



**Sustainable tourism pathways for Palau:
findings and recommendations from a
cross-sectoral workshop**

**DISCUSSION
PAPER**



N^o16 August 2016



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August 2016 / N^o16

Conservation Strategy Fund

Sustainable tourism pathways for Palau

Findings and recommendations from a cross-sectoral workshop

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Acknowledgements

CSF would like express sincere thanks to Nanae Singeo (Palau Visitors Authority), Madelsar Ngiraingas (Belau Tourism Association), Jennifer Koskelin-Gibbons (Palau Chamber of Commerce) and Surech Bells (OneReef) for their support and guidance. We would also like to thank all those who participated in the workshop, both for their time and their insights.

1. Introduction

The Republic of Palau is located in the Micronesia region of the western Pacific Ocean, and is a well-known tourist destination for its outstanding scuba diving and snorkeling sites, picturesque rock islands, and unique jellyfish lake. Palau has adopted an economic development strategy that is centered on tourism to these exceptional marine sites, a plan termed “Pristine, Paradise, Palau”. However, over the past three years the number of tourists has increased by 70%, with growth primarily from Asia. This massive boom in tourist numbers is threatening to degrade the very natural resources that tourists come to enjoy. In addition, the shift towards a more mass tourism model is driving away higher-paying dive tourists from Europe and North America, retaining fewer per-person tourism dollars within Palau, putting stress on Palau’s water, sewer, garbage, energy, food and transportation infrastructure, and leaving some Palauan citizens without access to affordable housing or traditional food sources. In light of Palau’s rapidly emerging markets and changing tourism profiles, it is important to explore potential tourism development trajectories, to identify a strategy that will both take advantage of, and safeguard, the country’s significant social and natural assets, and ensure a sustainable and resilient tourism market for decades to come.

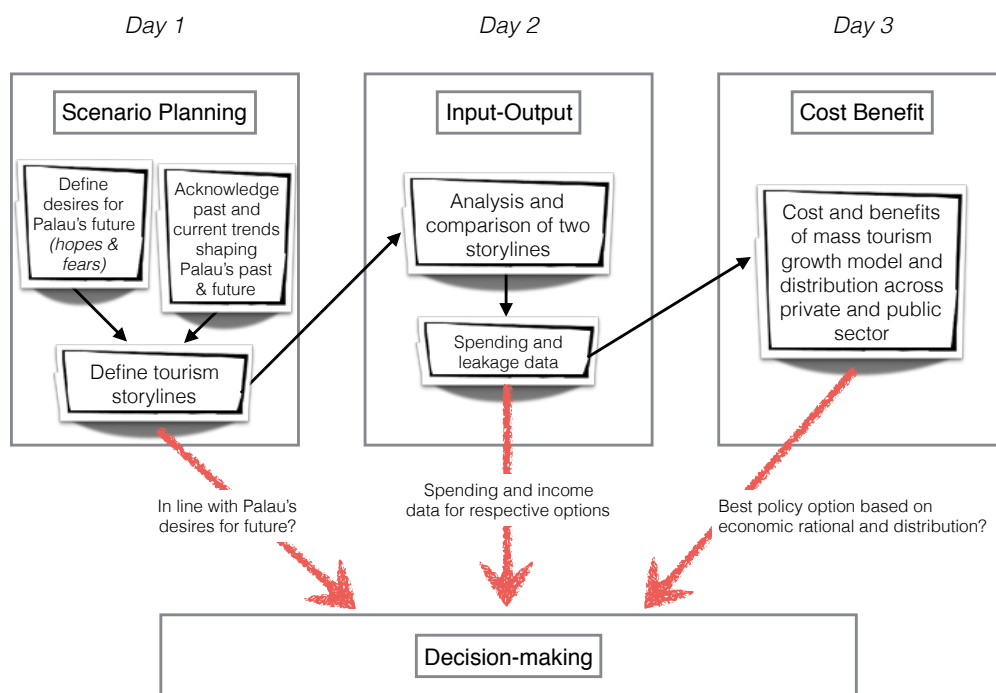
This report describes the process and outcomes of a three-day tourism analysis and planning workshop held November 2015 in Koror, Palau (Annex 1). The workshop was organized by Conservation Strategy Fund (CSF) in partnership with the Palau Visitors Authority (PVA), the Belau Tourism Association (BTA), and the Palau Chamber of Commerce (CoC). The overall goal of the workshop was to help Palau explore some key overarching questions: What does Palau want from its tourism development? What are the ultimate goals? How can Palau evaluate whether it’s on the right track towards meeting those goals? How can Palau measure changes and tradeoffs between the natural environmental, social stability, financial assets, and human well being? In order to capture expert opinion across multiple related sectors as well as build capacity, the workshop brought together stakeholders from a wide range of Palau’s economic sectors.

The document is organized as follows. The subsequent section describes the three-day workshop process and each component in detail. Section 3 presents the workshop results and Section 4 conclusions and recommendations for Palau’s tourism development moving forward.

2. Process

The overarching goal of the workshop was to identify potential future tourism strategies for Palau and the implications of these on its society and economy. The workshop introduced and made use of three economic analysis tools, each tool building on the previous (Figure 1). These were: Scenario Planning (SP), Input-Output Analysis (IOA) and Cost-Benefit Analysis (CBA).

Figure 1. Workshop components and linkages



First, SP was used to identify potential tourism storylines dependent on the desired outcomes and on current trends. Two scenarios were seen as most relevant to Palau's current market model: high-value/low volume, and low-value/high volume. Next, IOA and CBA were used to examine these contrasting scenarios in terms of their contribution to the desired outcomes for Palau as previously identified, and in terms of their economic consequences. Specifically, IOA was used to compare annual spending and the income retained within Palau, and CBA was used to compare costs and benefits of moving towards a mass tourism development scenario. Each tool and methodology is described in more detail below.

Day 1, Scenario Planning: SP is a structured strategic thinking process that develops scenarios of possible events and situations. It can be used as a long-term risk assessment and management approach, which helps better understand the opportunities and threats presented by internal and external forces and influences.

Since the 1970s, SP has been used around the world by governments, businesses and communities, including Shell International and the Millennium Ecosystem Assessment, a collaboration by more than 1,300 experts that aimed to assess the consequences of ecosystem change on human well-being. During SP, focus groups and interactive sessions challenged Palauan participants to think about the following:

- Their desires (and fears) for Palau's future;
- Important social, economic and environmental trends;
- Driving forces and influences that will shape the future and how these will affect Palau's ability to achieve its objectives for tourism and beyond.

These considerations were then used to develop tourism storylines for Palau up to the year 2030, modeled under different trajectories of the selected driving force. Overall, 5 storylines were developed, and prioritized two-major tourism types for subsequent analysis.

Day 2, Inputs Output Assessment: IOA examines the direct and downstream economic impacts of developments such as mines, tourist resorts, casinos, and national parks within locale scale economies.¹ In the context of this workshop, the IOA model was used to compare tourism benefits in terms of jobs, taxes, and income under the two prioritized tourism pathways developed in day 1 (high volume of low end package tourists, and low volume of high end tourists). The analysis examined how much tourists spend and where they spent it (e.g., hotels, restaurants, tours, taxes, park fees). Analysis also considered the associated allocation of money by firms into wages, equipment, supplies, and taxes, and the percentage of spending retained in the Palauan economy versus "leaked" abroad.

Total tourism numbers for 2015 were extrapolated from [Palau's immigration/tourism statistics](#)² data between Jan-Sept 2015. Palau's all-inclusive package tours are currently offered to visitors arriving from China, Korea and Taiwan. Visitors arriving from these destinations were therefore considered mass-market tourists. All other visitors were considered individual, high-end tourists. Spending by both groups on hotels, supermarkets, souvenirs, tours, and restaurants was estimated during the workshop based on in-house expert opinion and group consensus.

¹ The IOA tool used within this analysis was developed by Nicholas Conner, Commission on Ecosystem Management (Oceania), International Union for Conservation of Nature.

² <http://palaugov.pw/executive-branch/ministries/finance/budgetandplanning/immigration-tourism-statistics/>

Day 3, Cost Benefit Analysis: CBA assesses the economic feasibility of projects and policies. More specifically, CBA is a process of identifying, measuring, and comparing the financial, social and environmental costs and benefits of an investment project or program. It determines if the net benefits are positive and considers how costs and benefits will be distributed across stakeholders, including local communities, municipal governments, private companies, and society as a whole. On the final day of the workshop, participants developed a CBA to examine the costs and benefits of moving towards a low-end, mass tourism strategy. More specifically, the CBA examined the costs and benefits of adding an additional 10,000 mass-market tourists to the current situation³. Data for analysis came from existing information, IOA analyses, in-country reports, and expert opinion (Annex 2).

The CBA considered direct costs and benefits; including benefits from income retained in Palau from hotels, restaurants and shops and tax revenues and costs of supporting services such as park management costs. In keeping with CBA best practices, the CBA also included external social and environmental costs, which are typically neither borne nor received by project developers. These included: secondary supporting services such as airport maintenance, sewer and water investment and maintenance; social costs such as road congestion and higher housing costs and displacement; and environmental costs such as solid waste pollution on coral reefs; as well as loss of income and tax revenue from displaced high-end tourists. Analyses were carried out across a 5-year time period and assumed a 10% discount rate.

3. Results

3.1 Scenario Planning

3.1.1 Desires for Palau's future (hopes and fears exercise)

Six broad desires for Palau's future were defined by participants from across all sectors. These elements are listed in Table 1 and are directly useful as an input to any tourism development strategy adopted by Palau. A consensus emerged that development should be in line with preserving Palauan culture and environment, as well as not disenfranchising Palauan citizens, in particular its youth.

³ It should be noted that the CBA presented herein, unlike the IOA, is not an analysis of Palau's current tourism pathway but represents the costs and benefits of following a trajectory of increasing mass-market tourism over higher-end options.

Table 1. Factors identified as important for Palau’s future

Environmental/Cultural	Economic/Governance
Palau’s culture and traditions continue to be relevant and important to people and to economic development	Palauans maintain self-determination, control, choices and participation in their country
Palau has a healthy environment with abundant marine life	Palau shows economic prosperity and an equitable sharing of benefits and costs of development
Palau has a healthy Palauan population, especially its youth	Palau displays good governance, choices and strategic policies

3.1.2 Key trends currently affecting Palau

The key trends identified included the following (a full list is given in Annex 2):

- *Demographic and social:* decreasing Palauan population with declining birthrate, a growing trend towards emigration, an influx of Chinese visitors, a growing sense of loss of Palauan culture including connection with the ocean, and increasing individualism;
- *Environmental:* decreasing environmental quality and marine life, increasing pollution and waste issues, growing pressure on natural resources for commercial sale domestically, an increase in protected areas, and an increase in climate-related events;
- *Economic:* high GDP per capita relative to other Pacific Islands, improving island transportation links, growing pressure for infrastructure development, rising housing prices and rents, difficulty in accessing business credit, growing number of households in debt, a strong reliance on foreign labor, and conflicts between traditional and elected leaders;
- *Tourism:* increasing government revenues via per-visitor green fees and departure taxes, growth mass-market tourism and decrease of the diving sector, an increase in foreign-owned hotels, marketing of Palau as a low-end destination, and few Palauans trained in hotel management and the service industry.

Overall, participants and facilitators distilled and re-expressed this list of trends in terms of the following important driving forces (Annex 3):

1. Asian economic growth
2. Global economic growth

3. Market trends
4. Population growth (global and local)
5. Globalization and trade
6. Technology (information and energy)
7. Climate Change
8. Transportation access and cost (people, goods)
9. Governance conflicts (e.g. traditional vs. state and national government)

3.1.3 Storyline development

Tourism storylines for Palau up to the year 2030 were developed based on the interaction of one, two or three driving forces with various factors considered important for Palau's future. Participants developed 5 storylines. These were:

A. "The Rise and Fall of Airai State"

Driving forces: Asian economic growth, high transportation access, high foreign control

Development favors more hotels, dive boats and foreign labor. However, high value markets including the European market and specialized tourism, are lost. Palauans have no control over tourism economy and there is a loss of the "Palau experience". All of the relevant fears become a reality.

B. "Airai State Endures"

Driving forces: Global market integration, high transportation access, high local control

Both air and land traffic increases causing congestion. Settlements and hotels in Airai increase in number and place a higher burden on the sewage system. There is also an increase in foreign labor. However Palau witnesses a diversification of tourist activities and the development of ecological, cultural and historical activities, retaining control over tourism development.

C. "It's a Bird, It's a Plane, It's a Disaster"

Driving forces: Low transportation access, limited global integration

It becomes more expensive to travel to Palau and only wealthy travelers are able to come. As a result the tourism industry declines and less funds come to Palau. The limited transportation links also result in limited mobility of the local population and

a large emigration movement off the island by wealthy Palauans, who can afford to move. The remaining population experiences heightened poverty levels and an increase in crime and a lower quality of life. Fewer Palauans remaining in-country results in a loss of Palauan culture.

D. “Techy Valore”

Driving forces: Easy technology access, self-sufficiency

Internet coverage becomes wider and faster across Palau. This results in improved education and increased convenience for shopping and other options. Palau improves its Internet marketing for the global market and attracts a higher quality visitor with higher spending capacity. Palau also leads field in biotechnology advances in coral reef research and attracts additional income via research funding.

E. “BOOM 2030”

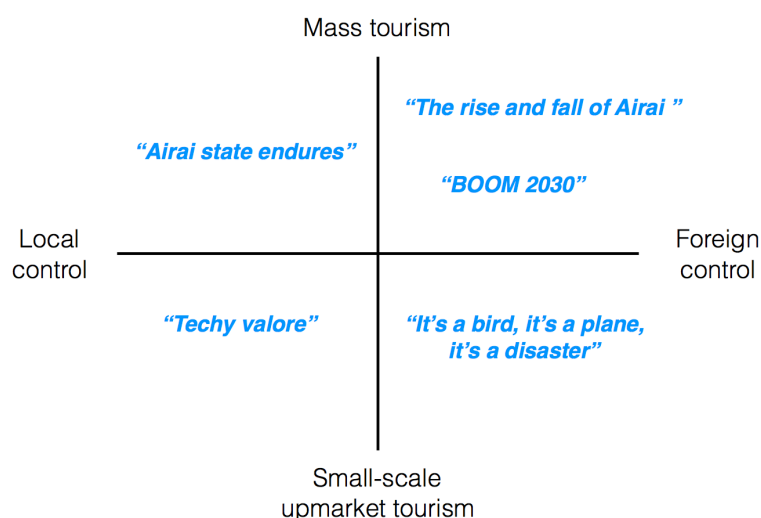
Driving forces: Global integration, foreign control

Palau experiences an increase in mass tourism and foreign laborers. Large coastal developments alter coastal habitats and a large number of Palauans emigrate to Guam and the U.S. mainland. Remaining Palauans are the aged and those who couldn’t afford to leave. Palauans become angry over the situation and bomb the airport, which stops tourist arrivals, and as a result many people are stranded, negatively impacting Palau’s international reputation.

3.1.4 Storyline mapping

All storylines could be organized according to two major themes: local versus foreign control, and mass tourism vs. low volume high-end tourism. Figure 2 plots the storylines according to these two themes.

Figure 2. Storylines arranged by two overarching themes



Key trends: Transportation, Migration, Technology, Economic growth, Environment

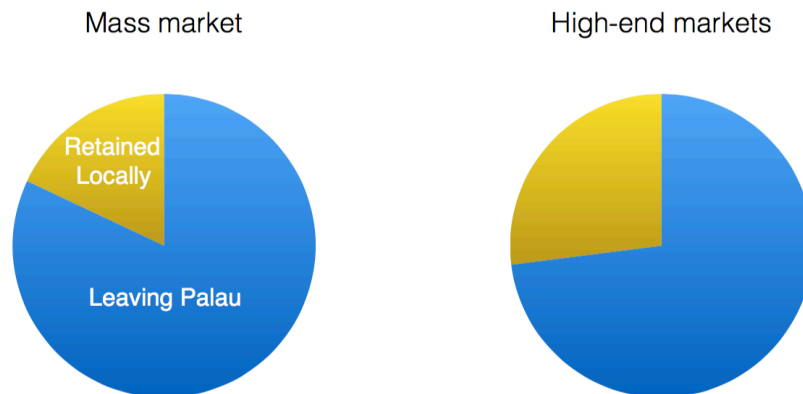
Based on the two-major themes emerging from each of the storylines, two contrasting scenarios were chosen for subsequent analysis: mass market tourism with a high degree of foreign control vs. smaller-scale more locally controlled tourism.

3.2 Input Output Analysis

Results indicate that high-end tourists spend more per person, per trip. Per person, high-end tourists are worth on average US \$3,180 to the private sector compared to US \$755 per mass tourist visit, in gross expenditure per trip. A higher percentage of this spending also stays in Palau's economy. As a result, despite being fewer in number under the two scenarios considered (approximately 47,500 vs. 118,000), high-end tourism would generate over 50% more spending in total, approximately US \$151 million per annum, compared to US \$89 million by the mass market sector.

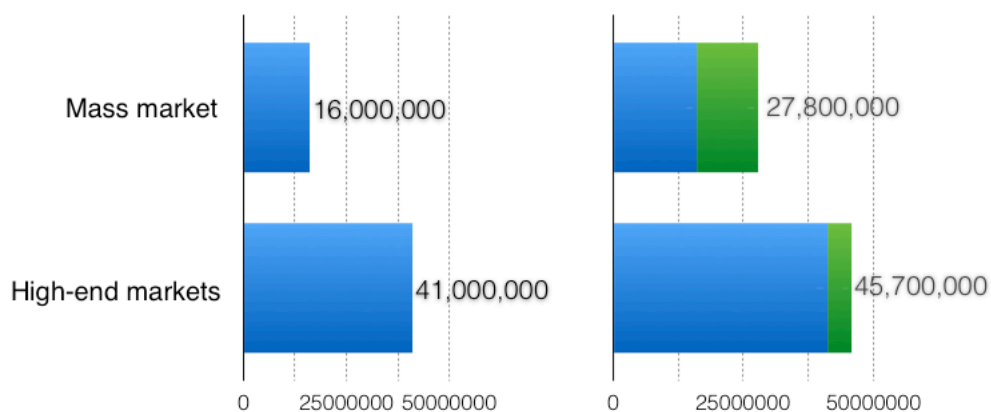
All tourism activity in Palau has a high level of leakage due to the necessity of importing associated goods. However, of the spending outlined above, 27% of high-end tourists' spending remains within Palau's economy, compared to only 18% from mass-market tourism (Figure 3). Accounting for leakage, high-end tourists contribute in total **six times more** to Palau's private sector economy than low-end package tourists; US \$859 vs. 136 per trip respectively, for a total of US \$41 million versus US \$16 million captured by Palau per annum.

Figure 3. Leakage rates from Palau for high-end and mass tourism markets



Palau’s current model to capture additional tourism revenues via a per-person green fee and departure tax generates US \$11.8 million under the higher volume mass-market strategy, versus only US \$4.7 million for the high-end market. However, higher spending in the high-end group more than makes up for this US \$7.1 million deficit, as can be seen in Figure 4. Being fewer in number, these tourists also have less total impact on Palau’s environment, infrastructure and society, an issue that is explored in the subsequent CBA section of the workshop.

Figure 4. Total annual retained spending in Palau for respective market types (US \$), excluding green fee and departure tax (left) and including (right)



3.3 Cost Benefit Analysis

If only direct financial costs and benefits are considered, adding 10,000 mass-market tourists is predicted to generate a net benefit to Palau's economy of US \$12 million (NPV over 5 years, 10% discount). Benefits are generated by business growth and governmental tax revenue. Costs are related to supporting services such as park management costs, and planning and development. Full CBA results can be seen in Annex 4.

However when additional indirect costs and benefits are taken into account, the net social benefits for society from moving towards mass tourism turns negative, generating US \$4 million in losses to Palau's economy (NPV). This means that costs in terms of supporting services, lost high-end tourism revenues, and social and environmental impacts are greater than the income and tax benefits from the additional tourists. Furthermore, while government revenues would increase, Palau's society would bear the brunt of the costs. Although government revenue would increase by US \$3.8 million (NPV) over the course of the 5-year period, Palau's society would experience a welfare loss of some US \$7.4 million (NPV) due to increased social and environmental costs related to congestion, pollution and housing costs. Furthermore, the private sector would be US \$0.5 million worse off, in NPV terms, due to the displacement of higher spending clientele.

4. Conclusions and recommendations

Palau is faced with crucial questions about the future of its tourism development; in particular which pathways it can pursue that will take advantage of, and safeguard, some of the most remarkable marine environments to be found in the entire Pacific. The workshop's goal was to develop a strategic planning process to help participants think outside the box of conservation versus development, to consider what internal and external forces will shape tourism development, and what facets Palau wants to protect, retain and build for its future.

The workshop highlighted participants' desire to retain Palauan culture, as well as self-determination and control in decision-making within tourism development moving forward. Local versus foreign control, and mass tourism vs. low volume high-end tourism emerged as overarching themes within all storylines.

Workshop analyses indicated that while a mass tourism pathway would secure more tax revenues, it did not generate more revenues for Palau overall. Focusing only on a mass-market strategy would serve to reduce per-person trip spending and increase off-island leakage, resulting in an absolute reduction in tourism revenues despite the

larger number of entrants. In addition, the indirect social and environmental costs associated with increasing mass tourism outweighed any benefits of tourism spending; the addition 10,000 new mass-market tourists per annum to Palau's current market was associated with a negative NPV of some US \$4 million over the next 5 years.

Based on these findings, workshop participants came to the following conclusions. Moving forward, any tourism development should be in line with those attributes considered important to Palau: the preservation of Palau's culture and environment. Presently, Palau's tourism model and associated infrastructure developments are in conflict with both its tourism tagline "Pristine, Paradise, Palau" and its notable environmental strategy.

A number of key concepts that are under-represented within Palau's current tourism model should be accounted for in any future tourism plan. First, Palau must acknowledge the limitations of depending on per-capita fees for government tourism revenue, as well as give greater consideration to indirect costs. Palau's green fee was once a sufficient model to offset tourism activities and promote conservation. However with tourism numbers predicted to reach unprecedented levels in less than 5 years, per-capita fees are limiting and generate perverse incentives. In particular, they create an incentive for government to focus on increasing tourism numbers, which is at odds with what is best for Palau's economy more broadly, and indeed its natural environment on which its tourism ultimately relies. Under the scenarios considered here, per tourist tax-revenues as currently stipulated would be insufficient to offset social and environmental costs of mass tourism development. Furthermore, a simple increase in Palau's green fee will do little to reduce the impact of its current tourism market, particularly if lower-spending tourists continue to displace higher-spending markets. Indeed, conversion from a high-end to a more mass tourism model may result in large losses for the private sector in return for only modest gains in government tax revenues, stifling economic growth.

If Palau wishes to successfully increase the economic benefit captured from its tourism market it should focus on increasing the number of high-end tourists, whose on-island per capita spending is greater, but also on improving the products available to them, improving their experience and further increasing on-island spending.

More generally, Palau should move to decouple tourism revenue from visitor departure numbers as much as possible and instead, promote on-island private-sector spending as well as reduce associated leakage (e.g. through promoting Palauan ownership and retail). New alternative mechanisms in which the

government could capture tourism revenue should be explored in order to reduce reliance on per-capita fees. Examples included a modification of various tax laws, such as implementing a modest Value Added Tax (VAT), which would capture revenues from high-end tourists in equal or greater amounts as the per-head departure tax, while at the same time stimulating a vibrant private sector and minimizing significant social and environmental costs of mass tourism. Similarly, leakage could be significantly reduced if more Palauans were able to participate in the tourism industry as sole business owners and managers, i.e. via night school classes and apprenticeships which build the necessarily skill sets.

Specific recommendations are as follows:

1. All tourism development pathways should be designed in consideration of Palau's overall consensus of hopes and fears for the future, for example maintaining its cultural and environmental heritage and self-autonomy.
2. Future tourism planning should have sound economic rationale and undergo appropriate analysis, using but not limited to such tools as described in this report. These additional tools provide inputs for determining the advantages and disadvantages of any tourism development strategy, in order to make the best decisions for Palau's society.
3. Palau's high-end tourism should be fostered and protected; lower-end markets should developed in light of these existing higher-spending markets and its needs. This is not to say that lower-value markets should not be developed but that caution should be taken when approving these lower-end markets such that they do not displace higher-spending alternatives. Solutions might include spatial planning and market segmentation based on quality of environmental products.
4. While pricing places self-enforcing limits on high-end markets, no such mechanism is in place for lower-cost tourism. As such, Palau should limit the number of tourists entering Palau each year, until at least that point where the necessary infrastructure and any damage-mitigation mechanisms are in place.
5. Best-practice should also focus on increasing on-island per-visitor spending and reducing reliance upon exit fees. Palau should consider tax reform in order to capture more from existing tourists and tourism business, reducing the incentive to rely solely on increasing visitor numbers.
6. Best-practice should focus on reducing the high levels of leakage in Palau's

tourism sector beyond current minimum regulations.⁴ This can be achieved by at least two means: improving Palauan’s abilities to engage in the tourism sector at all levels of management and ownership; and facilitating local business development around those businesses related to and/or supplying the tourism market. Palau should facilitate access to specific business development and training opportunities as well as developing small business loans and microfinance opportunities.

⁴ Current Foreign Investment Board permits (FIB) stipulate 20% Palauan staff as minimum or a minimum investment of US \$500,000 (Source: IBP USA 2013. Palau Economic and Development Strategy Handbook Volume 1. Strategic information and developments. Global Investment Center, Washington DC.)

Annex 1. **WORKSHOP AGENDA**

Day 1: Palau yesterday, today and tomorrow: developing scenarios

- Welcome, Introduction, Icebreakers
- Sharing of personal scenarios by participants
- Exploration and discussion of future hopes and fears of participants
- Presentation about Palau: changes over time to today (key historical eras and trends, demographic trends, environmental trends, protected areas trends, economic trends, and tourism trends)
- Discussion about driving forces and key trends
- Introduction to scenarios and scenario planning
- Break-out-groups to design and present scenario narratives
- Discussion of future goals and priorities

Day 2: Tourism development scenarios: implications for Palau's economy

- Graphing and visualizing scenarios
- Presentation of tourism development scenarios for Palau
- Introduction to macroeconomics, and its use in exploring development scenarios
- Introduction to natural capital accounts and System of Environmental Economic Accounting framework (SEEA)
- Introduction to economic impact analysis and example
- Input-output table for Palau tourism scenarios: expenditures, flow-on effects and leakage

Day 3: Putting it together: sustainable tourism development and economic analysis tools

- Introduction to ecosystem services, environmental values and valuation methods
- Introduction to cost-benefit analysis
- Cost-benefit analysis of Palau tourism scenarios
- Linking scenarios, development pathways and economic tools

Annex 2. Cost-Benefit Analysis input data

Population: 25,000

Current number of tourists: 50,000 growing at 0% per year

Additional tourists per year: 10,000 (20% increase)

Table of Parameters

General Inputs

Discount rate	7%	rate
Timeline of analysis	5	yrs

Direct benefits

Income¹

Hotel economic flows	633,600	\$/yr
Restaurant economic flows	201,600	\$/yr
Market shop economic flows	67,680	\$/yr
Souvenir shop economic flows	45,120	\$/yr
Tour and transportation services economic flows	355,200	\$/yr

Tax revenues²

Business tax on gross revenue	4%	% of gross
Park fees	1,000,000	\$/yr
Departure tax	200,000	\$/yr
Environmental fee	300,000	\$/yr

Direct Costs³

Supporting services

Parking lot expansion	50,000	\$ in Year 0
Rest rooms - construction and operation	10,000	\$/yr
Park management costs	100,000	\$/yr

Planning and development

5,000 \$/yr

Other costs³

Secondary supporting services

Street repair	50,000	\$/yr
Sewer and water capital investment ⁴	500,000	\$ in Year 0
Sewer and water maintenance	43,000	\$/yr
Airport repair and maintenance	20,000	\$/yr
Port upgrades	50,000	\$/yr
Garbage collection and landfill	26,000	\$/yr

Displaced tourism value⁵

Loss of business profits from high-end tourists ¹	1,298,600	\$/yr
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Loss of tax revenue from high-end tourists ²	225,000	\$/yr
Rate of increase of displaced tourism value	5%	%
Social costs		
Road congestion ⁶	910,000	\$/yr
Higher housing costs and displacement ⁷	700,000	\$/yr
Healthcare and illness costs from solid waste pollution ⁸	75,000	\$/yr
Social disruption, drugs, etc. ⁹	??	\$/yr
Environmental costs		
Solid waste pollution impacts on reefs - fish and mangrove timber ⁸	10,000	\$/yr
Tourists' physical and chemical impacts on reefs ⁹	??	\$/yr

¹ Values taken from IOA analysis

² Government statistics

³ Conservative values assumed based on local knowledge, unless otherwise cited

⁴ Assumes 2% of new dam costs of \$25 million attributable to new tourists. Cost as per ADB's Water Sector Improvement Plan for Palau available at <http://www.adb.org/sites/default/files/linked-documents/44031-01-pal-ssa.pdf>

⁵ Assumes high-end tourism spending drops by 10% in first year and an additional 5% in subsequent years

⁶ Assumes 10,000 affected by 30 min increase in traffic per week at US \$3.5/hr, 52 weeks a year

⁷ Assumes 50% of Koror's population of 14,000 experience US \$500 increase per year and that 20% is attributable to the additional 10,000 tourists. *Value is assumed to be very conservative as anecdotal reports suggest much higher increases already witnessed in Koror over past 6 months

⁸ http://www.sprep.org/solid_waste/documents/Economic%20costs%20of%20waste%20-%20%20Palau.pdf;

⁹ Acknowledged as important but accurate value or assumed value not readily available therefore excluded from analysis

Annex 3. Key trends currently affecting Palau as defined by workshop participants

Demographic & Social	Environmental	Economic	Touristic
Influx & fear of Chinese	Decrease in environmental quality	One of highest GDPs in Pacific	Changing profiles towards mass tourism
Efforts to improve diet & reduce NCDs	Increased pressure on natural resources for domestic commercial sale	Increased pressure for infrastructure development	2012: 100,000 tourists; 2015: 170,000 tourists
Emigration & 'brain drain'	Limits and closures on fisheries exports	Increased transportation across to Palau	Increase in Asian tourists – 57% of 2015 visitors from mainland China
Internet & global connectivity, social media	Increased waste & need for sewage/waste disposal	Importance of informal sector & links to tradition	Palau markets as low-end tourist destination in Asia
Losing youth	Increased pressure on freshwater resources	More families with loans	
Low birth rates	Decrease in abundance of near shore marine life	Difficulty for business to access credit	Decrease in per-person expenditure & decrease in tourism revenues by 20%
Increase in mental illness, substance abuse & suicide	Increase in pollution	Over half of labor provided by foreigners	
Loss of connection to and knowledge of ocean	Increase in storm events & typhoons & other climate change threats	Tax law not capturing incomes or expenditures from high-end tourists	Increase in foreign-owned hotels and restaurants
Increase in individualism over communalism	Increase in invasive species	Higher housing prices & fewer apartments available	Decrease in diving sector, boats tours and land transport revenues
Changing & displaced gender roles	Increase in protected areas	Food security concerns (reduced agri & fisheries)	Increase in government revenues via green fee & departure tax
Land tenure disputes		Conflicts in power struggles (traditional vs. government leaders)	Few Palauans trained in service sector or hotel management
		Increased domestic pressure for food	

Annex 4. Cost-Benefit Analysis Results

Summary of the results

CBA1: Direct Net Present Value	11,972,398	\$
CBA2: Total Net Present Value	(4,131,597)	\$
<i>Private Impacts</i>	<i>(537,352)</i>	\$
<i>Fiscal Impacts</i>	<i>3,842,079</i>	\$
<i>Social Impacts</i>	<i>(7,436,323)</i>	\$

CBA 1: Direct Costs and Benefits

Year	0	1	2	3	4
Direct benefits					
Income					
Business income	1,303,200	1,303,200	1,303,200	1,303,200	1,303,200
Taxes					
Business tax revenue	52,128	52,128	52,128	52,128	52,128
State park fees	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Departure tax	200,000	200,000	200,000	200,000	200,000
Environmental fee	300,000	300,000	300,000	300,000	300,000
Total benefits	2,855,328	2,855,328	2,855,328	2,855,328	2,855,328
Direct costs					
Direct supporting services					

	Parking lot expansion	50,000				
	Rest rooms	10,000	10,000	10,000	10,000	10,000
	Park management costs	100,000	100,000	100,000	100,000	100,000
	Planning and development	5,000	5,000	5,000	5,000	5,000
Total costs		165,000	115,000	115,000	115,000	115,000
Net cash flow		2,690,328	2,740,328	2,740,328	2,740,328	2,740,328
Discounted net cash flow		2,690,328	2,561,054	2,393,509	2,236,924	2,090,583
Direct NPV	11,972,398	\$				
Direct Benefit/Cost Ratio	23					

CBA 2: Total Costs and Benefits

Year		0	1	2	3	4
Benefits						
	Income					
	Business income	1,303,200	1,303,200	1,303,200	1,303,200	1,303,200
	Taxes					
	Business tax revenue	52,128	52,128	52,128	52,128	52,128
	State park fees	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
	Departure tax	200,000	200,000	200,000	200,000	200,000
	Environmental fee	300,000	300,000	300,000	300,000	300,000
Total benefits		2,855,328	2,855,328	2,855,328	2,855,328	2,855,328

Costs

Income					
Loss of business profits from high-end tourists	1,298,600	1,363,530	1,431,707	1,503,292	1,578,456
Taxes					
Loss in tax revenue from high-end tourists	225,000	236,250	248,063	260,466	273,489
Direct supporting services costs					
Parking lot expansion	50,000				
Rest rooms	10,000	10,000	10,000	10,000	10,000
Park management costs	100,000	100,000	100,000	100,000	100,000
Planning and development	5,000	5,000	5,000	5,000	5,000
Secondary supporting services costs					
Street repair	50,000	50,000	50,000	50,000	50,000
Sewer and water capital investment	500,000				
Sewer and water maintenance	43,000	43,000	43,000	43,000	43,000
Airport repair and maintenance	20,000	20,000	20,000	20,000	20,000
Port upgrades	50,000	50,000	50,000	50,000	50,000
Garbage collection and landfill	26,000	26,000	26,000	26,000	26,000
Social costs					
Road congestion	910,000	910,000	910,000	910,000	910,000
Higher housing costs and displacement	700,000	700,000	700,000	700,000	700,000
Healthcare and illness costs from pollution	75,000	75,000	75,000	75,000	75,000
Environmental costs					
Solid waste pollution impacts on reefs	10,000	10,000	10,000	10,000	10,000
Total costs	4,072,600	3,598,780	3,678,769	3,762,757	3,850,945
Net economic resource flow	(1,217,272)	(743,452)	(823,441)	(907,429)	(995,617)

Discounted net economic resource flow		(1,217,272)	(694,815)	(719,225)	(740,733)	(759,552)
NPV (economic)	(4,131,597)	\$				
Benefit/Cost Ratio	0.75					

CB2: Private Sector only

Benefits

Income						
Business income		1,303,200	1,303,200	1,303,200	1,303,200	1,303,200

Costs

Income						
Loss of business profits from high-end tourists		1,298,600	1,363,530	1,431,707	1,503,292	1,578,456

Net economic resource flow		4,600	(60,330)	(128,507)	(200,092)	(275,256)
Discounted net economic resource flow		4,600	(56,383)	(112,243)	(163,335)	(209,992)
NPV (economic)	(537,352)	\$				
Benefit/Cost Ratio	0.91					

CBA 2: Fiscal Impacts only

Benefits

Taxes						
Business tax revenue		52,128	52,128	52,128	52,128	52,128
Park fees		1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Departure tax		200,000	200,000	200,000	200,000	200,000
Environmental fee		300,000	300,000	300,000	300,000	300,000

Total benefits		1,552,128	1,552,128	1,552,128	1,552,128	1,552,128
Costs						
Taxes						
Loss in tax revenue from high-end tourists		225,000	236,250	248,063	260,466	273,489
Direct supporting services costs						
Parking lot expansion		50,000				
Rest rooms		10,000	10,000	10,000	10,000	10,000
Park management costs		100,000	100,000	100,000	100,000	100,000
Planning and development		5,000	5,000	5,000	5,000	5,000
Secondary supporting services costs						
Street repair		50,000	50,000	50,000	50,000	50,000
Sewer and water capital investment		500,000				
Sewer and water maintenance		43,000	43,000	43,000	43,000	43,000
Airport repair and maintenance		20,000	20,000	20,000	20,000	20,000
Port upgrades		50,000	50,000	50,000	50,000	50,000
Garbage collection and landfill		26,000	26,000	26,000	26,000	26,000
Total costs		1,079,000	540,250	552,063	564,466	577,489
Net economic resource flow		473,128	1,011,878	1,000,066	987,662	974,639
Discounted net economic resource flow		473,128	945,680	873,496	806,227	743,547
NPV (economic)	3,842,079					
Benefit/Cost Ratio	2.34					

CBA 2: Externality Impacts only

Benefits

Total benefits

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Costs

Social costs

Road congestion

910,000	910,000	910,000	910,000	910,000
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Higher housing costs and displacement

700,000	700,000	700,000	700,000	700,000
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Healthcare and illness costs from pollution

75,000	75,000	75,000	75,000	75,000
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Environmental costs

Solid waste pollution impacts on reefs

10,000	10,000	10,000	10,000	10,000
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Total costs

1,695,000	1,695,000	1,695,000	1,695,000	1,695,000
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Net economic resource flow

(1,695,000)	(1,695,000)	(1,695,000)	(1,695,000)	(1,695,000)
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Discounted net economic resource flow

(1,695,000)	(1,584,112)	(1,480,479)	(1,383,625)	(1,293,107)
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NPV (economic)

(7,436,323) \$

Benefit/Cost Ratio

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