Chapter 5

Recommendations and Next Steps

- Summary of Recommendations
- Implementation Table
- Roles and Responsibilities
- Pratt Team Recommendations'
- Recommended Studies & Future Focus Areas

Gaps, Next Steps & Recommendations

Over the series of participatory workshops, a wealth of information was exchanged which developed into a clear vision for the future of Agonda. As each day progressed, different goals and areas of focus were documented and incorporated into the evolving local framework. As well, numerous topics came up that were not specifically covered in any of the formal focus groups. Most importantly, a clear process for implementing these action items was developed by participants. While there were some differences in the resultant goals – for example, some are to be completed in the short term versus the long term – many goals and their suggested processes had significant overlap.

After careful consideration, this framework offers a number of recommendations to facilitate Agonda in reaching their short and long term goals and ultimately achieve the stated Vision. These recommendations are summarized with the Pratt Planning team's interpretation and commentary.

Continue to involve all stakeholders and ensure transparency in management and the decision-making process:

- Efforts and actions on sustainability issues must involve pro-active participation and contributions of both governmental and non-governmental stakeholders. Actors stem from household and neighborhood levels to regional, national and even international levels. Early, continuous, targeted and transparent communication between all parties is required to establish firm partnerships.

Adopt a long-term vision but use well-defined targets and actions items in the short-term:

- Start today by creating a step-by-step action plan. This could include a series of indicators and properly quantified goals, thresholds, time-bound targets and are indispensable instruments for priority setting, funding and resource allocation, progress reporting and evaluation.

Look for Linkages between sectors:

Consider developments in other socioeconomic sectors when drafting any municipal plan. Cut back on expensive, time-consuming bureaucracy, and make an impact in multiple sectors at once. Recommendations that can also be put to use in other sectors will be highlighted below using the symbols as follows:

Economic Development & Sustainable Tourism

Farmland Conservation

Solid Waste Management

Waste Water Management

Design Guidelines

Economic Development & Sustainable Tourism

Formalize & Regulate Tourism

Based on the workshop findings, there is a great need to organize a local Sustainable Tourism Action Committee or STAC which could also facilitate and coordinate all tourism-related organizations and businesses. To gain a better understanding of the pull and push factors, the community and the STAC could conduct an attraction and facilities inventory, conduct a resident attitude survey and develop economic and visitor profiles. The Panchayat should obtain regulation, enforcement, and permitting power from State and create a local official tourism policy and enforcement organization. Potentially, this STAC could create rules and, most importantly, enforce them in regards to development, visitors, and the environment. However these community policies need to be in-tune with policies at a regional and state scale. For example, the Panchayat needs to lobby the State to be able to enforce:

- current beach-shack regulations,
- water quality and turtle-nesting regulations,
- rent-back regulations,
- the ongoing improper hospitality waste-disposal procedures.

Concurrently, the Panchayat needs to lobby the State to be able to develop, regulate & enforce a new hospitality permit system. Based on the workshop findings, this could include a mandatory sustainability initiative for hospitality businesses, water conservation, solar heating and lighting, rainwater harvesting, sorting garbage, and the phasing out of conventional practices. This can be done with the use of permit fees as well as the use of incentives for equipment upgrades, technical assistance and green-business rotating loans.

Economic Development & Sustainable Tourism

Protect & Improve Quality of Life

Regulate & Enforce business operating hours, use of sound systems, private and visitor parking and use of business garbage bins. The STAC or Panchayat could ensure businesses are responsible for maintaining the quality of life that the community has expressed interest in preserving through the use of regulations and incentives. The Panchayat or STAC could also develop a system of land banking to preserve public access and enjoyment of public spaces (such as the requested picnic areas and beach access). Regulate stray cattle--especially on beaches. Diversify skill sets of workforce as not to rely too heavily on tourism.

Protect Agondan Culture

During the workshop series, participants repeatedly the importance of protecting the unique Agondan culture:

- Limit access to Butterfly Beach and demarcate, regulate and enforce traditional fishing zones in water and on-shore.
- Use volunteerism and community events to bolster pride and cultural connections,
- Develop awareness campaigns for both visitors and residents.
- Develop cultural exchange programs and environmental education programs for both visitors and residents.
- Create cultural sensitivity pamphlets for tourists to be handed out at hospitality events.
- Consider mandatory guides for tourists' excursions.
- Explore niche marketing for eco-tourism and yoga/meditation-tourism as well as hinterland tourism.
- Work with local artisans and farmers to develop a local market to sell local products to visitors and that can export to other communities.

Farmland Conservation

Education, Awareness & Funding

The Farmers' Club should find out what government schemes and programs exist and can be utilized to Agonda's benefit! Find out if these funds can be applied for the Farmers' Club or Panchayat. Investigate sustainable and ecologically sensitive methods for controlling pests such as coconut mites and seek advice from experts such as TERI. Possibly this could be an additional educational topic for the farmers' club education awareness and training program.

Inventory, Production, Value & Markets

Prevent prime farmland loss. Identify farmland that is considered prime. An inventory should be made that identifies not only the amount of farmland but also the quality of the land and the ownership on a local scale. This is something that could use assistance from additional study initiatives, and a community based GIS program to help map these land parcels.

What is Agonda producing? Yearly accountings of crop yields for all of Agonda would be tallied, recorded, compared and published, ideally by the Farmers' Club. This will help identify trends in farmland loss/gain and profitability. It will also help identify potential future projects for the Farmers' club. It will also raise local resident's awareness of their local economy and the value farming adds to it. Toddy tapping should be included.

Understand and study markets. Market research needs to be done to explore opportunities for farmers. Farmers would look for business partners in Agonda and in the surrounding areas. Analysis needs to be done on what happens to Agondan produce--is it being sold to local restaurants? Explore the feasibility of selling affordable products to residents while selling value added products in markets both in and outside of Agonda. Consider selling high priced value added items directly to tourists --perhaps creating a niche, such as a gourmet cuisine industry in Agonda. This would allow farmers in Agonda to provide fresh local healthy food to residents for reasonable prices while still benefiting from a tourist market. Consider collaboration of farmers and fishermen in branding/ marketing Agondan produce and fish.

Farmland Conservation

Consider All Technological Options

Ecological technologies may be helpful in water conservation. Coordination with the Waste Water Management Committee and input during the creation of the design guidelines for roadways and storm water runoff will likely have positive impacts on water conservation planning. Rainwater harvesting and grey water reuse both need to be considered to create a more stable and consistent water supply for farming that will allow for multiple crops to be grown and harvested in a calendar year. If one farm can successfully harvest twice a year, there is bound to be a push from all others to do the same. It is recommended that small-scale efforts pilot projects similar to the organic fertilizer project (SMART Goal 3) be started while larger town-wide initiatives are investigated.

Decide whether or not to mechanize. Mechanization will have a negative environmental impact. If it is feasible for farmers to combine resources or use government schemes to acquire machinery to work the farms, will the benefit in terms of labor saving costs be worth the adverse environmental impacts (loud noise, air pollution, etc.)? This may impact neighbors who don't farm and make them less receptive to preserving farming as part of the Agondan culture. On the other hand labor is extremely expensive, can farming continue and be fiscally rewarding if Agonda does not mechanize? This should be well thought out and discussed amongst Agonda residents before any action is taken. A community meeting held and coordinated by the Agonda Farmers' Club would be an excellent place for the community to decide.

Solid Waste Management

Education & Awareness

Agonda's natural environment is of great value and the appreciation of the natural beauty of this beach front community was clearly vocalized. Residents of Agonda have a strong interest in preserving the areas pristine beauty; something easily achieved by implementing proper solid waste management tactics.

The plan for solid waste management can begin with easy goals such as educating the community and property owners on the importance of proper waste management, specifically issues such as recycling and composting. These activities could become interactive and creative. For example a children's art campaign where children from the community paint municipal trash barrels and rubbish bins with images of Agonda to further convey the message of the importance of retaining Agonda's beauty. Simple signage expressing the importance of managing waste by not littering, recycling, and composting is also a quick and effective method of spreading information.

Plan & Invest in Solid Waste Infrastructure

The Panchayat will need to get involved for bigger tasks such as the purchase and regulation of garbage bins and collection trucks, but this too can be done in an affordable, reasonable manner. Trucks can be as simple as an old Tuk-Tuk, and bins empty water barrels.

The use of the waste site will eventually be implemented, so it is important to consider ecological technologies when drafting the management plan for the site. Compost from homes (via collections or drop off) or composting directly on the municipal waste site can differ waste from the landfill while creating valuable soil. Soil from composting can be used by the proposed Farmers Club and food can either be used to feed the community or for food packaging and selling schemes.

Solid Waste Management

Consider Effects of Actions on Other Sectors

It is essential to select the site how the waste management site is used carefully because when solid waste becomes exposed to the elements, toxins and contaminants are released, and can gradually make their way to water bodies, including groundwater. As part of a waste management plan, and in relation to the drainage and watershed plan, sewage and solid waste being dispersed by storm water runoff should be addressed. Most of Agonda's drinking water comes from wells, so preventing groundwater pollution is critical. Should composting be used to treat organic waste, bins should also be carefully located to prevent runoff from storm water entering streams or water bodies, as well as public places

Wastewater Management

Appropriate Technologies and Eco-San

Sound water management relies on the preservation and efficient use of water resources. To reduce the amount of wastewater and capital investment in sewage systems, a focus on preventing pollution of water sources, efficient use and re-use of water, and use of appropriate low-cost water treatment technologies is needed. Eco-technologies are valid alternatives to costly traditional solutions (sewage systems, treatment plants and associated maintenance). They are also viable based on the community's needs, concerns, and will expressed during the workshop.

Composting toilets can be incorporated into a centralized system. Based on our findings, a centralized eco-san management policy (including municipal collection) would be relatively inexpensive, viable year round, and less disruptive than constructing and managing a large sewage system (which would not be guaranteed to function during monsoon season).

Long-term Goal Setting

Not taking action to deal with wastewater issues will incur great costs for current and future generations. The high costs and complexities of creating an effective centralized water management system require a long-term, step-by-step approach that minimizes environmental and human health damage as much as possible within existing budgetary limits. This can be a daunting task.

However, an incremental approach can allow for the implementation of feasible, tailor-made and cost-effective measures that move the community closer to reaching their long-term wastewater management objectives. Set realistic time limits and understand that a comprehensive wastewater management plan may take a few years to draft and properly implement.

The creation of a water management committee is a great start for Agonda. But, the 6 month plan is quite ambitious. In order to ensure success of the water committee's first project, longer term goals are recommended: A full year of training and education may give committee members more time to get comfortable with ecological technologies in their own homes or businesses, and give them the confidence and experience to effectively educate the rest of the community.

Wastewater Management

Integrate Supply & Sanitation Systems

Municipal wastewater management is part of a wider set of water services. The wastewater component is usually positioned at the end of a water resource management chain. A holistic approach to water supply and sanitation should be adopted that addresses household water services, protection of the dams and rivers (and other drinking water sources), rainwater collection, and human waste collection, treatment and reuse as fertilizer or compost. This whole-system approach can reduce negative impacts on human health and ecosystem health. Available institutions, technology and costs relevant to all major components of the water management chain need to be examined in order to ensure success. Consider the joint development, management, and/or delivery of drinking water supply and sanitation services.

Study Agonda Hydrology

Due to concerns brought up in regards to the river and nearby water becoming brackish during low tides, a hydrological survey of Agonda is recommended. Hydrological conditions are a key component when drafting a comprehensive plan, as understanding water supply, and what occurs below ground is key to discovering the best solution to this issue.

A hydrology study is also a key component in having enough information to ensure that impurities from a solid waste management site will not be flowing towards drinking water sites, or into recreational bodies of water.

Ensure Financial Stability & Sustainability

Consider initiatives in other sectors when drafting a municipal waste water treatment plan. For instance, farmland conservation and tourism related initiatives may create opportunities to address sanitation. Linking wastewater management with other initiatives can ensure sustainability, faster cost-recovery, risk-reduction, and financial stability.

Seek out innovative financial mechanisms: consider private sector involvement and partnerships with other municipalities. Factor in social equity and solidarity when calculating cost recovery.

Potential Links:

- Ecotourism, where ecological living and ecological sanitation become the draw, creating a niche market.
- Using composted human waste in agriculture.
- Rainwater harvesting and runoff management when designing road improvements in Agonda. Consider how preventing flood prone areas from flooding may be tied into aquifer recharge or rainwater harvesting for water supply.
- Combining solid waste management with human waste management into a comprehensive waste management program.
- Development of gobar plants as a long-term option for waste while providing energy independence and self-sustainability.

Design Guidelines

Develop Design Guideline Covenants

Participants recommended creating a “Design Guidelines” document for development in Agonda. After priorities are set, the next step is to gather information about the best practices for each of the areas for which suggestions were made. The Goa College of Architecture expressed a willingness to help: students, guided by professors and professionals in the field, partnering with the panchayat of Agonda would create the guidelines. Once complete, this document can be taken to the Gram Sabha for consideration and potential implementation as a tool for enhancing on-going or day-to-day improvements. In this way, the entire community can become familiarized with best practices and start implementing them as soon as opportunities arise.

Design guidelines should be enforced whenever any action will modify the built form or the natural environment. Guidelines should be put in place regarding architectural character, the disposal and management of waste, lighting, water usage, and the regulations that apply to building limits, etc. Local architecture and preservation of landmarks enhance the experience of tourists and residents alike, and maintain the character of the village.

Design Guidelines Document Scope of Work should include:

- Roads
- Lighting
- Sidewalks
- Signage
- Native Landscaping
- Green Infrastructure
- Storm Water Management and Drainage
- Soil Erosion Control
- Coastal Zone Regulations
- Natural habitat Protection and Buffers
- Beach Access
- Sustainable Site Development
- Streetscape and Architectural Character
- Building Materials and Technology
- Parking and Traffic Circulation

Road Network & Street Typology

Following the development of the Design Guidelines Document and Traffic Circulation Study, the actual road network build out and capital construction projects can be initiated.

Scope of Work

- Prioritize Infrastructure Development Projects for Implementation
- Assign the teams that should work in each project
- Design the projects that were chosen as a priority
- Start implementation of an initial project
- Review initial project, learn from the experience and make each succeeding project more successful than the one before

Road Network Improvements

We recommend special attention to the road network in Agonda, where the main focus is on primary roads and highways. Minor changes as lighting, permeable pavement and space for pedestrians in secondary roads can be made easily and make a substantial improvement in the life of the community. A study about road circulation pattern can help to start improving roads, because it might be unnecessary to have double sided circulation for every road, instead roads can be redesigned to work for one direction leaving space for sidewalks and other pedestrian amenities. This will also give more space to the streets for proper urban furniture or small things like trashcans. This can easily result in big changes: less trash in the streets that ends up polluting the water, etc. Remember to keep in mind that more, bigger roads results in more vehicles and traffic – not less, and this should be a consideration when deciding to widen roads for more traffic.

Design Guidelines

Street Lighting

Street lighting was identified as an important factor during the workshop. We recommend that the panchayat hire technical advisers to conduct a study to design a comfortable lighted environment for the community without disturbing the natural ecosystems, using the minimum amount of light. The idea would be to reduce the sky glow, improving nighttime visibility. We recommend that the beach area be conserved as it is, without light. In the case of the streets, LEED recommends a value not greater than 0.01 horizontal and vertical foot-candles, it also recommends that no light should be emitted at an angle of 90 degrees or higher from nadir . It is important to take into consideration that if these recommendations are applied without studying the right amount and type of light emitted, it can affect the natural conditions of the fauna that inhabit Agonda, including the turtles.

Consider Community Parking Needs

According to participants attending the workshops, parking is a serious issue affecting the citizens of Agonda. Before designating a site(s) for parking, an environmental impact assessment should be performed, along with studies concerning traffic volumes, patterns and circulation. A parking site could also be designed along with a beach access that is also a matter that needs attention. However, it is not recommendable to place a parking lot very close to the beach because of the impact on the turtle habitats, the cleanliness of the beach, erosion, noise, informal commerce and the overall quality of life.

Perhaps a site east of the main commercial road of Agonda (the road where St. Anne's is located) could serve as parking, since it is within walking distance to the beach and commercial areas in Agonda. The site should also be adjacent to an existing road. Permeable surfaces can be used to prevent flooding, but special attention should be made to avoid groundwater sources from being polluted by chemicals leaking from vehicles. In any case, a parking site would require a buffer or barrier to avoid circulation issues with pedestrians and cars. It should be noted that storm water flow might be affected by building impervious surfaces such as roads and parking lots.

Regulate Street Signage

Regulation of signage is also critical to preserve character and avoid unorganized and unpleasant visual clutter in Agonda. Regulations of signage design when enforced will prevent streets from being filled with lights and signs that are unattractive. Originality can be encouraged, while maintaining uniformity in terms of character (size, brightness, etc) to maintain a harmonious streetscape.

Regulate Beach Access

Access to the beach should be available to all, not just hoteliers and tourists staying in beach-front properties. A visible, properly sized beach access could be located within walking distance from the parking site. Beyond a simple passageway, it could become an economic focal point for tourism and other industries, like fishing, or just an attractive landmark that connects the beach with the main tourist thoroughfare.

Traffic Circulation Study

It is recommended that special attention be given to the road network in Agonda, which was not specifically tackled in the RPG 2021, where the main focus is on primary roads and highways. Minor changes to secondary roads such as lights, permeable pavement and space for pedestrians can be developed easily and will make a substantial improvement for the community.

In order to achieve this, a study of the traffic circulation pattern of Agonda should be undertaken with a particular emphasis on identifying possible road changes to create one direction roads for vehicles in order to give space for sidewalks, turning them to pedestrian oriented roads.

Scope of Work Should Include:

- Traffic Volumes During Peak Hours
- Modal Split (including vehicular classification)
- Traffic Generators
- Parking Needs Assessment
- Public Transportation Access
- Pedestrian- Vehicular Conflicts and Accident Data
- Current Traffic Regulations
- Hierarchy of Road Networks
- Demarcation of Public Right-of-Way (ROW), which may include carriageway, sidewalks and street infrastructure

Design Guidelines

Erosion Prevention Plan

Erosion is another threat posed by storm water. Areas where there is a lack of natural ground cover are more prone to being eroded, and can eventually cause runoff carrying sediments and garbage reaching undesired locations. An Erosion Prevention Control Plan should be implemented for all new developments and renovation projects.

Plan for Emergencies

Planning for emergencies is an efficient way to respond in case of an urgent situation, such as storm surge, flooding, and even rising sea levels due to climate change. An evacuation plan to higher ground, for instance, could address this issue, as well as a clear route to hospitals/possible shelters or medical facilities.

Drainage Area Analysis

Storm water management projects require that explorations be made before new developments take place, such as hydrology, topography, historic floods, and drainage patterns, among others. Sites should be accordingly selected in order to avoid pollutants from reaching water bodies. Stagnant water should be avoided, so as to prevent mosquito breeding.

In Agonda, special consideration should be made for storm water management because of the wealth of water bodies, such as the Arabian Sea, creeks, estuaries and paddy fields. As far as farmland is concerned, pesticides and fertilizers should be carefully used/selected in order to avoid pollution in storm water runoff. An interest was shown to preserve and enhance farmland, yet expert advice should be sought to avoid pollution from chemicals used to grow faster, bigger crops. A Drainage and Watershed Plan could help in managing infrastructure and regulating new developments.

The numerous creeks in Agonda serve as natural storm water management infrastructure. Any intervention that affects the creeks or the natural flow of water towards/from the creeks should be carefully studied. Agonda's mangroves are also of great value, and need to be protected from polluted runoff.

Additional Data Collection & Studies

Many of the workshop recommendations and goals, will require additional information gathering before implementation. We have listed some recommended studies and data collection, which will facilitate development of an effective community plan, and increasing the chances of successful implementation.

Community Based Environmental Programs

- Ongoing Monitoring, Data Collection & Surveys Programs
- Web-based Geographic Information Systems (GIS) Maps and Data Accessible for Public
- Community Environmental Center and Watch Person Program
- Ongoing Training, Education and Awareness Programs
- Signage and Communication Programs
- Explore Funding for Programs and Ongoing Liaison

Additional Data Collection (including Land Surveys and Mapping)

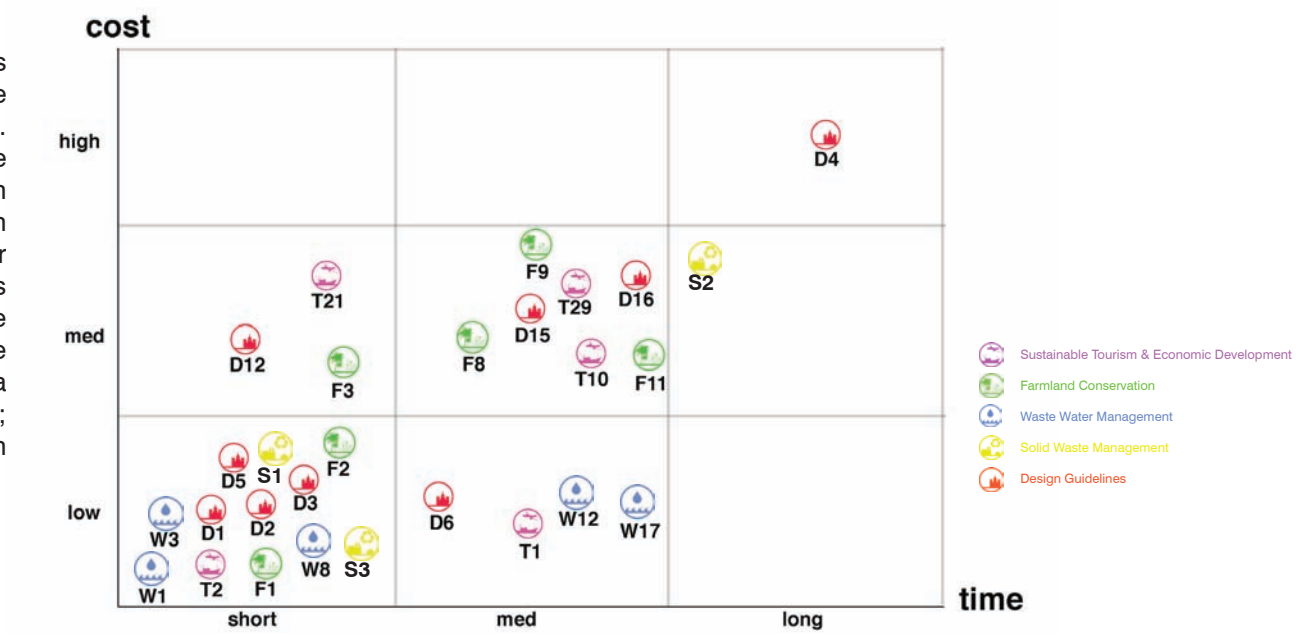
- Land Survey showing Street Public Right-of-Way, Carriageway, and Private Property Boundary
- Utilities, Lampposts, Drainage, Sewage, Telecommunication
- Ground Floor Land Use for Property: Residential, Retail, Office, Industrial, Institutional, Farmland, Forests, Other
- High Tide Water-line, Water's Edge Treatment (Bulk Head, Rip-Rap, Erosion, Sea Wall, Other)
- Wetlands Delineation
- Natural Forests and Mangroves Boundaries and Indicating Required Protected Buffer Areas
- Demographic Survey
- Health Survey and Assessment of Medical Needs
- Housing Inventory and Condition, Ownership, Occupancy Status

Recommended Planning Studies

- Growth Projections and Infrastructure Capacity Analysis
- Traffic Circulation Study, Scope of Work must include: Traffic Volumes during Peak Hours, Modal Split, Traffic Generators, Parking Needs Assessment, Public Transportation and Access, Pedestrian-Vehicular Accident Data, Current Traffic Regulations (Hierarchy of Road Section 8.37 – look at the ROW vs. Carriageway)
- Watershed Management / Drainage Study/ Plan
- Community Tourism Assessment
- Environmental Impact Assessment of Proposed Recommendations & Alternatives for a Plan
- Assessing Future Housing Needs including for Migrant Workers
- Emergency Preparedness Assessment

Recommendation Tables & Implementation Matrix

The matrix contains recommendations selected by the Pratt team from each one of the previously discussed focus groups. Selected recommendations from the recommendation table are highlighted in pink and represented on the Implementation Matrix by an icon along with a unique identifier value. Each identifier value corresponds with a specific recommendation from the Recommendation charts found on the preceding pages. The matrix provides a rough estimate of the amount of investment; measured by cost and time, that each recommendation requires.



Tourism and Economic Development

Focus	#	Task	Timescale	Cost	Environ Impact	Partners/Resources
T	1	Panchayat obtain regulation, enforcement, and permitting power from State	med	low	high	Panchayat, State Tourism & Planning, Non-Profits, Businesses
T	2	Create a local and official tourism policy and enforcement organization	short	low	low	Panchayat, Community, Businesses, State Tourism, Non-Profits
T	3	create rules and enforce them in regards to development, tourists, and the environment	short	low	low	Panchayat, Community, Businesses
T	4	Develop community and regional policies to guide tourism and related development	med	low	med	Panchayat, Community, Businesses, Non-Profits
T	5	Regulate & Enforce business operating hours	short	low	low	Panchayat, Community, Businesses
T	6	Regulate & Enforce use of sound systems	short	low	low	Panchayat, Community, Businesses
T	7	Regulate & Enforce use of business garbage bins	short	med	med	Panchayat, Businesses, Non-Profits & Local Art Groups
T	8	Develop system of public garbage bins	short	med	med	Panchayat, Businesses, Non-Profits & Local Art Groups
T	9	Regulate & Enforce private and visitor parking - business responsible	short	low	med	Panchayat, Businesses
T	10	Develop, Regulate & Enforce new hospitality permit system - mandatory greening	med	med	med	Panchayat, Businesses
T	11	Train and employee 'rangers' and 'interpreters' for natural and cultural protection and education	med	med	low	Panchayat, Businesses, Community, Non-Profits, Youth Internships
T	12	Develop a system of land banking to preserve public access and enjoyment of public spaces (picnic and beach)	med	med	med	Panchayat, Community, Non-Profits, Financial Institutions
T	13	Develop a municipal wireless internet system	med	low	low	Panchayat, Businesses, Internet Service Provider
T	14	Limit access to Butterfly Beach	short	low	low	Panchayat, Fisherfolk, Non-Profits
T	15	Turtle protection and monitoring program - include visitor volunteers	short	med	med	Panchayat, Non-Profit, Environmental Organization
T	16	Create a formal taxi stand	short	med	med	Panchayat, Businesses, Taxi Owners
T	17	Develop a local market which sells local products to visitors and can export to other communities	med	med	med	Panchayat, Businesses, Regional & State Econ Dev Organization
T	18	Regulate and enforce rental housing	short	low	low	Panchayat, Community, Non-Profits
T	19	Develop a garbage curbside pickup or drop-off system	med	med	high	Panchayat
T	20	Mandatory guides for tourists excursions	med	med	med	Panchayat, Non-Profits, Businesses
T	21	Create cultural sensitivity pamphlets for tourists to be handed out at hospitality venues	short	med	low	Panchayat, Businesses, Non-Profits
T	22	Ensure public beach access	med	med	med	Panchayat
T	23	Explore hinterland tourism	med	low	high	Panchayat, Community
T	24	Niche marketing for eco-tourism and yoga/meditation-tourism	short	med	low	Panchayat, Businesses, State Tourism
T	25	Develop cultural exchange programs	med	med	low	Panchayat, Community, Businesses, State Tourism
T	26	Shift and enforce ownership of businesses and services to be controlled by residents - financial access	med	med	low	Panchayat, Community, Businesses, Financial Institutions, Non-Profits
T	27	Regulate stray cattle, especially on beaches	short	low	high	Panchayat, Community, Fallow-land Owners
T	28	Improve roads and parking along beachfront	long	high	high	Panchayat, Community, Businesses
T	29	Develop incentives for Keep Agonda Clean - environ volunteer program & clean up	med	med	low	Panchayat, Community, Businesses, Regional/State Volunteer Programs
T	30	Teach subjects in local schools about tourism and environment and local business training of negative impacts	long	low	low	Panchayat, Community, School System, Non-Profits, Internship Programs
T	31	Upgrade municipal and taxi vehicles to an all electric fleet	long	high	med	Panchayat, Taxi Owners, Non-Profits, State/Federal Environmental Programs
T	32	Demarcate, regulate and enforce traditional fishing zones in water and on-shore	med	low	med	Panchayat, Businesses, State, Fisherfolk
T	33	Enforcement of beach shack regulations - shift enforcement to local level	med	low	high	Panchayat, Businesses, State Tourism

Farmland Conservation

Focus	#	Task	Timescale	Cost	Environ Impact	Partners/Resources
F	1	Create a Farmers' Club	short	low	low	Panchayat, Community, neighoring clubs
F	2	Introduce organic farming to local farmers	short	low	med	Panchayat, Community, TERI, neighboring clubs
F	3	Organic compost pilot project	short	med	med	Panchayat, Community, Non-Profits, Technical Advisors
F	4	Determine and utilize available Government schemes	med	low	low	Panchayat, Community, Non-Profits, Government
F	5	Investigate coconut mite control options	short	low	low	Panchayat, Community, Non-Profits, Technical Advisors
F	6	Identify prime farmland and ownership	short	low	low	Panchayat, Community, Non-Profits, Technical Advisors
F	7	Record and publish yearly crop yields	med	med	low	Panchayat, Community, Non-Profits
F	8	Begin rainwater harvesting for irrigation	med	med	high	Panchayat, Community, Non-Profits, Technical Advisors
F	9	Grey Water reuse for irrigation	med	med	high	Panchayat, Community, Non-Profits, Technical Advisors
F	10	Determine if mechanization is desireable for Agondans	med	low	low	Panchayat, Community, Non-Profits, Technical Advisors
F	11	Create value added products/food processing	med	med	low	Panchayat, Community, Non-Profits, Financial Institution

Wastewater Management

Focus	#	Task	Timescale	Cost	Environ Impact	Partners/Resources
W	1	Create a Water Management Committee	short	low	low	Panchayat, Community
W	2	Educate Water Management Committee on Ecological Sanitation	short	med	low	Panchayat, Community, Non-Profits, Local College
W	3	Apply for Funding for long term projects	short	low	low	Panchayat, Community, Non-Profits, Financial Institution
W	4	Site Analysis for Water Management	med	low	med	Panchayat, Community, Non-Profits, Local College
W	5	Study Hydrology in Agonda and environs	med	med	med	Panchayat, Community, Non-Profits, Local College
W	6	Designate buffer areas to be protected watershed areas	short	med	high	Panchayat, Community, Non-Profits, Local College
W	7	Coordinate storm water management into rainwater harvesting program.	short	low	high	Panchayat, Community, Non-Profits
W	8	Begin Rainwater Harvesting	short	low	high	Panchayat, Community, Non-Profits
W	9	Transition away from septic tanks to other ecological sanitations	short	med	high	Panchayat, Community,
W	10	Give Demonstration of ecological sanitation and technologies	med	low	low	Panchayat, Community, Non-Profits
W	11	Run education programs for the community on Ecological Sanitation	med	med	med	Panchayat, Community, Non-Profits
W	12	Develop human waste composting program	med	low	high	Panchayat, Community,
W	13	Encourage Ecological Sanitation technologies for EcoTourism niche	med	low	med	Panchayat, Community, Non-Profits
W	14	Encourage and Implement grey water use for businesses	med	low	low	Panchayat, Community,
W	15	Combine all solid waste composting with human waste composting.	med	med	high	Panchayat, Community,
W	16	Implement centralized human compost pick up/ drop off program	med	med	med	Panchayat, Community,
W	17	Cooperate with Farmers club for use of municipal compost	med	low	high	Panchayat, Community,
W	18	Develop Gobar Gas Plants	long	high	high	Panchayat, Community, Non-Profits

DESIGN GUIDELINES

Focus	#	Task	Timescale	Cost	Environ Impact	Partners/Resources
D	1	Create a Design Guidelines Document	short	low	high	GCA, technical advisers and core planning committee
D	2	Develop a traffic circulation pattern study	short	low	high	Technical advisers and core planning committee
D	3	Develop a street lighting study	short	low	med	Technical advisers and core planning committee
D	4	Implement road network and street typology plans	long	high	high	Core planning committee and Panchayat
D	5	Develop a Drainage and Watershed Management Plan	short	low	high	Panchayat, Core Committee, Technical Advisors
D	6	Integrate storm water management practices into a design guidelines document and building codes	med	low	high	Panchayat, Core Committee, Technical Advisors, Goa College of Architecture
D	7	Integrate storm water management practices into a waste management plan	med	low	high	Panchayat, Core Committee, Technical Advisors
D	8	Avoid pollution and promote effective solid waste management	short	med	high	Panchayat, Core Committee, Technical Advisors
D	9	Avoid sewage and solid waste to be carried in storm water runoff	med	med	high	Panchayat, Core Committee, Technical Advisors
D	10	Regulate new developments and consider the impact they may have on the environment	med	low	high	Panchayat, Core Committee, Technical Advisors, Goa College of Architecture
D	11	Perform necessary studies (topography, drainage patterns, hydrology, etc.) to implement storm water management practices	med	high	high	Panchayat, Core Committee, Technical Advisors
D	12	Preserve turtle nesting habitat	short	med	high	Panchayat, Core Committee, Technical Advisors
D	13	Protect mangroves from becoming polluted	short	med	high	Panchayat, Core Committee, Technical Advisors
D	14	Stagnant water to be avoided to prevent mosquitoes from breeding	short	low	high	Panchayat, Core Committee, Technical Advisors
D	15	Prevent groundwater pollution	med	med	high	Panchayat, Core Committee, Technical Advisors
D	16	Consider the impact of storm water runoff in industrial and agricultural uses, and how it affects the environment	med	med	high	Panchayat, Core Committee, Technical Advisors
D	17	Prevent erosion by implementing storm water management infrstructure, such as swales	long	high	med	Panchayat, Core Committee, Technical Advisors, Goa College of Architecture
D	18	Preserve existing creeks and other forms of natural storm water infrastructure	short	med	high	Panchayat, Core Committee, Technical Advisors
D	19	Consider traffic circulation patterns, road networks and street typologies for parking and beach access projects	long	med	med	Panchayat, Core Committee, Technical Advisors
D	20	Include buffer zones near parking sites	med	med	high	Panchayat, Core Committee, Technical Advisors, Goa College of Architecture
D	21	Consider environmental, social and cultural impact of new infrastructure	short	low	high	Panchayat, Core Committee, Technical Advisors
D	22	Regulate signage by integrating rules into design guidelines	short	low	low	Panchayat, Core Committee, Technical Advisors, Goa College of Architecture
D	23	Plan for emergencies	long	high	med	Panchayat, Core Committee, Technical Advisors

SOLID WASTE MANAGEMENT

		Task	Timescale	Cost	Environment	Partners/Resources
S	1	Education and Awareness	short	low	high	GCA, technical advisers and core planning committee
S	2	Plan and Invest in Solid Waste Infrastructure	Medium	low	high	Technical advisers and core planning committee
S	3	Consider Effects of Actions on Other Sectors	short	low	med	Technical advisers and core planning committee