei	Guizhou Guotai Liquor Co., LTD	
23	Junliang Zhou	Guizhou Wangye Agricultural Science and Technology Co., LTD	Project Manager
24	Bin Fu	Institute of Mountain Hazards and Environment, Chinese Academic of Science	Professor
25	Yuanyuan Zhu	Institute of Mountain Hazards and Environment, Chinese Academic of Science	
26	Yinmeng Guo	Institute of Mountain Hazards and Environment, Chinese Academic of Science	
27	Xiongfei Cai	Guizhou Normal University	Professor

28	Fei Liu	Institute of Hydrobiology, Chinese Academic of Science	
29	Zhi Zhang	Institute of Hydrobiology, Chinese Academic of Science	
30	Xinglei Zhu	Sunztech Company	
31	Guikun Wang	Sunztech Company	
32	Fayao Li	Guizhou Academy of Social Sciences	Professor
33	Guangyuan Ge	Sanyuan Village	Secretary
34	Madam Tao Xiexin	Sanyuan Village Committee	DDG; Head iof the Disciplinary Committee
34	Shiquan Chen	Sanyuan Village	
35	Xiaohui Liu	Sanyuan Village	
36	Yong Wang	Sanyuan Village	
37	Weixia Ren	Sanyuan Village	
38	Silong Chen	Sanyuan Village	
39	Shijie Chen	Sanyuan Village	
40	Xianbi Zhou	Sanyuan Village	
41	Conggui Zhou	Sanyuan Village	
42	Mingzhen Zhao	Sanyuan Village	
43	Shanlang Chen	Sanyuan Village	
44	Chayuan Wang	Sanyuan Village	
45	Xiaoqin Pan	Sanyuan Village	
46	Yong Wen	Sanyuan Village	

47	Shasha Wu	Sanyuan Village	
48	Zhong Zhang	Sanyuan Village	
49	Lin Zhang	Sanyuan Village	
50	Zuogang WANG	Sanyuan Village	
51	Yi Zhou	Sanyuan Village	
52	Yinghong Zhang	Sanyuan Village	
53	Rang Xian	Sanyuan Village	
54	Tonghai Zhang	Sanyuan Village	
55	Siyuan Chen	Sanyuan Village	
56	Jianfu Wang	Sanyuan Village	
57	Yuanmei Yan	Sanyuan Village	
58	Ma Chaode	UNDP China	Program Manager
60	Zhao Xinhua	UNDP China	Program Associate
61	Zheng Cheng	UNDP China	Program Assistant

Annex 4: List of Project Information and Documents Reviewed

Project Documents:

- GEF Project Identification Form (PIF), Project Document and Log Frame Analysis (LFA)
- Project Inception Report
- Implementing/executing partner arrangements
- List and contact details for project staff, key project stakeholders, including Project Boards, and other partners to be consulted
- Project sites, highlighting suggested visits
- Midterm evaluation (MTE) and other relevant evaluations and assessments
- Annual Project Implementation Reports (PIR), APR, QPR
- Project budget, broken out by outcomes and outputs

- Project GEF BD-1 Tracking Tool
- Financial Data including Combined Delivery Reports (CDR)
- Sample of project communications materials, i.e. press releases, brochures, documentaries, etc.
- Comprehensive report of subcontracts (even in Chinese for national evaluator's reference).

UNDP Documents:

- Development Assistance Framework (UNDAF)
- Country Programme Document (CPD)
- Country Programme Action Plan (CPAP)

GEF Documents:

- GEF focal area strategic Programme Objectives

Annex 5: Summary of Field Visit Discussions and Interview Questions

Field visit description: The Terminal Evaluation (TE) team followed the itinerary (Annex 1) developed by the UNDP in consultation with the PMO and SPMO. Altogether we spent 8 days in conducting meetings with key stakeholders and carrying out the field visit to the Wuma sub-watershed including traveling from Beijing to Guizhou and back. The list of people and organizations we met during our various meeting and visits are given in Annex 3. The key highlights of our meeting and visit according to schedule of meetings and visit shown in Annex 1 is described as follow:

The TE team visited Beijing and Guiyang – the capital of the province of Guizhou to meet and get briefing from key managers and experts, conduct interviews and hold interactive discussions with the members of the Project Management Committee (PMO) sub-national project management committee (SPMO) and the contractors hired by the Project. In Beijing the main focus of the meeting was to get administrative, management and technical briefings largely on the implementation of the Component 1 and in Guiyang and Renhuai city on Component 2. A brief summary of the discussion notes in Beijing is given below:

1. UNDP. We met Dr. Ma Chaode, Programme Director of Biodiversity and Ecosystem; United Nations Development Programme in China and got briefings on the Project's status, the purpose of the evaluation mission, timeline and expectations from the UNDP. While in the UNDP, we also met Ms. Xinhua Zhao, Programme Associate, Energy & Environment section of the UNDP and got the logistic and travel related information and support.

2. Then we traveled to hold the kick-off meeting with FECO/MEE and PMO members of the PWS led by Ms. Wang Ye, Programme Manager. There we were shown a project Video as well as a presentation on the overview, management system followed, major achievements and sustainability and replicability of the PWS covering environmental, financial, social and institutional aspects. The briefings were very insightful and valuable as the evaluators had the opportunity to understand the progress made on the areas MTR had found deficiency and challenges. We also met with Project Steering committee members including the Chief Technical Advisor Dr. Jin Leshan who is the professor in China Agriculture University (CAU) as well as the Executive Director of the China Eco-compensation Policy Research Centre (CEPRC).

3. Our last meeting was with Ms. Zhang in the Ministry of Ecology and Environment (MEE) who provided the general policy and guidelines of the MEE on China's eco-compensation programme. On our specific questions of the progress, outputs and outcome delivery, and impact of the PWS project, Ms. Zhang shared the high national and global importance of Chishui river terrestrial and aquatic biodiversity and ecological wealth. Regarding the piloting of the market based payment for watershed services (PWS); she expressed the confidence of the directorate that due to its being compatible to China's eco-compensation policy, it is going to be successful in Chishui River. She also shared the view of the ministry that compared to the mid-term stage, the project has made tremendous progress and all deliverables are on track to be met on target.

4. Visit to Guiyang; Meeting with SPMO; The main agency in-charge of the PWS component 2 related work was the Guizhou Environmental Sciences Research and Design Institute (GESRDI), the nodal agency assigned the task of coordinating with the PMO operating from the IECO (formerly FECO) on all aspects of the project. The meeting was attended by the representatives from different departments of the Guizhou province led by the DDG, Guizhou Environmental Sciences Research and Design Institute (GESRDI), Guizhou and represented forestry, agriculture, state reform and development, fishery and others. They provided comprehensive briefing on the activities conducted to implement component 2 of the Project. We were also given briefing on product labeling based on the geographic specifications as well as setting up of the knowledge portal to disseminate and communicate project related information. We also had interactions with the officials of the GEPD.

We visited Sanyuan Village in Renhuai city and toured the Silvi-horticulture land use that was developed as a part of the biodiversity land use change by the PWS project, Component 2. The Sanyuan village has 7000 population with 1570 HH; Average family size is 4.5 member/HH;

Focused Group Discussion with the Village committee. We asked a set of questions to Madam Tao Xie Xin, DDG and the Committee members that had 9 members (2 female and 7 male); there was no representation by ethnic minority community. The main functions of the village committee were to run activities related to poverty alleviation, solid waste management; and livelihood Improvement. The DDG's role was to head the disciplinary committee, hold regular meetings at least 4 meeting/year, organize training (70-80 people were trained from all HHs).

Relation with the Renhuai Env. Protection Promotion Association (REPPA): REPPA is registered as a NGO by the Liquor companies with support from the Guizhou government. The main functions of REPPA are: provide training on land use practices; provide free seeds and seedlings; organize stakeholder meetings; and facilitate approval of the biodiversity friendly new land use plan by the companies and the government.

Presentation by Specialized agencies on different deliverables: Finally, the TE team was given the results of the valuation of ecosystem services in Wuma watershed using different valuation methods and also on fish biodiversity monitoring and ecosystem service assessment.

1. Survey Questionnaires for the Village and the Farmer

Name of the village_____ Township_____ County_____ Interviewed village carders_____

Questionnaire for the villager Committee (Part 1)

No.	Questions	Choices/unit	Answers
1	No. of households	HH	
2	No. of population	Person	
3	Area of the village	km^2	
4	Average HH income	yuan/year	
5	How many Households directly participated in this project by now	HH	
6	When did this village sign the PWS agreement, and will continue the agreement	Year	
7	Did the formulation and implementation of village PWS agreement involve the farmers	1=Y, 2=N	
8	Project provided what kinds of support for village?		
9	What achievements out of the project, especially out of PWS mechanism,		

	can be incorporated into village's future development?	
10	Whether the project has the improvement of organizing ability?	
11	Has PWS model led to positive behavior change in the village?	
12	Whether the PWS' efforts can help to increase farmers' income, promote industry development and protect the ecological environment of the Chishui River Basin?	

Name of the village_____ Name of the interviewed farmer_____

Questionnaire for farmer (Part 2)

No.	Questions	Choices/unit	Answers
1	Gender	1=M, 2=F	
2	Do you know this project?	1=Y, 2=N	
3	Did you directly participate in project? In what ways?	1=Y, 2=N	
4	Are you satisfied with the project implementation in this village?	1=Y, 2=so so, 3=N	
5	Do you know the PWS agreement of this	1=Y, 2=so so, 3=N	

	village? Any recommendations?		
6	If you saw someone break the PWS agreement, whether you will take action?	1=Y, 2=N	
7	Whether the project has the improvement of organizing ability?		
8	Has PWS model led to positive behavior change in your life?		
9	Whether the PWS' efforts can help to increase your income, promote industry development and protect the ecological environment of the Chishui River Basin?		

Part 3. Project Manager and Contracted Agencies

Terminal Evaluation Questions asked to different officials, managers and professionals in the Ministry of Ecology and Environment (MEE), Foreign Economic Co-operation Office (MEE/FECO); PMO and UNDP

1. Could you pls. share whether or not all the recommendations made by the MTR were accepted by the MEE/FECO and implemented?

2. Specifically kindly share your knowledge and action taken on the following items under the MTR Recommendation No. 8:

"Additional stakeholders could be engaged into the project implementation to improve overall effectiveness and maximize the policy impact of the PWS project. Some examples include the following:

a. The other two provinces (Yunnan and Sichuan) in the Chishui River basin should be engaged in the development of the PWS scheme;

b. Bureau of Fisheries under Ministry of Agriculture should be added to Project Steering

Committee;

c. *The Chishui River National Nature Reserve Administration should be added to Provincial Project Coordination Committee (PPCC);*

d. *Provincial Land Resources Department should be more closely engaged in project level activities and also sit on the PPCC";*

3. Is the collaboration and cooperation among different ministries (at Central Govt. level) Departments and Bureaus (at the Guizhou province level), more effective so that the project outputs, outcomes and impacts are made more relevant, effective and efficient?; *(pls. note: the purpose of asking this question is to ensure that there is continuous collaboration and co-operation in sharing project implementation experience, knowledge and good practices that are applicable in improving the co-production of watershed ecosystem services in Chishui River).*

4. In your opinion, have the contractors who were contracted to produce and deliver various reports, land use plan, eco-labeling of watershed services have consulted each other or shared their methods, of data and information collection in producing their contracted services; if they have not are they willing to consult the relevant contractors to improve their products?

5. What tools were used to ensure the quality, relevance and effectiveness of the outputs (e.g., knowledge products or publications, trained human resources etc.) to different stakeholders?);

6. Has the PWS project opened up new opportunities and areas to be capitalized by MEE/FECO and Guizhou EPD in using the PWS concepts and good practices to better achieve China's eco-compensation goals and objectives? If yes how?

7. What are the lessons learned from the PWS that could serve as inputs for the MEE for better implement China's Ecological Civilization agenda and Eco-compensation policy. Please provide the lessons into the following categories:

i) Lessons on what is working well and why?:

ii) Lessons on what is not working and why?

iii) Lessons for wider provincial or local level governments?

iv) Lessons for wider national and regional environmental protection in China?

Annex 6. Project staff and key project stakeholders

PMO Staff

Project Manager	Wang Ye
Project Assistant	Nan Xi

Key Project Stakeholders

Guizhou Institute of Environmental Sciences Research and Design
Kweichow Maotai Group (Alcohol Company)
Guotai (Alcohol Company)
Guizhou Liquor Shares (Alcohol Company)
Diaoyutai Distillery (Alcohol Company)
Sanyuan Village Committee
Environmental Protection Promotion Association of Renhuai
Chinese Research Academy of Environmental Sciences
Nanjing Institute of Environmental Science
Renmin University of China

Project Steering Committee (PSC)

Ministry of Ecology and Environment
Ministry of Finance
UNDP
Foreign Economic and Cooperation Office, MEE
Environmental Protection Department of Guizhou

Annex 7: Matrix for Rating Achievement of Project Objective and Outcomes

Description of Indicator	Baseline Level	End of project target level	TE comments	TE Status
PWS and biodiversity conservation are mainstreamed into national and Guizhou provincial policies, regulations and plans by the end of the project as indicated by the GEF Biodiversity Tracking Tool.	See GEF BD Tracking Tool. Existing national and provincial policies, regulations and plans do not refer to PWS as an operational mechanism. While biodiversity conservation is included in the existing plans such as "Guizhou Chishui River Basin Environmental Protection Plan (2013-2020)" and there is the Guizhou Provincial Strategy and Action Plan for Biodiversity Conservation (2012-2020), it is not fully integrated into other policies, regulations and plans.	See GEF BD Tracking Tool targets. PWS and biodiversity conservation mainstreamed into national and Guizhou provincial policies, regulations and plans, including the Regulation on Ecological Compensation, Guizhou Provincial Chishui River Protection Act, 13th Five-Year Environmental Policy regulations, and Planning of Ecosystem Function Area in the Upstream of Chishui River Basin. Official approval of the demonstration PWS scheme.	Eco-compensation and/or PWS has been included in at least 6 government policy papers, regulations or plans. Eco-compensation and/or PWS has been included in the following policies, regulations or plans: - Guizhou Provincial BSAP (2016-2026) which was approved by Guizhou Provincial Government. - Provincial 13th Five Year Plan for Development of Environmental Policies - Chishui River Environmental Protection Action Plan - Guizhou Provincial 13th Five Year Plan for Environmental Protection The guiding policy paper issued by the State Council in 2016 "Opinions to improve Eco-compensation Mechanism", called for full use of market based approaches to improve eco-compensation mechanism in China. The most important government policy paper so far "Report to the 19th Standing Committee of the Communist Party of China" on 18 October	Achieved.

			2017 called for the establishment of market-based and diverse eco-compensation mechanism.	
Sustained presence of globally significant fish populations in the Chishui River system, as indicated by monitoring of river stretches immediately downstream of pilot PWS sites using a standardized monitoring protocol.	Baselines to be established in Year One following confirmation of pilot sites and methodology. Baseline (2015) It was surveyed in 2015 though the report was submitted in 2016. It was surveyed in 2015 though the report was submitted in 2016. 7 fish species identified Zacco platypus Cyprinus carpio Opsariicjthys bidens Pseudorasbora parva	Annual monitoring using standardized protocol confirms presence of the same species in stretches of the Chishui River system immediately downstream of pilot PWS sites	A Biodiversity and Ecosystem Services monitoring system was developed based on GIS and InVEST model. The provincial and local environmental protection departments have procured biodiversity and ecosystem monitoring equipment. The monitoring toke place in Mar. 2019 and confirmed the presence of the same species in stretches of the Chishui River system immediately downstream of pilot PWS sites.	Achieved.

	Misgurnus anguillicaudatus Gambusia affinis Pelteobagrus fulvidraco			
Provincial government investment in eco-compensation / PWS schemes in Chishui River Basin is sustained at CNY 50 million per year from 2015 and supports replication of PWS to other watersheds	Guizhou Provincial Government Special Fund for Environmental Protection in Chishui River Basin – allocation for 2013 of RMB 40 million	Guizhou Provincial Government Special Fund for Environmental Protection in Chishui River Basin – annual allocations consistently reach RMB 50 million and support replication of PWS to other watersheds	Sustained investment in eco-compensation/PWS by the provincial government has been achieved. Support on replication of PWS is on-going. RMB 40 million in 2014, RMB 45 million in 2015, RMB50 million in 2016, and RMB100 million in 2017 have been invested into Chishui river basin by Guizhou provincial government for environmental protection, biodiversity conservation, ecosystem recovery and eco-compensation. RMB 100 million is being invested by the Provincial government in the same watershed in 2018.	Achieved.
Land use change restrictions codified in provincial development / land use and water resource plans through inputs to the following 5 year plans reduce threats to aquatic	While existing plans protect water quality in the CRB, sectoral plans continue to exert serious impacts on biodiversity, including waterway development for	Land use change restrictions codified in provincial development / land use and water resource plans through inputs to the following 5 year plans reduce threats to aquatic habitats and	The Guizhou EPD drafted the implementation plan of Ecological Protection Redline of Guizhou Province which was updated in 2017, the land use change restrictions for ecosystem protection and biodiversity conservation in the Chishui River Basin have been codified in this plan. Up-reaches of the Chishui River Basin is the protected areas with development restricted.	Achieved.

habitats and biodiversity in the CRB.	shipping and river regulation on tributaries.	biodiversity in the CRB.	The River Chief System was implemented in the CRB in 2017/2018 which helps enforce the Ecological Protection Redline plan.	
An office in charge of planning and managing PWS mechanisms along the Chishui River within Guizhou province is established within Guizhou provincial EPD.	No dedicated office or staff for PWS coordination within Guizhou EPD	Dedicated PWS office established within Guizhou provincial EPD with at least 2 staff and an annual operational budget of at least USD 50,000 by end of Year 3.	An office has been established. The operational budget for the office is 129,126.00. Even if it did not specify that this commitment would continue after the project closure, Guizhou Provincial EPD will still be responsible for planning and managing PWS as one of its mandates. EPD's Water Division might take the responsibility instead of Ecological Diversion at present. The government agency adjustment is ongoing and it is expected that the provincial government agency restructuring might be concluded by the end of 2018. Guizhou Sub-Project Management Office (SPMO) was established in Guizhou Academy of Environmental Science and Designing (GAESD) which is under the management of Guizhou EPD in the first quarter of 2015. The deputy director of Ecology Conservation Division was in charge of daily operation of the SPMO before 2017. There are six staffs involved in SPMO part or full time. since 2017, Guizhou EPD director directly take the responsibility of managing the SPMO.	Achieved.

Improved capacities of provincial and municipal environmental protection offices for implementing PES/PWS as shown by increased scores in the Capacity Development Scorecard	Capacity Development Scorecard baselines : Guizhou EPD: 41% Bijie EPB: 38% Chishui EPB: 35% Renhuai EPB: 35% Zunyi EPB: 39%	Capacity Development Scorecard Targets: Guizhou EPD: 85% Bijie EPB: 75% Chishui EPB: 75% Renhuai EPB: 80% Zunyi EPB: 75%	Capacity Development Scorecard in March 2019: Guizhou EPD: 88% Bijie EPB: 76% Chishui EPB: 79% Renhuai EPB: 83% Zunyi EPB: 75%	Achieved.
At least 12 staff from MEP-FECO, Guizhou EPD, Bijie EPB, Chishui EPB, Renhuai EPB and Zunyi EPB trained and given official mandate to monitor biodiversity and ecosystem services impacts arising through PWS schemes and harmonized eco-compensation programmes.	No staff trained to date.	At least 12 staff trained and given official mandate to monitor biodiversity and ecosystem services impacts arising through PWS schemes and harmonized eco-compensation programmes.	Provincial EPD and local EPBs staff have this mandate. 50 staff have been trained on biodiversity and ecosystem monitoring from Guizhou EPD, Bijie EPB, Chishui EPB, Renhuai EPB and Zunyi EPB. 4 staff from Guizhou EPD, and 2 staff from each of the Bijie EPB, Chishui EPB, Renhuai EPB, and Zunyi EPB have the official mandate of monitoring biodiversity and ecosystem services.	Achieved.
An ecolabelling scheme is established for	No ecolabelling scheme exists for PWS	Ecolabelling scheme is established and at least	One company, Maotai Group, is engaged in the PWS and eco-labelling scheme that was	Achieved.

companies participating in PWS schemes and taken up by the private sector	schemes in China at present	three companies meeting criteria for engagement in PWS schemes are awarded the label	established by the project. Three companies, Maotai Gourp, Guizhou Xijiu, and Chishui Shaicu have been enrolled the geographical origin label system and engaged in the PWS scheme.	
Institutional capacity of Guizhou EPD reaches readiness for PWS implementation and replication	Existing capacity for PWS implementation requires development and is not ready for implementation or replication. No PWS guidelines available at provincial / river basin level	Management guidelines and methodological protocols for scaling-up and replicating PWS in additional watersheds along the Chishui River Basin are produced by Guizhou EPD, training in their application is provided to all provincial and municipal EPB offices in the river basin.	The PWS mechanism was established in February of 2018. The PWS guidelines and protocols are being finalized by the consultant with the revised version reflecting the experiences learned from the establishment of PWS mechanism. Draft guideline and methodology has been available. The staffs of Guizhou EPD and municipal EPB received their second training for PWS mechanism management and implementation.	Achieved.
PWS agreement(s) for pilot areas within the demonstration sub watershed including a long-term financial agreement are agreed upon by buyers and sellers of specified watershed services and	No PWS agreements exist for the pilot demonstration areas	PWS agreement(s) for the pilot areas within the demonstration sub-watershed including a long-term financial agreement are agreed upon by buyers and sellers of specified watershed services and	An agreement between upstream sellers and downstream buyers was reached in February 2018 according to the work-plan drafted by the PMO and agreed upon by the SPMO in Feb 2017. Four companies in the downstream have agreed to contribute some funds to the PWS scheme for the upstream Sanyuan village to change their land use pattern for the watershed protection. 100 mu of 22 households have agreed to participate	Achieved.

operationalized.		operationalized.	in the PWS scheme, which is now operational.	
Area of the selected demonstration sub-watershed under biodiversity friendly land use by community land managers	Land use in demonstration sub-watershed is currently unsustainable, with increasing deforestation, cultivation of annual crops on steep slopes over 25o gradient, causing biodiversity loss, soil erosion and reduced water conservation capacity	No less than 7,000 hectares of the selected demonstration sub-watershed is under biodiversity friendly land use by community land managers	7,466.33 hectares farmlands have been under environmentally and biodiversity friendly land use supported by either the government programs or this PWS project per se.	Achieved.
Change in land use supporting biodiversity within demonstration sub-watershed, indicated by a 10% increase in forest cover in pilot demonstration areas from the time of PWS agreement signature	The forest cover in Wuma sub-watershed was 16,678 ha (32.68% of total land) in 2010; and 3,408 ha (28.86% in the Wuma Township) part of the watershed	10% increase in forest cover in pilot demonstration areas from time of PWS agreement signature	The forest coverage is increasing in Wuma sub-watershed due to this project's land-use change activities, government-supported programs, and community-driven forestation plans. The forest cover in Wuma sub-watershed (include the Wuma Township) was 22,063 ha (43.23% of total land) in 2015. From 2015-2018 the forest cover increased by 2,673 ha (40,100 mu) in the Wuman sub-watershed, which is a 12% increase in forest cover.	Achieved.

10% increase in average annual per capita income of farming households participating in PWS pilot demonstration[1]	Baseline average income for 2013 (RMB) Baiyangtun: 7396 Majiapo: 6561 Jiaotong: 6661	Average annual per capita income increases at 10% per annum over baseline after 2 years into PWS pilot project.	Average income for 2017 (RMB) Baiyangtun: 9700 Majiapo: 7540 Jiaotong: 7621 Household incomes are increasing with the government effort of poverty alleviation and other rural development policies. For the impacts of PWS scheme on farmers' income, it has not been ready for observation since the land-use change with PWS took place only in Feb of 2018.	Achieved.
Improvements in ecosystem health as indicated by Ecosystem Health Index	Baseline EHI score to be determined in Year One for selected pilot area(s) Baseline (2015) 13 (Sanyuan village)	EHI scores show increasing trend for selected area(s) based on annual assessments	EHI has monitored again in April 2019.	Achieved.
Positive trend indicating improvement in status of key ecosystem services specified in	Estimated dry season runoff for the Wuma River 2000-2009 was 43.90 million m3. No water quality data are	Trend of stable or slight improvement in status of water quality / quantity provided by demonstration area by end of project,	These parameters has monitored again in April 2019 one year after the PWS mechanism is established.	Achieved.

PWS agreement(s)* *Parameters and detailed baseline measurements to be determined in Year One of Project	available. Baseline for ecosystem services specified in PWS agreement to be established during project implementation period: The dry season run-off for the Wuma river was 150 million m3 in 2015. The water quality has achieved Class II level of Chinese water quality standard at present.	according to terms of PWS agreement(s).		

Annex 8a: Project Financing Table

GEF Outcome/ Atlas Activity	Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Acct Code	Atlas Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Total (USD)	Budget Note
COMPONENT 1: Institutional Framework for PWS	MEP	62000	GEF	71300	International Consultants	18,000.00	18,000.00	18,000.00	0	**54,000.00**	1
				71300	Local Consultants	35,100.00	39,100.00	33,100.00	25,100.00	**132,400.00**	2
				71600	Travel	25,000.00	38,000.00	31,000.00	18,100.00	**112,100.00**	3
				72100	Contractual Services – Company	51,000.00	146,000.00	128,000.00	47,000.00	**372,000.00**	4
				72200	Equipment	25,000.00	0	0	0	**25,000.00**	5
				74200	Audio-visual and printing production costs	4,000.00	10,000.00	5,000.00	15,000.00	**34,000.00**	6
				74500	Miscellaneous	3,000.00	2,000.00	2,000.00	2,050.00	**9,050.00**	7
					Total	**161,100.**	**253,100.**	**217,100.**	**107,250.**	**738,550.0**	

						00	**00**	**00**	**00**	**0**	
COMPONENT 2: PWS Demonstration	MEP	62000	GEF	71200	International Consultants	0	18,000.00	0	0	**18,000.00**	8
				71300	Local Consultants	2,000.00	14,000.00	14,000.00	2,000.00	**32,000.00**	9
				71600	Travel	2,000.00	25,000.00	19,000.00	12,000.00	**58,000.00**	10
				72100	Contractual Services – Company	108,000.00	193,000.00	273,000.00	277,000.00	**851,000.00**	11
				72200	Equipment	10,000.00	10,000.00	0	0	**20,000.00**	12
				74200	Audio-visual and printing production costs	0	0	10,000.00	0	**10,000.00**	13
				74500	Miscellaneous	2,000.00	2,000.00	2,626.00	2,500.00	**9,126.00**	14
					Total	**124,000.00**	**262,000.00**	**318,626.00**	**293,500.00**	**998,126.00**	
PROJECT MANAGEMENT	MEP	62000	GEF	71300	Local Consultants	34,665.00	34,665.00	34,665.00	34,665.00	**138,660.00**	15
				71600	Travel	4,000.00	4,000.00	4,000.00	4,000.00	**16,000.00**	16

				72200	Equipment	6,500.00	0	0	0	**6,500.00**	17
				74500	Miscellaneous	2,000.00	2,000.00	2,000.00	1,028.00	**7,028.00**	18
				74500	UNDP Cost Recovery	953.00	1,906.00	953.00	0.00	**3,812.00**	19
					Total	**48,118.00**	**42,571.00**	**41,618.00**	**39,693.00**	**172,000.00**	
TOTAL PROJECT						**333,218.00**	**557,671.00**	**577,344.00**	**440,443.00**	**1,908,676.00**	

Summary of Funds					
Source	Year 1	Year 2	Year 3	Year 4	**Total**
GEF	333,218.00	557,671.00	5,773,44.00	440,443.00	1,908,676.00
Government	3,875,000.00	3,875,000.00	3,875,000.00	3,875,000.00	15,500,000.00
UNDP	125,000.00	125,000.00	125,000.00	125,000.00	500,000.00
Total	4,333,218.00	4,557,671.00	4,577,344.00	4,440,443.00	17,908,676.00

Annex 9A: TE Consultant Code of Conduct Agreement Form - Madhav Karki

Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form[1]

[1]www.unevaluation.org/unegcodeofconduct

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: Madhav Bahadur Karki

Name of Consultancy Organization (where relevant)**: N.A.**

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signature: 

Annex 9B: TE Consultant Code of Conduct Agreement Form - Rong DAI

Evaluators:

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form[2]

[2]www.unevaluation.org/unegcodeofconduct

Agreement to abide by the Code of Conduct for Evaluation in the UN System

Name of Consultant: Rong DAI

Name of Consultancy Organization (where relevant)**:**

I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signature:

Annex 10: TE Audit Trail

The following comments were provided regarding the draft TE report; the TE team's response and actions taken are summarized in the right most column (Annex is provided separatelY0.

Annex 11: Terms of Reference for the Terminal Evaluation

INTRODUCTION

In accordance with UNDP and GEF M&E policies and procedures, all full and medium-sized UNDP support GEF financed projects are required to undergo a terminal evaluation upon completion of implementation. These terms of reference (TOR) sets out the expectations for a Terminal Evaluation (TE) of the **Payment for Watershed Services in the Chishui River Basin for the Conservation of Globally Significant Biodiversity** (PIMS 4822)

The essentials of the project to be evaluated are as follows:

PROJECT SUMMARY TABLE

Project Title:	**Payment for Watershed Services in the Chishui River Basin for the Conservation of Globally Significant Biodiversity** (PIMS4822			
GEF Project ID:	85737		*at endorsement (Million US$)*	*at completion (Million US$)*
UNDP Project ID:	4822	GEF financing:	1,908,676	
Country:	China	IA/EA own:		
Region:	Asia and Pacific	Government:	15,500,000	
Focal Area:	BD	Other:		
FA Objectives, (OP/SP):		Total co-financing:	16,000,000	
Executing Agency:	FECO/MEE	Total Project Cost:	17,908,676	
Other Partners involved:		ProDoc Signature (date project began):		25/09/2014
		(Operational) Closing Date:	Proposed: 24/09/2019	Actual:

OBJECTIVE AND SCOPE

The project was designed to contribute to the conservation and sustainable use of globally significant biodiversity in China. Its objective is to operationalize a replicable PWS scheme in the Chishui River Basin to stimulate land and natural resource use systems that conserve biodiversity and sustain ecosystem processes. This will be accomplished through two outcomes, the first aiming to establish a systemic and institutional framework for PWS development and management at municipal and provincial levels, including the mainstreaming of PWS and biodiversity conservation into relevant policies, plans and regulations. The second outcome aims to demonstrate an operational PWS scheme in a sub-watershed of the Chishui River in Guizhou.

The TE will be conducted according to the guidance, rules and procedures established by UNDP and GEF as reflected in the UNDP Evaluation Guidance for GEF Financed Projects.

The objectives of the evaluation are to assess the achievement of project results, and to draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming.

EVALUATION APPROACH AND METHOD

An overall approach and method[3] for conducting project terminal evaluations of UNDP supported GEF financed projects has developed over time. The evaluator is expected to frame the evaluation effort using the criteria of **relevance, effectiveness, efficiency, sustainability, and impact,** as defined and explained in the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects. A set of questions covering each of these criteria have been drafted and are included with this TOR (*fill in Annex C*) The evaluator is expected to amend, complete and submit this matrix as part of an evaluation inception report, and shall include it as an annex to the final report.

The evaluation must provide evidence-based information that is credible, reliable and useful. The evaluator is expected to follow a participatory and consultative approach ensuring close engagement with government counterparts, in particular the GEF operational focal point, UNDP Country Office, project team, UNDP GEF Technical Adviser based in the region and key stakeholders. The evaluator is

[3] For additional information on methods, see the Handbook on Planning, Monitoring and Evaluating for Development Results, Chapter 7, pg. 163

expected to conduct a field mission to China including the following project sites *in Guizhou Province.* Interviews will be held with the following organizations and individuals at a minimum: (*MEE, FECO, UNDP, Guizhou EED, local communities, related sub-contractors etc.*).

The evaluator will review all relevant sources of information, such as the project document, project reports – including Annual APR/PIR, project budget revisions, midterm review, progress reports, GEF focal area tracking tools, project files, national strategic and legal documents, and any other materials that the evaluator considers useful for this evidence-based assessment. A list of documents that the project team will provide to the evaluator for review is included in Annex B of this Terms of Reference.

EVALUATION CRITERIA & RATINGS

An assessment of project performance will be carried out, based against expectations set out in the Project Logical Framework/Results Framework (see Annex A), which provides performance and impact indicators for project implementation along with their corresponding means of verification. The evaluation will at a minimum cover the criteria of: **relevance, effectiveness, efficiency, sustainability and impact.** Ratings must be provided on the following performance criteria. The completed table must be included in the evaluation executive summary. The obligatory rating scales are included in Annex D.

Evaluation Ratings:			
1. Monitoring and Evaluation	***rating***	**2. IA& EA Execution**	***rating***
M&E design at entry		Quality of UNDP Implementation	
M&E Plan Implementation		Quality of Execution - Executing Agency	
Overall quality of M&E		Overall quality of Implementation / Execution	
3. Assessment of Outcomes	**rating**	**4. Sustainability**	**rating**
Relevance		Financial resources:	
Effectiveness		Socio-political:	
Efficiency		Institutional framework and governance:	
Overall Project Outcome Rating		Environmental :	
		Overall likelihood of sustainability:	

PROJECT FINANCE / COFINANCE

The Evaluation will assess the key financial aspects of the project, including the extent of co-financing planned and realized. Project cost and funding data will be required, including annual expenditures. Variances between planned and actual expenditures will need to be assessed and explained. Results from recent financial audits, as available, should be taken into consideration. The evaluator(s) will receive assistance from the Country Office (CO) and Project Team to obtain financial data in order to complete the co-financing table below, which will be included in the terminal evaluation report.

Co-financing (type/source)	UNDP own financing (mill. US$)		Government (mill. US$)		Partner Agency (mill. US$)		Total (mill. US$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Actual	Actual
Grants								
Loans/Concessions								
• In-kind support								
• Other								
Totals								

MAINSTREAMING

UNDP supported GEF financed projects are key components in UNDP country programming, as well as regional and global programmes. The evaluation will assess the extent to which the project was successfully mainstreamed with other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and gender.

IMPACT

The evaluators will assess the extent to which the project is achieving impacts or progressing towards the achievement of impacts. Key findings that should be brought out in the evaluations include whether the project has demonstrated: a) verifiable improvements in

ecological status, b) verifiable reductions in stress on ecological systems, and/or c) demonstrated progress towards these impact achievements.[4]

CONCLUSIONS, RECOMMENDATIONS & LESSONS

The evaluation report must include a chapter providing a set of **conclusions**, **recommendations** and **lessons**.

IMPLEMENTATION ARRANGEMENTS

The principal responsibility for managing this evaluation resides with the UNDP CO in *China.* The UNDP CO will contract the evaluators and ensure the timely provision of per diems and travel arrangements within the country for the evaluation team. The Project Team will be responsible for liaising with the Evaluators team to set up stakeholder interviews, arrange field visits, coordinate with the Government etc.

EVALUATION TIMEFRAME

The total duration of the evaluation will be *20* days according to the following plan:

Activity	Timing	Completion Date
Preparation	*2* days	*March 31*
Evaluation Mission	*8* days	*April 9*
Draft Evaluation Report	*8* days	*April 25*
Final Report	*2* days	*May 5*

EVALUATION DELIVERABLES

The evaluation team is expected to deliver the following:

[4] A useful tool for gauging progress to impact is the Review of Outcomes to Impacts (ROtI) method developed by the GEF Evaluation Office: ROTI Handbook 2009

Deliverable	Content	Timing	Responsibilities
Inception Report	Evaluator provides clarifications on timing and method	No later than 2 weeks before the evaluation mission.	Evaluator submits to UNDP CO
Presentation	Initial Findings	End of evaluation mission	To project management, UNDP CO
Draft Final Report	Full report, (per annexed template) with annexes	Within 3 weeks of the evaluation mission	Sent to CO, reviewed by RTA, PCU, GEF OFPs
Final Report*	Revised report	Within 1 week of receiving UNDP comments on draft	Sent to CO for uploading to UNDP ERC.

*When submitting the final evaluation report, the evaluator is required also to provide an 'audit trail', detailing how all received comments have (and have not) been addressed in the final evaluation report.

TEAM COMPOSITION

The evaluation team will be composed of *(1 international and 1 national evaluators).* The consultants shall have prior experience in evaluating similar projects. Experience with GEF financed projects is an advantage. The international evaluator *will be designated as the team leader and will be responsible for finalizing the report.*The evaluators selected should not have participated in the project preparation and/or implementation and should not have conflict of interest with project related activities.

The Team members must present the following qualifications:

Competencies

- Strategic technical and intellectual skills in the substantive area with global dynamic perspectives;
- Leadership, innovation, facilitation, advocacy and coordination skills;
- Ability to manage technical teams and engage in long term strategic partnership;
- Entrepreneurial abilities and ability to work in an independent manner;
- Ability to work effectively in a team, with good relationship management skills
- Strong managerial and coordination skills, including ability to coordinate the development of large, complex projects;
- Demonstrated ability to operate effectively in a highly complex organizational context;
- Ability to maintain high standards despite pressing deadlines;
- Excellent communication (both oral and written) and partnership building skills with multi-dimension partners and people, skill for conflict resolution and negotiation;
- Excellent writing skills, especially in the preparation of official documents and reports;
- Good knowledge of China's environmental and socio-economic context.

Required Skills and Experience

Education

- An advanced degree in conservation, natural resources management, environmental science or related fields, preferably in PA conservation and management.

Experience

- Minimum 3 years of relevant professional experience including Project development, implementation and evaluation
- Knowledge of UNDP and GEF, such as GEF policy and practices, GEF project requirements;
- Previous experience with results-based monitoring and evaluation methodologies;
- Technical knowledge in the targeted focal area(s) including biodiversity conservation, agriculture, natural resources co-management, integrated planning, etc.
- Expertise in economic and social development issues
- Good communications and writing skills in English

- Professional experiences in working in China and with Chinese counterparts would be an advantage.
- Basic knowledge about China biodiversity and socio-economic background information

Language

- Fluency in written and spoken English is required;
- Good knowledge of Chinese is an asset.

IT Skills:

- Good IT skills.

EVALUATOR ETHICS

Evaluation consultants will be held to the highest ethical standards and are required to sign a Code of Conduct (Annex E) upon acceptance of the assignment. UNDP evaluations are conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluations'

PAYMENT MODALITIES AND SPECIFICATIONS

%	Milestone
10%	At contract signing
40%	Following submission and approval of the 1ST draft terminal evaluation report
50%	Following submission and approval (UNDP-CO and UNDP RTA) of the final terminal evaluation report

APPLICATION PROCESS

Applicants are requested to apply online (indicate the site, such as http://jobs.undp.org, etc.) by Feb. 15, 2019. Individual consultants are

invited to submit applications together with their CV for these positions. The application should contain a current and complete C.V. in English with indication of the e-mail and phone contact. It is requested to submit a price offer indicating the total cost of the assignment (mainly the daily fee. As the per diem and travel costs will be arrange by UNDP accordingly).

UNDP applies a fair and transparent selection process that will take into account the competencies/skills of the applicants as well as their financial proposals. Qualified women and members of social minorities are encouraged to apply.

Annex 12A: Project Logical Framework *(were provided and available in the Project Documentafter contracted)*

Annex 12B: List of Documents to be reviewed by the evaluators

A list of suggested key documents to include is as follows:

1. **Project documents**
   1) GEF Project Identification Form (PIF), Project Document and Log Frame Analysis (LFA)
   2) Project Inception report
   3) Implementing/executing partner arrangements
   4) List and contact details for project staff, key project stakeholders, including Project Boards, and other partners to be consulted
   5) Project sites, highlighting suggested visits
   6) Midterm evaluation (MTE) and other relevant evaluations and assessments
   7) Annual Project Implementation Reports (PIR), APR, QPR
   8) Project budget, broken out by outcomes and outputs
   9) Project GEF BD-1 Tracking Tool
   10) Financial Data including Combined Delivery Reports (CDR)
   11) Sample of project communications materials, i.e. press releases, brochures, documentaries, etc.
   12) Comprehensive report of subcontracts (even in Chinese for national evaluator's reference).
2. **UNDP documents**
   1) Development Assistance Framework (UNDAF)
   2) Country Programme Document (CPD)
   3) Country Programme Action Plan (CPAP)
3. **GEF documents**
   1) GEF focal area strategic Programme Objectives

Annex 12C: Evaluation Questions

This is a generic list, to be further detailed with more specific questions by CO and UNDP GEF Technical Adviser based on the particulars of the project.

Evaluative Criteria Questions	Indicators	Sources	Methodology
Relevance: How does the project relate to the main objectives of the GEF focal area, and to the environment and development priorities at the local, regional and national levels?			
•	•	•	•
•	•	•	•
•	•	•	•
Effectiveness: To what extent have the expected outcomes and objectives of the project been achieved?			
•	•	•	•
•	•	•	•
•		•	•
Efficiency: Was the project implemented efficiently, in-line with international and national norms and standards?			
•	•	•	•
•	•	•	•
•	•	•	•
Sustainability: To what extent are there financial, institutional, social-economic, and/or environmental risks to sustaining long-term project results?			
•	•	•	•

●	●	●	●
●	●	●	●
Impact: Are there indications that the project has contributed to, or enabled progress toward, reduced environmental stress and/or improved ecological status?			
●	●	●	●
●	●	●	●

Annex 12D: Rating Scales

Ratings for Outcomes, Effectiveness, Efficiency, M&E, I&E Execution	***Sustainability ratings:***	***Relevance ratings***
6: Highly Satisfactory (HS): no shortcomings 5: Satisfactory (S): minor shortcomings 4: Moderately Satisfactory (MS) 3. Moderately Unsatisfactory (MU): significant shortcomings 2. Unsatisfactory (U): major problems 1. Highly Unsatisfactory (HU): severe problems	4. Likely (L): negligible risks to sustainability 3. Moderately Likely (ML):moderate risks 2. Moderately Unlikely (MU): significant risks 1. Unlikely (U): severe risks	2. Relevant (R) 1.. Not relevant (NR) ***Impact Ratings:*** 3. Significant (S) 2. Minimal (M) 1. Negligible (N)
Additional ratings where relevant: Not Applicable (N/A) Unable to Assess (U/A		

Annex12 E: Evaluation Consultant Code of Conduct and Agreement Form

Evaluators:

8. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
9. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
10. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
11. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
12. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
13. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
14. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form[5]

Agreement to abide by the Code of Conduct for Evaluation in the UN System

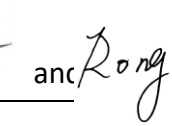
Name of Consultant: _____MADHAV KARKI AND RONG DAI_____

Name of Consultancy Organization (where relevant)**:** _____NA_____
_____

[5]www.unevaluation.org/unegcodeofconduct

We confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.

Signed at *place* on *date Kathmandu and Nanjing*

Signature: ____  and  _____

Annex 12F: Evaluation Report Outline[6]

i. Opening page:

- Title of UNDP supported GEF financed project
- UNDP and GEF project ID#s.
- Evaluation time frame and date of evaluation report
- Region and countries included in the project
- GEF Operational Program/Strategic Program
- Implementing Partner and other project partners
- Evaluation team members
- Acknowledgements

ii. Executive Summary

- Project Summary Table
- Project Description (brief)
- Evaluation Rating Table
- Summary of conclusions, recommendations and lessons

iii. Acronyms and Abbreviations

(See: UNDP Editorial Manual[7])

1. Introduction

- Purpose of the evaluation
- Scope & Methodology
- Structure of the evaluation report

2. Project description and development context

- Project start and duration
- Problems that the project sought to address
- Immediate and development objectives of the project
- Baseline Indicators established
- Main stakeholders
- Expected Results

3. Findings

(In addition to a descriptive assessment, all criteria marked with (*) must be rated[8])

3.1 Project Design / Formulation

- Analysis of LFA/Results Framework (Project logic /strategy; Indicators)
- Assumptions and Risks
- Lessons from other relevant projects (e.g., same focal area) incorporated into project design
- Planned stakeholder participation
- Replication approach

[6]The Report length should not exceed *40* pages in total (not including annexes).

[7] UNDP Style Manual, Office of Communications, Partnerships Bureau, updated November 2008

[8] Using a six-point rating scale: 6: Highly Satisfactory, 5: Satisfactory, 4: Marginally Satisfactory, 3: Marginally Unsatisfactory, 2: Unsatisfactory and 1: Highly Unsatisfactory, see section 3.5, page 37 for ratings explanations.

- UNDP comparative advantage
- Linkages between project and other interventions within the sector
- Management arrangements

3.2 Project Implementation

- Adaptive management (changes to the project design and project outputs during implementation)
- Partnership arrangements (with relevant stakeholders involved in the country/region)
- Feedback from M&E activities used for adaptive management
- Project Finance:
- Monitoring and evaluation: design at entry and implementation (*)
- UNDP and Implementing Partner implementation / execution (*) coordination, and operational issues

3.3 Project Results

- Overall results (attainment of objectives) (*)
- Relevance(*)
- Effectiveness & Efficiency (*)
- Country ownership
- Mainstreaming
- Sustainability (*)
- Impact

4. Conclusions, Recommendations & Lessons

- Corrective actions for the design, implementation, monitoring and evaluation of the project
- Actions to follow up or reinforce initial benefits from the project
- Proposals for future directions underlining main objectives
- Best and worst practices in addressing issues relating to relevance, performance and success

5. Annexes

- ToR
- Itinerary
- List of persons interviewed
- Summary of field visits
- List of documents reviewed
- Evaluation Question Matrix
- Questionnaire used and summary of results
- Evaluation Consultant Agreement Form

Annex 13: Chishui GEF BD2 Tracking Tool (Annexed in a separate file)

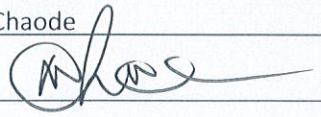
Annex 14: Evaluation Report Clearance Form

(to be completed by CO and UNDP GEF Technical Adviser based in the region and included in the final document)

Evaluation Report Reviewed and Cleared by

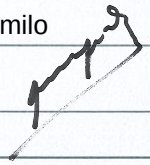
UNDP Country Office

Name: Ma Chaode

Signature:  Date: July 29, 2019

UNDP GEF RTA

Name: Gabriel Jaramilo

Signature:  Date: July 23, 2019