

Study of the conflict of multi usage of costal recourse in coastal Zone

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Introduction.

In this section it will give a brief description about

1. What is the coast?
2. Why it is important to society.
3. Coastal issues that are related with coast.
4. What is a Coastal zone management plane?

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What is a coast?

Coast is a dynamic system. Within a long time period eco scientists try to give a exact definition for the term – coast. But still this effort is not much success because there is not a globally accepted definition for coast. According to various purposes there are few definitions on coast.

Definition 1 - The coast is the interface or transitional zone between the two environmental domains, the land & the sea.

Definition 2 – The coast is a physically dynamic edge between the land and the sea. It is comprised of various types of physiographic forms. (Dunes, beaches, Wetlands etc...) A wide range of ecosystems which are habitats for various types of flora and fauna. Coastal environments are natural and manmade physical conditions that are either specific to the coastal zone or coastal location.

However the coast is an area between the land and the sea with a harsh environment conditions such as saline water, intensive sunlight, less usable water, high temperature etc...The special feature of the coast is that the species richness of that area, that is mostly restricted to the coastal zone. Flora and fauna of this zone are much adapted to live under these detrimental conditions. i.e. *Pandanus* sp. , *Ipomoea* sp. (like flora and other so many fauna).

Coast is important for human because it is comprises with lot of resources that can be utilized by human for their well being. These resources are:

- 1.consumptive
- 2.non consumptive

Coastal resource is usually defined as a natural, often renewable commodity. The existence of which depends on the coast or the commodities value to social, is perceivably enhanced by its location within the coastal zone. As this definition one country will have different types of resources than in another country. Also the level of resource utilization also may be varying from place to place, region to

region or country to country. These coastal resources can be classified in to 8 broad categories that are overlapping each other. Natural, Marine, Coastal, Productive, Manmade, Historical & prehistorically, Recreational & scenic, Education & scientific resources.

In Sri Lanka this coastal zone is a much validated factor because Sri Lanka is an island. So we can see coast all around the country. Statistically it is considered that the total coastal belt around Sri Lanka is approximately 1650 km long. This coastal belt is differing from place to place in environmental and social factors. Sri Lanka coastal belt comprises various types of resources in varying degrees.

Northern coast of Sri Lanka is much wider than any other part of Sri Lanka that is composed of Miocene limestone layer. West coast is much narrower but much populated than in any other part in Sri Lanka. Southern And Eastern coasts are much preferred by local and foreign visitors because of the tremendous visual beauty of these coasts. Arugam bay, Nilaweli beach, Hikkaduwa coral reefs, Polhena beach, Rumassala are some of the evidences for the significant of this beauty.

As it is mentioned above coast is differ from place to place within a single location. That is why it can be mentioned that coast is dynamic. However this coastal belt is a much valuable for human in various ways. Also people access the coast for various purposes and the magnitude of this access is varying place to place according to the relative important of the beach and preference of people for that beach.

Important of the coast for the society.

Talking about the important of the coast is an expanded topic. Because people access the beach in a different manner. So I think talk about the important in the angle of Sri Lanka it is much valuable.

In ancient time (Rulers age) coast was much away from the human implication. Because human population was much concentrated in country side of Sri Lanka. People who associated with coast were considered as low cast people who catch fish to eat. Ancient people who lived in coastal area were named as “muhudu weddo” that was identified by Seligman a British Officer in Sri Lanka in British colonial period.

But latter, in the colonial period that condition was totally altered. People was much prefer to access the coast. Low cast people was much treated by colonial governments and they were concentrated in coastal zone. Fishing was upgraded as a good occupation at that time. So at the post colonization time the human density of coastal area was much higher than the earlier time. People understood the important of coastal belt and the sea as a livelihood for them self. Then coast was begun to urbanize and now there are about nearly 40% of Sri Lankan population was concentrated in coastal zone. So now there are various types of human-coastal environment interactions that making the coast pollute and endangered.

Important of the coastal zone

1. For fishery harbor construction.
2. For tourism industry.
3. Coastal resources extraction (Mineral sands, coral etc...)
4. Enhance the scenic beauty of the country.
5. For aquaculture purposes.
6. For mariculture.
7. As a field of scientifically studies.(Turtle nesting & turtle nesting studies.)
8. Artisanal fishing activities.
9. For recreational activities.

As I mentioned early now coast is much differ from the early condition. Due to the less suitable methods of utilizing coastal resources coast is now not in a good condition. It was polluted by man.

In a beach there are so many activities that are maintained by human. Most of them are significant by making an effect (specially a bad effect) to the coastal ecosystem.

The intensity of these activities by human was increased in past few decades in a great speed. So in present days the status of quality of coast is decreasing dramatically. These activities of human are now being the issues of coastal zone with the time. (An issue can be defined as a long term, identifiable activity in a particular area.)

These issues were identified within past few decades by experts. They identified that those issue are causing the well being of the coast or for the destruction of the beach. According to the socio-economists these issues can be categorized in to 4 broad categories.

1. Social issues.
2. Cultural issues.
3. Environmental issues.
4. Economical issues.

In another way these coastal issues are usually described in 4 ways as,

1. User issues.
2. As a result of use.
3. As a conflicts over coastal resources allocation.
4. As a failure of public management.

There are so many activities can identify in a coastal zone and all can be categorized in to these categories. Below are some of well defined coastal issues.

Coastal issues that are related with coast.

1. Tourism
2. Fishing activities.
3. Turtle Hatchery maintaining.
4. Recreational activities.
5. Beach nourishments.
6. Dumping in coastal belt.
7. Environmental protection activities.
8. Coral mining.
9. Sand mining.
10. Construction processes. (Anchorages, Break waters, Hotels, Buildings)

These most activities are harmful to the coastal zone. But some of these activities are making health of coast good. So, environmentalists, legal sector, other relevant corporate bodies were planned together to protect the coast from these hazards. The final result of that effort is the “Coastal zone management plane”. This plan was able to mitigate the coastal threatens successfully in past few decades in countries worldwide. Its final goal is that utilize the coastal resources in a sustainable method while it use for the maximum economical development of the country. Any government program established for the purpose of utilizing or conserving a coastal resource or environment. Most coastal management programs are intended to both prevent adverse impacts on coastal resources and to allocate coastal uses in ways regarded as mostly like to promote national development objectives. There are so many international examples for the usage of Coastal zone management plane to mitigate coastal issues. Also locally there are so many good examples in Sri Lanka.

i.e. Rekawa lagoon management process, Negombo lagoon management activities. By implementing coastal zone management plan in those areas Sri Lanka able to solve so many coastal issues in those areas.

What is a Coastal zone management plan (CZM)?

Coastal zone management plan is not well defined in the professional literature. But practically it can be expressed as “Integrated management of two or more coastal sectors within a defined region or zone.” CZM is concerned with resolving conflicts among many uses and determining the most appropriate use of coastal resources. Further there is another term that is referred as Integrated Coastal Zone Management Plane (ICZM). It is an alternative to the term of CZM. However any of these planes are focusing for the management the coastal issues by taking highly participatory activities of two or more sectors in sustainable utilization of resources and for the planning & development. ICZM is an analytical process which advises governments on priorities, trades off, problems & solutions. A dynamic & continuous process that is responsible to development & protection of coastal zone. Also it is power enough to move towards an age by breaking traditional approaches. It can manage the coastal zone as whole as using an ecosystem approach where possible. ICZM is a geographically specified process. So this ICZM is considered as more suitable option in solving coastal issues, maximum sustainable utilization of coastal resources & to find a path to use those resources to national economical development.

Identify the coastal issues in a selected site of down south Sri Lanka.

Study area - Athuruwella, Induruwa.

Local boundaries -

1. Province- Southern province.
2. District - Galle.
3. Secretarial division – Benthara.
4. Electoral division – Benthara, Elpitiya.
5. GS division- Athuruwella.

Geographical significance of the site.

This study site is located near to the Colombo- Wellawaya A₂ highway. There are some bench marks in this area that anyone can be easily identify this site area.

1. Railway crossing & A₂ main road is crossing at Warahena is at the north near to the site.
2. Old Iron Bridge that was constructed by British colonial governors as a bypass for railway tract was at the west side of the site.
3. “Sea turtle conservation Research Project” a well famous turtle hatchery is adjacent to the site.
4. A popular beach hotel in tourism sector “ Saman Villa” is at the downside margin of the site.
5. A one tribute of “Benthota River” is connected with sea down margin of the area.

These features are very much helped to locate the site.

Climate.

Area is belonged to the down Country Wet climate zone. (Average rainfall - >2500 mm). Rain is often common in this area. Average temperature is about 27- 30 °C. Floral community in this area is showing wet zone floral characteristics. Sunshine is bright in clear sky day.

Coastal conditions.

Ocean is deep adjacent to the beach. Beach is comprised of fine sand. A famous rock “Yaka Gala” is situated in this beach. Beach is containing various types of coastal flora such as *Pandanus* sp. *Ipomoea prescaprae*, *Mangifera* sp, etc... A fringing reef is located nearly 100 m away from the beach under about 15m of surface sea.

Local area community description.

Area is much noisy because of the intensive transportation in A₂ highway & railway. Also area is much disturbed by these human activities. People in that area are doing fishing, toddy industry, and tourism & government occupations as the major livelihoods. Average education limit is moderate in this area. People with lack of education (fisherman, tourist guides) and well studied persons are localized in this area. A national hero Mr. Piyadasa Sirisena also born in Athuruwella.

Cultural significance.

There is not a significance of culture in this area. But now this area is developing under the influence of tourism. Now in this area there are 2 major international tourists' accommodations. Saman Villa & Ayurweda Resort. Rather than that there are few minor scale tourists spa. Young's that are not well educated are

getting a chance to work as a guide by making a stringing hippie culture in this area.

Identified Coastal issues in the studied area.

There are 7 major coastal issues that were identified in this area in a major scale.

1. Tourism.
2. Fishing activities.
3. Cultural.
4. Pollution.
5. Development.
6. Administration.
7. Sea turtle nesting.

Tourism

Athuruwella area is a hotspot in tourism industry in down south Sri Lanka. Annually there is thousands of tourists (local & foreign) visit Athuruwella area for admiring its scenic beauty. There is a 3star tourist hotel (Saman Villa) that facilitates the tourists who visit the area and an Ayurvedic resort that gives herbal treatments for tourists. In addition to that hotels there are few other small resorts that facilitate the visitors. So there is huge contest between these hotels to attract tourists. But unfortunately the Saman Villa or Ayurvedic resort win this contest eventually, because of their history. But newly formed small resorts are most of time lack of tourists because they are not well preferred by visitors. So

every time the race is between small scale resorts. So there are some social conflicts that are aroused by this contest.

1. There were several quarrellings among those resort owners, workers of these resorts
2. One person was dead due to this fighting.
3. An underworld connection was merged in this area to take the armed support to fight each other.
4. Illegal drug users were much abundant in this area on an early time that was connected with underworld carders.
5. Abuses increased in this area as a side effect of tourism that is directly supported by resort owners as an easy way to attract tourists to their resorts. (Child sex workers and prostitutes were much in this area, & the condition was much controlled now)
6. A cultural wash back was occurred as an indirect effect of the tourism industry.
7. The percentage of early school leavers & unemployed were increased in a fast rate.
8. A development of ultra structural facilities was developed in this area due to the development of tourism industry.
9. Economical states of community are increased in a moderate rate.

Those are the easily detectable issues that were identified in the Athuruwella area. Most of them were adverse to the community & few were healthy to it. Whether there is a development in the tourism industry some are expressing their ideas as this tourism industry is not still well developed & can be developed. Mr.Kithsiri Kannangara shared his ideas like that.

“These hotels are exploiting visitors’ money. Saman Villa Hotel prized its luxury room to 85000 Rs with a full package. But in other hotels with same level that prize is half of that amount. So foreigners with moderate economical level do not come these hotels. It is not good for the future of this area, because area is depending on the tourism mostly.”

So in authors’ point of view the tourism industry is still want more government intervention than early.

Hippie Culture.

This is also a major crisis in this area that is resulted indirectly by tourism. Some of tourists (especially young German & French visitors) are used to use Cannabis as a drug for their fun. So these tourists (Female & male) are closely friendly with local drug users and dealers. Local dealers can sell their products in high prize, so they are much like to join with foreign drug users. This is caused to increase the cannabis users in the area. It causes to several social crises.

1. Social destructive activities of young’s. i.e. Pouches, Quarrellings
2. Illegal sexual interactions between foreign drug users. i.e Homosexuality and Intercourse. This course to increase the number of V.D affected person in the area. (H.I.V , Gonoria).
3. Cultural destruction by local drug users.
4. Popularization of dangers drugs than cannabis like Heroin, Ashes causing serious social destructive activities such as murders, sexual abuses.

So, it can be concluded that these hippie culture is becoming a threaten to the area. But still there are lack of actions to prevent it that have to be taken from relevant authorities. A village fisherman Mr. Sooriyadasa Said that “ This problem will never end up because it was arisen from the society by itself. To stop

this problem there must be a proper government intervention to stop the arrival of this like of foreign visitors to Sri Lanka.” As he said there must be a serious government intervention to stop these illegal social activities.

Fishery industry.

Athuruwella area is popular as a fishing ground within a long time period ago. There are few well known beach spots that always use for the beach seines. At the season (Usually in November January time) Sprats are caught in this area by beach seines. For this fishing methods they use large mesh sized nets & traditional fishing gears that are called as “Wellam”.

Fringing reef that is located about 100m away from the beach under about 10m from the surface is a benchmark of this area fishing. Bottom nets, Trammel nets are widely used in this area for catching fish. But most of traditional fishermen who are localized in this area are not prefer this fishing methods because they think those fishing methods are not well fit with the fish species that live in this area. Also they highly accept the important of this Athuruwella beach as a turtle nesting area. So they know that if there are trammel nets that lay by crossing the turtles access ways to beach it is a mortal damage for the wellbeing of turtles. So fishermen in this area are avoided by using these fishing methods in Athuruwella area.

But unfortunately fishermen that access the Athuruwella Sea are used to use trammel nets & bottom nets for catching fish such as *Caranx* spp, Tuna species, Groupers, Squids etc... Migrated fisherman especially from Beruwala area not think about the threat of using these nets for the turtles. Mr. Saparamadu a traditional beach seine owner expressed his ideas with the writer as “there are nearly about 10 turtles are being caught by these trammel nets while they are swimming towards the beach to lay their eggs. Some may be released to sea again by kindhearted fisherman but most will end up their lives from the stomach of

fishermen.” He is a strong protester against these illegal fishing methods. Again he expressed his ideas as “whether we are protesting against these fishing methods we are not power enough to prevent this destructive fishing methods totally. Outer fishermen have high power engine boats and a political support that can enter this area without any approval. This illegal fishing methods are very much threaten for the sustainability of catchable fish community in this area.”

Also rather than marine fishery there is a brackish water fishery in this area by using traditional canoes. Mr. Aamel a lagoon fisherman in this lagoon area which a tribute of Benthota river meets the sea said that he catch normally Koraliya (*Etroplus* spp & *Scatopagus* spp) in a major scale. He said that now the total fish catch was much lower than early. He expressed his view as this is caused by the pollution impacts in the area. This lagoon fishery is artisanal livelihood in this area, not as marine fishery.

Also this area famous for the mussel harvestings. Fishermen scrape these attached mussels from the rocks in the sub littoral zone of sea. Especially “Yakagala” is well famous for the mussel growth. People swim to the rock & scrape these mussels & sell them in high price to hotels, public. Early this was unlimited and it caused for the server degradation of mussel population in Athuruwella area. So Fisheries Ministry drafted a law that if a person who is willing to scrape mussels must have a License that is released by Fishery Department. It was caused for the regulation of uncontrolled muscle scrapping in Athuruwella area.

Pollution

Pollution in this area can be categorized as below.

1. Coastal dumping
2. Enviorenmental pollution.

Coastal pollution was mainly done by beach visitors & hotels. Degradable & non degradable materials are added to the beach every day by people & hotels associated with coast. Plastic bottles, Rigidiformes, Fishing nets residuals; Chemicals are abundant in the coast. Mr. Kithsiri of Turtle Conservation Research project said that all the chemically treated water in the swimming pools in Saman Villa are directly released to the sea by making deleterious impacts to the associated marine life. Environmental pollution is occurred mainly by vehicles that passes on A₂ main road & train on railway crossing. But this pollution is not significant in the area.

Sea turtle nesting.

Historically Athuruwella is considered as a mile stone in turtle landings in Sri Lanka. IUCN said that all the recorded 5 turtle species in Sri Lanka are prefer the Athuruwella beach for their egg laying purpose. One of the significance in this area is the Sea Turtle Conservation Research Project that is owned by Mr. Kithsiri Kannangara a pioneer of the turtle hatching in Sri Lanka who has a history of 20 years of turtle hatching. Turtles that reach Athuruwella beach are protected by the volunteers that are working in the hatchery day & night. Eggs are taken to the hatchery to hatch eggs protectively and release juvenile turtles to sea successfully. (Ex-situ turtle hatching). There are about 10 landing places in within the studied area. But there are so many poachers that every time try to poach turtle eggs to sell them to tourist hotels because they are a delicacy in hotels. “But turtle killings are not recorded well in this area.” Mr. Kannangara said. “Most of turtle killings recorded are done by outside fishermen.” In 2004 Tsunami devastation this turtle hatchery was destroyed totally with few turtle that refuged in hatchery. But with the endless love for the turtles Mr. Kannangara rebuilt this hatchery to present level. Everyday there are about 150 local & foreign vtourists visit the hatchery to inform about turtles. This hatchery became a information center that distribute knowledge to community.

Development.

This area is developing in a considerable speed. With help of foreign money that are reached through tourism are widely used to develop this area. In 2004 this area was affected by Tsunami waves. But now it is regaining. But the problem is that development is not sustainable. So many illegal constructions can be seen. It is harmful to the environment at all. Ultra structural facilities are increasing in this area well. Also for this development, administrative processes also required.

Suggested solutions for these coastal issues.

In an overall view, An Integrated Coastal Zone Management plan can be implemented as the most fitted solution for these coastal issues. ICZM is an analytical process which advises governments on priorities, trades off, problems & solutions. It can collaborate, coastal sectors to a single goal that is focused on the sustainable utilization of coastal resources while reaching a maximum economical development in Sri Lanka. So this author suggest that a implement a ICZM plane to have a solution for the coastal issues that are existed in the Athuruwella area.

Solutions for conflict over the Small scale hotels to attract visitors.

A major local administrative body that is responsible to the all activities of large & small scale hotel can be established. In the ICZM process the highly participatory process is valued much. So all the stakeholders of the area can meet together to discuss about the problems in their field. There will a

government body i.e. Sri Lanka Tourist Board, Bentota Secretarial Division, Provincial council etc.. They can appoint a quota system to allocate rooms for visitors as a solution for unbalanced distribution visitors within the hotels. At the beginning there may be a huge protest against this method by the Saman Villa owner. But through a discussion forum it can be reduced up to a certain level. High class, middle class visitors will enter the Saman Villa & low economic level visitors can accommodate in other small scale hotels as guided by Saman Villa. Also the small scale hotels must be upgraded to a suitable level. All of these processes must be discussed together under the government intervention, otherwise the start of such this process may be a tragedy.

Solutions for cultural destruction of the area.

As it observe Cannabis users are most harmful to the culture of the area. So to stop these illegal drug usage

1. Police can launch raids to arrest drug users & dealers & foreigners that use illegal drugs.
2. With aid of public Narcotic department can launch raids to block ways which drugs come inside the Athuruwella area.
3. All the government sectors must collaborate well in these process.
4. A corporate body can be formed to collaborate government sectors (Police, Narcotic department) & volunteers that like to eliminate this matter from the Athuruwella area.
5. Awareness programs can be launched to inform the bad effects of drug using.
6. Ask for the intervention of Drug users rehabilitation campaigns to rehabilitate the drug users.
7. Hoteliers can prepare attractive programs (cultural nights, beach parties) to attract visitors to their hotels rather than attract visitors with purpose of drug use.

8. Emigration department can reject the visa applications of the person with charges of illegal drug using.
9. Awareness programs can launch to inform foreigners to avoid them from cannabis using. Also foreigners must be informed about the existing laws & regulations in Sri Lanka against the foreign or local drug users.

Solutions for the turtle nesting constrains.

In Athuruwella area there are about 10 landing sites along the beach. It is difficult to preserve all these sites in situ by a single corporative body – Turtle Conservation Research Project. Because there are lot of human activities that cant controlled by a single person that is much harmful to the well being of turtles. So as a student of Marine Biology this author suggest to preserve this area as a hotspot of turtle landing & allow the hatchery to preserve the turtles in-situ.

So, There may be a direct intervention of CCD to delineate a 1km zone as a reserved area for the turtles that can land & lay eggs. Volunteers of hatchery will secure the turtles & their eggs in-situ, the best way of turtle egg preservation that is widely accepted globally. So it is better to delineate the zone as a “Greenbelt”. It means a green zone with all types of coastal flora that enhance the scenic beauty & to reduce sea erosion. It is important

1. Because turtles are preferred calm coastal belts with no erosion.
2. One female turtle will come only to the coast that she was born.
3. Turtles will be disturbed by the high powered lightings of hotels in near shore. So all the hotel must agree to switch off these lights in night time that are located in the Greenbelt.
4. Green belt must secure under the Police intervention.
5. Wild Life Conservation Department can help to allocate the coastal belt because turtle’s conservation is belonged to them.
6. Green belt will restrict the entrance of outside trammel net users that cause

to the turtle deaths & entrance blockings. So it will support to the areas traditional fishery.

7. Tourists & tourist guides can be involved as the volunteers to protect the turtle nests day & night.

Solutions for the problems related with Fishery.

There must be a collaborative agency that are comprised of

1. NAQDA
2. Fisheries Department
3. Police
4. Rural fishing community that can solve all the questions that are related to the area fishing. A direct implication must be required for the success of overcome the matters of area fishing.

Solutions for the pollution effect.

There must be a collaborative effort to decrease the input of wastes to the coast. Hoteliers, fishermen, Turtle hatchery, volunteers must take actions for it. An organization can form with the support of CCD with the participation of above area stakeholders to launch

1. Beach cleaning programs.
2. Awareness programs.
3. Coast guards by volunteers from polluters & take legal actions.

A clean & clear beach is the treasure of the Athruwella area.

Reference

1. Study guide to Coastal Zone Management, Dr. Anil Premarathne, 2010.
2. Coastal issues, Vol 3, CCD, 2005.

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Annex



Saman Villa hotel.



Sea Turtle Conservation Research Project.



Athuruwella Bridge.
coast.



Coastal vegetation in Athuruwella



A minior scale beach resort.
Athruwella coast.



An illegal construction in



Mussels in Athuruwella.



Destroyed vegetation in beach.



Destroyed house by Tsunami,2004.
crossing.



Railway- A₂ main road



Guides in Athuruwella beach.
method.



Boat used in beach seine fishing

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Acknowledgement.

I dedicated this booklet

- Firstly to my father & mother who make me every time strong enough to face any problem,
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Objectives

- ☀ Select a 1km site from the coastal belt around Sri Lanka.
- ☀ Identify the all observable coastal issues that exist in that area.
- ☀ Present the all possible solutions to mitigate those coastal issues.

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