Mangroves for the Future
INVESTING IN COASTAL ECOSYSTEMS

Education for coastal and marine biodiversity conservation through schools

Center for Environment Education (CEE)

December 2013 – June 2015

1. Project Details

Project Title:	Education for coastal and marine biodiversity conservation through schools	
Project Number:	IUCN Project Ref.77663-014	
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	Original End date:	10th June, 2015
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Project Budget:	MFF Contribution INR 1,159,500	Counterpart funds INR 329,000
Name of Organization:	Centre for Environment Education (CEE)	
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1. Executive Summary

The Centre for Environment Education (CEE) with support from Mangroves for the Future (MFF) had proposed to undertake a project to demonstrate coastal and marine biodiversity conservation education for schools on the Indian coast. Towards this, CEE designed and developed a programme framework and methodology that encourages hands-on project-based, region-focused learning for school students, and meets the objective of fostering global citizenship. This objective has been identified as one of the priority action areas as per the Global Education First Initiative of the United Nations Secretary-General. The umbrella project is branded as "Global Citizenship for Sustainability (GCS) - Marine".

The project enables participating schools to explore their nearest coastal stretches, identify and address local coastal biodiversity conservation and sustainability issues, and engage with the local community to understand socio-economic and marine environment perspectives. The model was tested by implementing the programme in 9 schools in Gujarat, Goa and Tamil Nadu.

The major activities during the project period included:

- **Designing and developing the programme framework and methodology**

A review was undertaken of the school curriculum (NCERT syllabus) for 7th to 9th standard. S everal international marine education school programmes to identify the critical elements for the project framework and outline the broad methodology. Further discussions within CEE, with external experts working in school programmes and sustainability education in India, and interactions with school teachers, helped to include IT enabled and web based features to the framework. A critical element was to bring in Global Citizenship Education as a central feature of the framework thereby expanding the scope to offer the programme to any school from the coastal areas of India, including from international countries.

The outcome was the development of a project framework *and 7 Step Learning Journey* methodology that offers opportunity to any school, teachers and students to derive learnings (individual and collective) through 'project based, place based' pedagogy. The framework offered a template for exchange and engagement of schools across different coastal stretches in India (and internationally), across diverse cultures and in regions at different points in the development continuum.

- **Testing/ implementing the programme in selected schools:**

9 schools from Gujarat, Goa, Kerala and Tamil Nadu were selected for implementing the programme. Each school formed a GCS-Marine committee comprising of one or two teachers and a group of around 6 to 10 students selected by the teachers. The students were from the 6th to 11th standard.

In all the project states, CEE mentors conducted individual school visits and organized two half-day on-site, trainings for the GCS Committee members (teachers and students). The training involved orientation on the GCS Marine project 7 Step *Learning Journey* methodology and website features. The participating teachers and students were taken on a guided field visit to the nearest coastal stretch which they had chosen as their study site. This helped facilitate their discussions with the local community and identify the major sustainability and marine biodiversity conservation issues.

Subsequently, as per the 7 Step Learning Journey methodology, the school GCS Marine committee arrived at their individual project intervention goals, objectives and strategy for implementation. Their implementation plans were then monitored over email and telephonic discussions, including the website. In some cases, school visits were further conducted to mentor their progress.

- **Establishing collaborations and partnerships with State Government Departments and national/international organizations**

Based on the experiences of the schools in Gujarat, Goa and Tamil Nadu, CEE mentors documented key learnings and presented these to the government officials from the Dept. of Environment, Govt. of Tamil Nadu. Subsequent discussions along with the support from the MFF Secretariat helped in getting the consent of the Environment Dept. to scale up the project with 9 schools from Chennai and Ramnathapuram through the National Green Corp (NGC) state coordinators. CEE then conducted further orientation workshop for 3 NGC coordinators and teachers from 9 schools from Chennai and Ramnathapuram for taking up the project in the current academic year.

Similarly, the State Council for Education Research and Training (SCERT), Goa offered their support to initiate the project with 8 schools in Goa. A training workshop was conducted for facilitating them to initiate the programme in the current academic year.

- **Sustainability**

CEE took forward the project learnings of GCS – Marine to expand scope for pairing participating schools to international networks/schools. As part of this, a poster on the theme of GCS Marine programme was developed and presented at the end of the decade international conference on Education for Sustainable Development (ESD) in 2014 at Nagoya, Japan organized by UNESCO. This further helped to strengthen partnerships with other agencies. An MoU on GCS, particularly focusing on the Marine theme was inked with several partners viz. - the Gujarat Pollution Control Board (GPCB) of Government of Gujarat, the United Nations Education, Scientific and Cultural Organization (UNESCO), the Convention on Biological Diversity (CBD), Mangroves for Future (MFF – India) and Adani Enterprises Group during the 'Vibrant Gujarat' event in 2015. This has widened the scope for sharing project learnings with a larger international audience while contributing to the structuring and development of the concept of Global Citizenship Education (GCE) as well as research around the measurement of competencies for global citizenship and sustainability education, particularly focusing on marine and coastal areas.

CEE would like to thank MFF for their support and value the partnership with several agencies and state government departments for sustaining the programme. Schools in Gujarat, Goa and Tamil Nadu continue to be involved in the project during the current academic year too. The GCS Marine website (http://ceegcs.org/GCS/client/index.php) developed with support from the co-financing partners (Adani Enterprises Group) would now enable the programme to be offered to any school in India along the coastal states as well as create opportunity to network with international schools and take forward the theme to a wider audience.

CEE continues to support the programme through its in-house expertise and has established a GCS Secretariat at CEE Ahmedabad to nurture its progress further.

2. Background of the Project and Project Rationale

Current educational systems are not adequately geared to bring in sustainability education in formal school or college systems. Further; in the Indian context; information and knowledge on marine and coastal biodiversity is generally lacking in the curriculum for students to effectively understand its importance and significance and engage in practical ways to address local coastal biodiversity and sustainability issues around their schools. Local coastal biodiversity conservation issues therefore continue to not get adequate attention and participation from citizens to address the problem.

Schools and young children are influential citizens in their formative years and need to be made aware about such situations, contextualize it with their formal curriculum and apply their knowledge for the common good of the society and environment. They have the potential to be key social transformers who engage local community and enable their participation to address local coastal conservation issues. This approach also helps in contributing to Aichi Target 1 of the United Nations Convention on Biological Diversity (UNCBD) which states that 'By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.'

Hence the Centre for Environment Education (CEE) with support from the Mangrove for Future (MFF) undertook a project to demonstrate coastal and marine biodiversity conservation through a marine education program for schools on the Indian coast. The objective was to engage schools in a hands-on project based learning format with guidance from CEE Mentors to identify and address a local coastal biodiversity conservation issue with participation from the local community and key stakeholders. The project sought to implement such a project in at least one coastal school from the following states in India - Gujarat, Goa, Tamil Nadu and Pondicherry. This would allow testing the project methodology in different settings – like different coastal landscapes, educational-political systems, and diversity in languages, communities and environmental and developmental issues. It would also give the scope for scaling up and an opportunity for schools to sustain their efforts through existing CEE school programs and networks and partnerships with the State Government department and other institutions working in the area of marine environment conservation, management and sustainability issues.

3. Impacts of the project:

The major impacts of the project are observed in the following areas:

i. Designing a marine education curriculum framework which is offered as a "Place Based, Project Based", IT enabled action research programme for facilitating marine conservation, global citizenship and sustainability education through schools. Any school in India (preferably English medium) from the coastal areas can sign up for this programme and implement the marine education project through a 7-step learning journey which can be customized based on their location, student age group and formal curriculum linkage.

ii. Creating an innovative web-based platform (http://ceegcs.org/GCS/client/index.php) for offering the marine education project as a national and international programme to connect schools from coastal areas across the nation and world. The web format enables participating schools to share their project learnings, post e-learning resource materials (visual, audio, video) in any language, network with other schools (including International schools) and mentors, experts online.

iii. Benefiting the local communities in the school's project study site by highlighting their sustainability issues through the school students and engaging school students to take positive actions/citizen action in such areas – e.g. like beach clean up, waste management activities.

iv. Creating partnerships with the State Government departments, other organizations to support the marine education programme through their existing formal networks – e.g. through the National Green Corps (NGC) Coordinators in Tamil Nadu and through the State Council for Education Research and Training (SCERT) in Goa. The project can therefore sustain with selected schools in Gujarat, Tamil Nadu, Goa and opportunity to initiate/scale up in other states.

v. Getting cooperation from the school management to continue the project in the subsequent academic years and building flexibility in the programme for schools to decide the standards and number of students / teachers to involve in different stages of their project.

vi. There is no negative impact as such. However, the shortcoming may be that since the programme is offered primarily in English language, the schools with local language as the mode of instruction may find it more difficult to engage or communicate in the web-platform.

4. Activities completed:

i. Review of NCERT school curriculum and international marine education programmes to arrive at the learning pedagogy and formulating the projects *Learning Journey* steps through which the school could be offered an action research, Place Based, Project Based programme on marine conservation and sustainability education. The process included conducting meetings with in-house experts working on school education, camping and teacher interactions.

ii. Providing on-site field / project site based training to teachers and students in their respective schools. Facilitating their interaction with the local community and mentoring teachers / students to design their individual marine conservation education projects.

The original planned activity was to hold a National Workshop for teachers and they subsequently implementing in their schools, but it was more feasible and effective to visit and train the schools individually. This approach also helped to observe the progress more closely, make corrections and customize the 7 Step Learning Journey as per school's needs and get the cooperation of the school management.

iii. Designing and developing a website for the programme to enable it to function as a web-based, IT enabled platform so that participating schools are informed about the project methodology, disseminate e-resources, provide opportunity to schools to post their project progress, learnings and network with other schools. The scope to network at international level and bring in the element of Global Citizenship education.

The original planned activity was to print resource materials and disseminate to the participating schools. However, since there was an opportunity to invest in developing a website through the co-financing partner, the investment was made to develop an interactive website that features e-resource materials which schools can access, download online. Individual schools can also upload their local materials (visual, audio, presentations etc), project information; thereby opening up the scope for co-creating materials and sharing with all participating schools. This implies lesser costs of subsequent material development and dissemination and access for all.

iv. Facilitating schools to conduct their citizen action activities with the local community and upload their project information on the website and conducting trials of the interactive features like webinar, discussion forum.

v. Monitoring the progress and enabling schools to conduct the community based activities in their individual project sites.

vi. Organizing and conducting teacher and students project learning workshop in Gujarat to document the project learnings, get feedback and enable continuity in the project for subsequent academic year.

vii. Highlighting the project framework and features in UN Education for Sustainable Development (UNDESD) – end of decade conference at Nagoya, Japan organized by UNESCO. This enables to feature the programme as an international Global Citizenship and Sustainability Education programme that furthers the UN Secretary General's Global Education First Initiative (GEFI) and expands the scope for involving the schools from India to collaborate with international schools on the theme of marine conservation education.

Using the opportunity of the Vibrant Gujarat event to collaborate with state departments, national and international organizations and formally have an MoU with organizations like Gujarat Pollution Control Board (GPCB), IUCN - India, UNESCO Delhi office, Adani Enterprises to be partners in the programme – which is branded as the Global Citizenship for Sustainability (GCS) – the current theme being *Marine education programme (GCS Marine)*.

Meet the officials from the Department of Environment, Govt. of Tamil Nadu to highlight the project features and use examples of the activities conducted by the local school implementing the project in Chennai. The formal interactions helped build a partnership with the Department to engage the National Green Corp (NGC) coordinators from Chennai, Ramnathapuram to initiate the project with 9 additional schools in Tamil Nadu. Project orientation trainings for NGC Coordinators and teachers from Tamil Nadu were conducted to initiate the same in the current academic year.

vii. Collaborate with the State Council for Education Research and Training (SCERT), Goa to support around 9 schools from Goa to associate with the project and provide the venue – logistics support for organizing teacher trainings for the same. Teacher trainings for 9 schools in Goa were conducted to help them initiate the project in the current academic year.

5. Achievement of Objectives and Results

Intervention Logic	Objectively Verifiable Indicators (OVIs)	Source of Verification (SoV)	Progress Towards Achieving Objective and Results
Goal All people on the coast are aware about importance of marine biodiversity and participate in coastal conservation	Community based conservation plans and activities increase in coastal areas of India; Biodiversity registers are	Government reports; Biodiversity registers in coastal areas	

Intervention Logic	Objectively Verifiable Indicators (OVIs)	Source of Verification (SoV)	Progress Towards Achieving Objective and Results
	created and maintained by local panchayats		
Objective and Results			
An educational and awareness programme focusing on coastal conservation is developed and tested in 9 selected schools	curriculum and resource materials for coastal conservation education in schools (*and through schools*) is developed and used by 9 schools	Refer the programme website : http://ceegcs.org/GCS/client/index.php which features the e-resources; project learnings of individual schools; interactive features 7 Step Learning Journey methodology document (Annex in quarterly report) Quarterly Progress Reports submitted to MFF including workshop reports. School action plans and school project sharing workshop report ; newspaper coverage (annex) List of GCS Committee members (refer website – each school individual project)	A website offering the marine education programme is developed and operational. Schools are registered and can post/share their learnings on website. They may network/pair with other schools online (nationally or internationally) on themes similar to their individual school project. The facilitation for the same is available through a CEE web Administrator on a regular basis. Each school has unique login names and data protected about their posting. A 7 Step Learning Journey project methodology is developed and integrated into the website. 9 schools from Gujarat, Goa, Tamil Nadu have implemented the project.

Intervention Logic	Objectively Verifiable Indicators (OVIs)	Source of Verification (SoV)	Progress Towards Achieving Objective and Results
	State officials / departments actively participate in curriculum development Key state departments / institutions support the programme and consider it important to strengthen school curriculum	Correspondence letters, orientation meeting photographs; Vibrant Gujarat MoU (annex in quarterly reqport); Poster presentation at UNDESD Nagoya Conference, Japan (Annex in quarterly report); Participation from NGC coordinators and teachers from Tamil Nadu; Goa in the orientation workshop at Chennai and Porvorim respectively (registration sheet). Officially in collaboration with the Tamil Nadu Environment Department and the State Council for Educational Research and Training (SCERT), Goa.	Additionally 9 schools in Gujarat are continuing this year; 9 schools and 3 NGC coordinators from Tamil Nadu trained in the project; 9 school teachers trained in Goa. They continue the programme this academic year. MoU signed with different departments/institutions to support the programme at national and international level and scale up.
	Schools have engaged stakeholders for addressing local coastal conservation issue	Reports and photographs of school activities engaging with local community and taking local citizen action – like beach cleaning; waste management intervention; mangrove plantation Formation of GCS Marine school committee (refer website – school wise) and photographs (Annex in quarterly report)	The project methodology is designed, tested and implemented such that any participating school needs to engage with their local community to identify and address local coastal sustainability and biodiversity conservation issues. By signing up for the programme, the schools agree to engage with stakeholders and consider it integral to the educational process in the programme.

Intervention Logic	Objectively Verifiable Indicators (OVIs)	Source of Verification (SoV)	Progress Towards Achieving Objective and Results
			Teachers use opportunity to facilitate place based learnings. Mentors/Experts associated with the school can further facilitate school with specific skills/interventions to enhance the students *Learning Journey experience.*
Project Management in place	Project monitoring, coordination, evaluation, feedback systems are in place	Quarterly reports submitted to MFF Backend features of the GCS website – Admin control features.	The project monitoring and individual school progress can be coordinated through the web platform which offers project coordination features at Teacher level; Mentor level and country coordinator level.

6. Cross-cutting issues:

- Climate change impacts

  The project methodology encourages students to identify sustainability issues in their coastal stretches, including community concerns. Through teacher facilitation and student discussions on such issues they can relate the climate change angle/perception to understand the underlying cause-effect relation of such issues. Students formulate their local actions like tree plantations; beach cleaning etc. which also contribute to positive actions for climate change adaptation/mitigation.

- Gender equality

7. Interesting stories:

I. "What drives participation Experiences of GCS Marine students during their field activity?"

The GCS Marine Committee of our school (Aditya Birla Public School, Kesrol; Bharuch in Gujarat have formed our committee which consists of six students from class 8 - Nilay Bhatt, Mansi Mody, Sanyam Jain, Khushi Thakkar, Aniket and Kairavi, Ms. Shylaja Vijay as the teacher and Mr. Rajnikant who is the Head/Sarpanch of Bhadbhut village - which has been chosen as the project site by the school.

Our project location is the Bhadbhut village, along the banks of the Narmada estuary. The primary occupation in this village is fisheries and is a rare spawning ground for the famous *Hilsa fish* (an anadromous fish - scientific name: *Tenualosailish*a – that migrates upstream from the sea to the estuary grounds to spawn). During our initial field visits to the village and interaction with the community members, including women; we realized that the *Hilsa fish* is a major contributor to the economy of the village. However, we also noticed that there was lot of litter and garbage dumped in the open which ultimately reached the banks of the estuary contaminating the waters and fish nursery grounds.

Hence, we had decided to organize a "waste clean up" activity and campaign with participation from more students from our school. This we felt would motivate the community to join us and seek a longer term solution.

On 16th of December, 2014 we (students of the GCS Marine project along with our teachers) visited our project site - Bhadbhut village. With the help of our classmates and our teachers and the village head, we arranged the rally. We went through the streets of the village airing the slogans –

- "Swachchh bhadbhut, swasth bhadbhut" : "Swachchhta aave, tandurasti laave"
- "Jya swachchhta, tya prabhuta"

We were accompanied by the workers of Reliance company who also helped us in cleaning up the area. We had carried big placards with us and gave them to the village Sarpanch (head) to seek community participation. We had expected the villagers to join us in the rally and take part in the campaign. But contrary to our expectations they did not join us. Not even a single villager joined us. This disappointed us but we decided to continue with our efforts. At least all of them were noticing curiously what the students were doing but were hesitant to venture out and join them.

Subsequently, we began cleaning up the village streets. Some of us went inside the village and urged the villagers to join us. Some of them agreed to come along with us. But they did not come. However, we cleaned up the area with the help of the Reliance workers. We filled a large number of garbage bags up to the rim. It was actually a tedious task. At the end of it, all of us felt a sense of satisfaction and we all enjoyed it.

The experience was really a major eye-opener for us students. While we had gone in the village with the presumption that community would join us; the non-participation made us realize that ultimately it is the individual commitment and concern that makes them join a cause – individually or collectively.

We learned a thing from this experience that if we wish to do something from our heart, then only we'll do it. As the villagers were not interested in our work, they didn't help us. They were not interested in cleaning up their village. They also did not want to change their normal lifestyle. We first have to make them realize that cleaning up their village is very important as this topic is directly connected to their health and livelihood. We had plans with us to spread this knowledge and awareness through our short and simple speeches. But we did not get time to express our thoughts.

Later while analyzing the outcome with the village head and our mentors, we felt that perhaps the community members have other priorities like livelihood; access to safe drinking water; toilets etc. Without these basic amenities and services available to them, their participation would not be forthcoming for voluntary action. The experience made us deeply reflect on what actually participation means.

II. "Place based learnings – Sharing our learnings from our first field visit and interaction with the fishing community"

Our GCS Marine Committee comprises of 13 students, from the 6th to the 9th standard. Within ourselves we have formed three groups in order to take responsibilities for different project components.

- Group 1: Tamil Elakkiya (9th A); Anusuya (6th A); Nithin (7th A); Dhileepan (8th C)
- Group 2: Durga Parameshwari (9th C); Jeeva (8th A); Madhusudhanan (6th B); Kirthika (7th B); Nandhini (7th C)
- Group 3: Ram Babu (9th B); Praveen Kumar (8th B); Anitha (6th C); Deepika (7th A)

GCS Marine Teacher: Mr.A. Dinesh (teaches science from 6th to 9th standard. Apart from facilitating the students to learn from the coast and community; he also proposes to relate some of the concepts mentioned in the school textbook to examples and experiences from the Kottivakam fishing village)

On 30th November, 2014, we GCS Committee students, undertook a field visit to the Kottivakam kuppam fishing village. This is a village around 3 kilometers from our school, by road. It's in southern part of Chennai city.

We interacted with the community members from the village and informed them about our project. We requested for their support. The following members from the fishing village agreed to be part of our committee and extend help in the village !

Community Members: Mr.K.Selvam (fisherman and expert swimmer); Mr.Chinna Tambi (fisherman and local drama artist and organizer). *We plan to invite some fisherwomen and children too later.*

Sharing our experience - what we liked and learnt from our field visit. (Place Based Learnings)

After our field interaction, we discussed amongst ourselves what we liked about our Kottivakam fishers and the village. All of us liked their openness and cheerful spirit. Although we felt it was so risky to go out into the sea without a life jacket, these fishers go daily and feel no fear. We liked their talent (swimming, navigation skills) and knowledge about fishes and which type of nets to carry along. They learn so much from nature. They are joyful, have a helping tendency, stand united.

We also interacted with the fisherwomen. They appeared so confident. We asked them whether they felt anxious while waiting for their husbands to return from the sea after fishing. They said they did feel so at times; but usually they are calm. On that day, we could unfortunately not meet most of the fisherwomen. We came to know that they had gone to the nearby fishing market to sell the fish. We felt proud that women are so important in contributing to earn an income. Its just not about catching fish, its also about its sales. They asked us to come on a Friday and in the early morning to see the fish landing and auction on the beach and also interact with them in their home. Women also kept a fast on Tuesday and No-moon days.

The children of the fishers used to go the nearby primary school. We asked them how their children learn about fishing. They responded that from a very early age, their children grow up watching the sea, enjoying bathing in the sea, playing on the beach and helping their parents in handling small things and doing some household works too. They actually develop a liking for the sea. Usually once they are adolescent, they start going along with the men to fish.

We were impressed by the traditional knowledge they possessed. We realized that the knowledge about fishing is gained from their forefathers and this is imbibed by the next generation. They really don't have to learn separately about fishing….it just happens as part of their life. They don't go to college to get a certificate in fishing or becoming a fisherman.

We also asked the fisher how they gave the names to the fish. We wanted to know more on this - on how fish get their names. We also briefly calculated the expenditure that the fisher incurs while fishing, the value of fish at sea and the fishing market. We realized that the fishing income can fluctuate and there is no guarantee that they may catch a quantity of fish. Sometimes they may have to return empty handed.

We felt lucky to have interacted with them and learnt so many things. We thanked them and also invited them to visit our school. We felt we needed to interact more frequently with them and will work out our next dates of visit. We also feel that we could interact with the children from the local school there and learn more about fishing and their village from them. We could overcome our initial fear of asking questions and feel comfortable with the fishers. They too made us joyful and we had a memorable experience.

We felt that there is so much to learn from our coasts, from the community and not just our class rooms. There were learnings from each Place and we decided to make Kottivakam village our place of learning for the project.

8. Communications and knowledge products

Please provide a table of publications, posters, brochures, photos, videos, etc. in the format below:

Description of the product	How was this product used?
(a) 7 Step Learning Journey – Project Methodology and leading questions for student reflections	The steps and leading questions are integrated in the website and helps the school students to reflect on the learnings – individually and collectively – encouraging learning outcomes of global citizenship; leadership; marine conservation and sustainability education.
(b) GCS Website	This web-based platform developed as part of the project (along with co-financing partner) offers schools to register; share their project details;

	progress; learnings; e-resource materials; use the webinar and discussion forum to collaborate with other schools – nationally and internationally. The website offers teachers to moderate/monitor the student activities and highlight the school's achievements, action plans, activities. The resources in the website can be contributed by schools, educators, subject experts as visuals, audio, presentation, video clips etc. and thus offer general and specific resource materials that different stakeholders and students might find useful.

9. Major constraints and challenges

Major constraint was dropping of one school due to the local language issue (since the programme offered in mostly in English language) and in a couple of cases the trained teacher leaving the school due to which the individual school project progress was affected. The development of the website was hindered due to some technical issues (now sorted out) due to which the online interactions and project sharing between students/teachers could not be held on a more frequent basis than desired.

The academic calendar of schools sometimes does not permit all students to undertake field visits to their project sites on a frequent basis. These are subject to permissions by school management and motivation of the individual school teacher. Other school co-curricular activities and administrative/teaching responsibilities of the teacher sometimes does not allow the teacher to spend more time for the project facilitation.

In some cases, the project site (coast) nearest to the school is not as such safe for students to visit and hence safety issues may restrain the school management to permit field visits unless accompanied by the institutional facilitators (CEE Staff).

In the MLE Report I had written that the school from Kerala, is conducting the activities in Malyalam, however they are finding it challenging to interact closely with the communities, and to find an appropriate project to work on. As such, they have not been able to go through the "Journey" within the same timelines as the other schools, despite receiving as much help as possible from CEE mentors. Similarly the Departments of Education, and Environment have not professed much interest in the programme. Please provide more details as this is a good learning for the project

10. Lessons learnt

Please outline the lessons learnt from this project. The lessons learnt should reflect both technical lessons and the management lessons. If you were to do this project again, what would you improve?

Major lessons learnt:

i. Teachers must be encouraged to integrate the external project into their formal academic year planning which helps them to block / reserve time for its implementation. The school management must be supportive enough to encourage such integration.

ii. Access to internet may be a constraint for some schools and some support like (internet dongle; tablets) may encourage schools to be more proactive in use of IT and sharing of project progress/learnings on a regular basis.

iii. The teacher training/ student training can also be done in a "Camping" mode – thereby encouraging them to learn about the modalities of the project as well as ecological aspects of marine ecosystem on a practical basis. This could be like a 3 day camp in selected coastal sites like mangrove areas/estuarine area. This may also be on a part-payment basis. This could then be followed up with schools choosing individual coastal stretches nearest to their school to formulate their project objectives and interventions.

iv. The project can also be offered as a 'marine education course for teachers' which has modules on developing their skills for developing lesson plans using their formal school curriculum framework and the marine education project structure/methodology which has been developed and being currently offered in this project.

v. The development of mobile apps for field survey and collation of observations may be useful to engage more stakeholders to contribute to the school project and overcome issues with access to computer/ website. Gaming as an approach for disseminating minimum learnings about marine environment, sustainability issues may also be explored as a important learning approach/tool. However, the use of mobiles in schools is restricted and depends on school management views.

vi. Opportunities for the involvement and role of parents/family in the school project may be explored / strengthened in the project design so as to encourage better impacts of marine conservation education at individual, family, neighbourhood and community level.

vii. The vacation period of the schools may be tapped in innovative ways so that the project has continuity outside the formal school academic year timeline.

11. Policy recommendations, if any.

Provide recommendations, if any, for policy development.

Marine education in schools can be strengthened if the State Education Departments conduct capacity building programmes for school teachers focusing on 'Place Based and Project Based' pedagogy in their teaching styles. It is important to include skill building in use of IT enabled tools and techniques which teachers can apply in classroom transaction. Capacity building teachers on above approach may be supported by conducting such modules in a hands-on *Marine Camping mode.* This will encourage teachers to view the coastal stretches and communities nearest to their school as important *learning grounds* for their students to learn about marine ecology / sustainability issues and developing their socio-economic interpretation skills. The formal subject contents that they transact in their classrooms can thus be contextualized in more meaningful ways - encouraging student to relate their subjects/content to their life, lifestyles, environment, economics and society.

12. Final financial report

Submitted

13. Annexes