ASTERA RETREAT

COMMENTS ON EIA BY SOUTH COAST CITIZENS FOR SUSTAINABLE DEVELOPMENT

20th November 2009

1. Project description.

The entire project description is unsatisfactory, as it does not fulfill the requirements of the Terms of Reference.

1. It is not clear whether the property is to be residential, time share, or rented housing, and what the nature of ownership of lots will be, in particular, those lots which will have four separate units. The owners claim on their web site, www.asteraretreat.com, that a number of lots have been sold. Under what terms and conditions have these lots been sold? Presumably, any such purchasers would have to be signatories to the ECP, or the ECP will not be enforceable. How were lots sold without subdivision approval, and how was subdivision approval obtained without EIA approval?

It is also unclear in the EIA whether purchasers can just buy lots, on which they will be able to build whatever they please, or whether they purchase completed houses. It seems clear from the developers' website that it *will* be possible simply to buy a lot, in which case, what kind of development controls will be in place, for example, for sewage treatment?

2. There is no information regarding water- sports, as called for in the Terms of Reference, in particular, regarding the use or otherwise of jet-skis which could be a major source of environmental disturbance and danger.

3. Key elements of the physical project are not described, for example the location of the lap pool.

4. There is no description of how the project will be managed, how ongoing services such as waste disposal, provision of water, maintenance of grounds etc are to be funded.

5. There is no specific and detailed design of residential facilities and commercial facilities. There are for example no architects' plans of the houses to be built, nor of the shops and recreational facilities to be built, no satisfactory architects' impressions of the final appearance of the resort, in particular no impression of the appearance from the sea which is of primary aesthetic importance. An entire area which is marked on the plans,

called the Mayan Village, is not referred to in the text The artist's impression at illustration 9 seems to bear no relation to the plan at illustration 8. The illustrations of the houses are vague, unrealistic and bear little relation to the actual site plans.

6. There is no description of the management structure to be employed and therefore no indication of how the various environmentally sensitive activities will be carried out and monitored and kept within the required standards as laid down by government.

7. The project is said to be planned to be completed in three phases, there is no indication of a plan to ensure that all services will be available from the moment the first residents move in, in particular, human waste disposal. Service for water and waste will inevitably be running immediately across active building sites.

8. There is no indication of how waste disposal, in particular, sewage disposal will be handled during the construction phase, nor is there any indication of where building workers will be housed, watered or fed, nor of any health and safety measures which would be necessary on such a remote site. There is no guarantee that workers will be Belizeans and not, as we see so often, cheap labour of questionable legality brought in from adjoining countries.

2. Physical Environment

Meteorological and hydrological characteristics.

The claim to be able to collect 28,861 cubic meters of rainwater is poor science. Calculating the total roof area and multiplying that by the minimum likely rainfall in meters does indeed yield a THEORETICAL catchment, but the ACTUAL catchment will be far less than this, even allowing for heavy rain flowing straight off the roofs, gutter overflow etc. This is because the catchment is only a function of the size of the storage reservoirs, said to be 3 cubic meters per unit. Because of the irregular nature of rainfall, to catch 100% of the annual rainfall would require a reservoir the same size as the expected annual rainfall which is clearly impracticable. It would be better to install (say) 8 x 2500 liter vats under each house and let them collect their own rainwater. This would be sufficient to see them through the dry season, and would avoid the serious consequences of lake water abstraction (see later).

Hurricane and other named storms

No comment

Topography, Hydrology, Bathymetry and Oceanography

The physical description here is incorrect. Residents confirm that there WAS no stream overflowing water from the lake into the sea. The stream was created by bulldozers illegally cutting a channel from the lake into the sea a few days before Christmas 2008. How do we know? We were there the day after the work finished. The canal is still there, although thanks to TIDE/DOE intervention the channel cut through the beach has been filled back in. There is now a gap of 5 yards of beach between the sea and the canal which in turn connects through to the lake. A big storm could easily breach this with serious consequences for the lake.

It should also be noted that the lake is situated on National Land. The developers have no legal right to impose fishing (nor indeed boating) restrictions on the users of the lake whether Astera residents or not. The general public both local residents and tourists (both for sport fishing and bird watching) have access to this lake and that right of access must be preserved. The ecology of the three sides of the lake shoreline bordering the Paines Creek Reserve must not be put at risk by pollution run off from Astera.

The three requirements laid out in the EIA are correct, although run off must not be allowed into the sea. One of the most worrying features of this plan is the (buried) sewerage digestors which will be very vulnerable to overflow in times of flooding or even runoff from the very heavy rainfall known in that area. Given the extremely low nature of the land it is hard to see how this can be avoided. Our view is that if this plan goes ahead, pollution of the sea in the region of Astera is almost certain.

Geology

We accept the geological findings and recommendations. However the practicality of raising the site to 1.5 meters using sand seems to us very dubious. Deposited sand is almost certain to be washed away in times of heavy rain, much of it towards the sea. The 66ft beach fringe will be very likely to suffer as a result.

Water quality and aquatic flora and fauna.

The water testing carried out on the lake is by any standards insufficient. The data collected is insufficient to make any judgment about eutrophication. One of the key elements is phosphorus. The test reports the level as being "not detected" which suggests inadequate testing equipment/procedure. It is a matter of internationally recognized fact that coastal lakes ALWAYS have a phosphorus content however small. The fact that apparently only one sample was taken discredits the analytical work still further. A series of samples should have been taken, both in the dry season and the wet season.

This is another example of the poor quality of work applied to this EIA by the developers.

The developers have asserted that the water in the lake is not fit for human consumption untreated. This opinion should have been confirmed by medical opinion, so as not to cause unnecessary alarm locally. The villagers have used this water for generations. It is arrogant for non-medical outsiders to come in and tell them the water is not drinkable, based on one sample. Would they have said that if they had not been planning to build there?

The recommendations are ludicrous in the extreme. "Educating" wealthy American and Canadian owners about nesting turtles, spawning fish, manatees and prop-guards is wildly impracticable. How will this education be done? Weekly lectures and prop inspections? Another example of poor quality content in this EIA.

The one species of fish not mentioned in the EIA curiously is the most important species found in the lake. The Bay snook (Petenia splendida) not to be confused with the common snook whose presence in the lake is doubtful. The bay snook is found only in Belize, southern Mexico and northern Guatemala, and is considered at risk. This fish is a freshwater fish, feeding on the bottom mainly and is certainly at risk in this lake. Sportfishermen come from overseas to catch this rare fish. Why was it not even mentioned? Yet another example of poor research by the developers.

The first recommendation, sportfishing restrictions, cannot be enforced as this lake is on National Land and therefore subject only to the laws of Belize, not restrictions imposed by a developer on territory not even owned by them.

The second recommendation again shows the poor quality of thinking by the developers. The residents are going to be educated about not interfering with turtles and crocodiles.

And they are also to be told they can't lure fish in the lake when it is perfectly legal so to do?

Terrestial Flora and Fauna

The replanting and landscaping of the site following raising to 1.5 meters by dredged material presents problems not addressed. The choice of plants to replace and replant the plants covered by dredged material will be difficult. Species from non coastal locations will almost certainly not flourish in a windy salt laden air. The only plants which will thrive are the indigenous plants. This may lead to overuse of fertilizers etc which will run off into the sea. Who will be responsible for monitoring the planting of gardens belonging to individual houses?

The two recommendations are accepted.

Terrestrial fauna.

We were surprised that the fer de lance (Bothrops asper - known locally as Tommygoff) was omitted from the list of reptiles likely to be found in the area. It is a matter of record that this extremely dangerous snake is present along this stretch of coastline.

Recommendation 13 is very difficult to enforce, although from a fauna-conservation point of view it is probably correct.

We agree with recommendation 14.

Historical and Contemporary land use.

Under the methodology section, it should be pointed out that the "series of canals previously dug" were in fact dug illegally by the developer, and not part of any pre existing development.

We accept the findings and recommendations in this section.

Legal Policy and Administrative Framework.

We accept the findings and conclusions of this section, although the "baseline data' remains questionable in our view.

We also note the need for an additional "leach field" to reduce ammonia in the effluent to comply with Belizean standards. We also note that there are no plans for the leach field mentioned in the body of the EIA.

We also note that although it would seem permits are not needed for mining on land owned by the developer, they ARE required for the 75000 cubic meters to be dredged from the sea.

3. Transportation

1. There is a mention of land based footpaths, this is misleading as there are no constructed or frequently used footpaths in the area.

2. We note that there is no mention of Monkey River Village in the entire EIA, despite it being the nearest village to Punta Negra. We find this very curious. It seems likely that visitors/residents would wish to access the site via Monkey River Village, which is the most logical place being just seven miles away. However there is little public parking or mooring available at Monkey River Village, and demand from Astera residents on these limited facilities could not be accommodated. The impact of 400 plus people wishing to transit through Monkey River has not been considered. The Monkey River road would need to be substantially improved to allow for this traffic.

3. There appears to be no provision for the storage and maintenance of golf carts to be used by Astera staff.

4. It is stated that the lagoon will provide 24 mooring slips for 20 - 40ft skiffs, yet at the same time it is stated that no petroleum powered watercraft will be allowed to operate within the lagoon. So what type of skiffs are these envisioned to be? How will such skiffs be powered? How will these boats be moved into the lagoon?

5. The only means of getting to and from the site is by sea. However, this part of the coast is absolutely notorious for being very wild at certain times of year, with even experienced local captains not being able to get in and out of Punta Negra, where residents can be stranded for weeks at a time. There is no mention of or apparent understanding of this issue anywhere in the EIA. Neither is there any mention of the requirement for resident or visiting boat owners to be licensed as captains in Belize in order to be able legally to operate a boat.

6. The mooring slips on the sea can only accommodate 24 boats, yet there are over 100 residential units. Where are the other boats to be kept, which will be required for residents to travel back and forth, for recreation, to fish, dive etc? There will be an inescapable pressure for people to bring their boats into the canals and moor alongside their property, thus risking pollution from oil and sewage.

7. 40 ft skiffs will have toilets on board. There is no mention of pump out facilities.

4. Material resource

According to the EIA, the main advantage of digging the proposed canals is that they offer the best source of "good quality fill material at close proximity" Is this a good reason for digging five canals, thus reducing the distance between the sea and the lake? Apart from the cosmetic and selling appeal of more houses having water frontage, this appears to be the only reason for digging these canals which inevitably will act as run-off drainage conduits to either the sea or the lake.

The overall economic viability of the plan is not a matter for the EIA, and to say that having good quality fill material "translates into greater economic impact on the local community" is nonsense.

The same paragraph goes on to say that we can only discover "by trial and error" i.e. by doing it, whether extraction of sand from the sea will jeopardize routine beach building. Put another way, what the developers are saying is that they do not know if the sea sand dredging will lead to further erosion and can only find out by doing the dredging, by which time it will be too late.

The plan to mine sea sand and sand from the canals is concluded as the "preferred option". No other option has been put forward, so it is not preferred. It is the only option. And a poor one, environmentally speaking. We are risking erosion from sand extraction (the EIA says this is an unavoidable risk), we are risking pollution from run off into the canals and we are risking sea surges which could easily break through the few yards between the end of the canals and the lake . All this to make the plan more "economically viable", which is not the concern of the Department of the Environment of Belize.

The mitigation measures include re landscaping the filled areas (what with?) to avoid erosion. This could only ever affect the littoral forest which should be 66ft back from the beach. The beach itself (where turtles are accepted to be breeding) is where the erosion will occur; you cannot and should not plant shrubs or grass on such a beach.

The EIA proposes steel retaining walls along the canals, which if done properly will indeed hold the banks from collapsing. However they will not stop run off into the sea or lake. The so called settlement ponds may reduce silt wash off, but they will not reduce the chemical content of the wash off.

The plan to deploy silt screens to minimize the impact of dredging is well established practice given favorable sea conditions. However the seas around Punta Negra are well known for being rough and adverse conditions can occur very suddenly. Silt screens will not be effective in protecting the nearby Snake Cayes and Abalone Caye where TIDE has its ranger station, from the silt, and quite possibly, from erosion to add to the erosion already evident there.

An important point which is entirely missing from the EIA is the actual location of the dredging, which is said to take place "south" of Astera. This is far too vague, and raises the question of whether the impact of dredging has in any way been considered. We have calculated that the volume of material to be dredged would leave a hole which would be able to contain 1,500 James Line buses. This huge dredging enterprise is being carried out in the Port Honduras Marine Reserve. The facts speak for themselves – this is a reckless enterprise.

The EIA goes on to address biological concerns, admitting that the reduction in land cover and reduction of terrestrial flora and fauna where the canals are to be constructed, is unavoidable.

The developers themselves say that the reductions in flora and fauna over the whole filled site can only be partially mitigated by replanting unspecified "native species" and that temporary or possibly permanent reduction is likely. The fact is that despite dubious mitigation plans, the flora and fauna of this 33 acre site are going to be totally lost. There will be no agoutis, ocelots or gibnuts wandering around the site, no turtles on the beach. The truth is that when people move in, animals move out. The plant cover will likely consist of non native grass as lawns (requiring fertilizer and weedkiller – where will the run off go?), hibiscus and one or two other salt hardy shrubs. Some of the birds will adapt to a built- up area, but some will lose their existing habitat and move on. The fish will eventually die out in the lake due to abstraction and loss of water quality. That is the reality if this proposal goes ahead.

The proposed monitoring requirements are wholly inadequate. Who will do this monitoring? Why no monitoring in the dry season? How is the monitoring to be carried out?

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5. Water

The required water calculations are based on a daily requirement of 54 gallons per resident. In 1988, a report published by the Government of Barbados produced by the Caribbean Policy Development Centre, showed that the daily consumption per person of tourists is 179 gallons per person per day, and that of native is Barbadians 73 gallons. The figure used in the EIA for the Chrysalis development was 100 gallons per day per person (we challenge this figure but it is closer to reality). Bearing in mind that the residents of Astera are said to be permanent residents rather than tourists (therefore more likely to have washing machines, dishwashers, etc), the figure of 54 gallons per day is clearly a large underestimate. Even at 100 gallons per day, the water demand would be twice the assumed figure. Using the same calculation as used in the EIA, the total water demand for Astera is likely to be some 86,000 cubic meters per year rather than the 56,000 the developers have calculated.

This has very serious implications for the proposed supply of water. As already stated the total demand for water is based on a wrong assumption, and the calculations to determine where to get that water are also wrong.

The amount of water to be collected as rainwater, as previously indicated will be sufficient to last through the wet season, given sufficient storage. However the water demand in the dry season (stated as 228 days in the EIA) can be calculated to be 54,000 cubic meters rather than the 22,000 cubic meters envisaged by the developers. This amount, if removed by abstraction from the lake, would (by the EIA calculation) reduce the lake depth by more than two feet.

The environmental consequences of this would be very serious, bearing in mind this would be happening in the dry season, when water levels are already dropping. It is likely that lower water levels would lead to bank vegetation die-back with subsequent loss of habitat for animals. Prolonged abstraction would lead to lake water overheating and probable algal blooms and fish deaths. The algal blooms can produce dangerous toxins fatal to man as well as animals and birds relying on bank-side drinking. This is without evaluating the threat of eutrophication which is likely if run off or effluents leach or overflow into the lake.

The data presented to support the assertion that the lake is “pristine” and in no danger of eutrophication is insufficient to support that conclusion. Coastal lakes almost always have a phosphorus content, and the fact this was reported as “not detectable” raises questions about the quality of the analysis, or the sampling protocol (which is not indicated in the EIA)

Again, the justification for abstracting water from the lake is that there is no other alternative and that this is the preferred option. The actual preferred option is non-development. Lake water abstraction is NOT a preferred option. We find it hard to understand by what right the developers feel they can extract such damagingly large

amounts of water from what is a public resource owned by the people of Belize.

The water resource impacts and mitigations are in fact not impacts of the resource, but impacts of the discharge and this very important subject will be addressed under the next heading - Liquid waste production and management .

6. Liquid Waste Production and Management.

The Barbados and St Lucia Governments' findings reported that three quarters of the hotel sewerage systems reviewed were operating at below optimal capacity, and that this represented the greatest single source of waste water pollution. The systems being proposed by this EIA call for 102 separate digesters in the houses alone, all of which have their own individual electric air pump to blow air through the waste water (hence aerobic digestion), and also an electric pump to push the effluent away to the mixing facility. A power failure, or a failure in any one of the 204 pumps(!) will compromise the whole system and lead to partially untreated sewerage being output or overflows/backups. This does not take into consideration the number of pumps which will be required for toilets in worker accommodation (not described or shown on the site plans), in the site office, shops, restaurants, gym, swimming pool area etc as none of these facilities are described in the EIA despite the requirements of the Terms of Reference.

The proposed system calls for effluent from three different sources, with three very different chemical compositions, to be mixed together in a combination that will be safe to discharge into the sea. There is water from the digester, liquid from the Reverse Osmosis processor and effluent from the photo decomposition pool which is supposed to treat the swimming pool chlorinated waste. The way the mixing of the three liquids is to be carried out is not explained. This is hardly surprising as this would be a very complex process requiring careful analysis of the three liquids.

The swimming pool effluent in particular would require close attention. The photo decomposition pool may or may not oxidize the free chlorine in the pool effluent. The EIA does not specify how this will be ascertained. The effluent from the photo decomposition pool may well contain highly dangerous organochlorine compounds, which could be carcinogenic, which may or may not have been broken down by the UV process. As is noted in the EIA the breakdown of these compounds will lead to free chlorine being released which is highly reactive and may form unexpected chemical compounds with other chemicals in the water. The use of ultraviolet light might in fact actually encourage further unforeseen chemical reactions to occur.

Again the EIA does not tell us how this will be quantified.

In passing we note that effluent from the individual splash pools (which will also be chlorinated presumably) is grouped with the grey water to be processed through the domestic digester. This may lead to chlorine poisoning of the digester and subsequent failure of the sewerage digestion process.

To be done properly, the mixing should be done only after the chemical analysis of the

three effluents has been established, otherwise a cocktail of chlorine (which is poisonous, and very likely to react and form dangerous compounds in the sea) organochlorine compounds which are known to be cancer-producing, and an effluent from the Reverse Osmosis plant which could contain anything that was in the lake water, will be discharged into the sea.

Overall this very complicated plan is a non-starter. It requires detailed chemical analysis equipment, an on-site laboratory and a qualified technician to run it. None of this is even hinted at in the EIA. This part of the plan has been put forward without regard to the consequences of poor monitoring.

In the absence of such proper monitoring, the discharge of this multi component effluent into a Marine reserve in the Caribbean Sea is in our view unthinkable and irresponsible.

7. Solid waste

Non bio-degradable waste is, according to the EIA, to be sent to the "new municipal solid waste storage site in Punta Gorda". According to residents of Punta Gorda, there is no "new waste storage site", not even an old one. There is a dump on some low lying ground beside a road. Prior to "secure disposal" we are told the non biodegradable materials (plastic bottles, plastic wrappers, glass, metal and rubber will be "stacked and bundled" awaiting transportation to PG.

We are not told how this will be done to avoid waste being blown or washed away. Paper and cardboard waste will be incinerated although there is no indication on any of the plans as to where the incinerator will be located.

Organic compostable waste is to be stored on site, buried we are told under 6 inches of sand in pits lined to prevent leaching. These pits are to be regularly turned to prevent anaerobic digestion. This sounds good in theory, but it is doubtful whether this will ever happen. Keeping the pit(s) covered at all times when organic material is being added daily sounds highly impracticable. There is no indication as to what "organic" means – meat waste as well as vegetable? This is generally considered to be very unwise in a normal large scale composting system, due to the sanitary and health issues arising.

The risk of ground water contamination from waste especially at times of high rainfall is a serious one which could lead to eutrophication of the lake.

Toxic waste is to be stored in 55 gallon barrels awaiting transportation to the "new waste storage site in PG" – which does not exist.

8. Energy

1. The figures for total consumption do not seem to include any allowance for pumping water from the lake, for the operation of the incinerator, for the operation of the disposal of waste water or for charging of golf cart batteries.

2. The Terms of Reference state that three alternatives should be considered for electricity supply. This has not been done. There is a passing reference to the difficulties of supply from BEL, but there seems to be no understanding that there is now a BEL power line just 7 miles away in Monkey River, certainly not an insurmountable obstacle. (We would not advocate this as a source of power, but it should be considered.)

Importantly, wind and solar power have been brushed off with a fifteen word sentence saying that they will be "examined". This is wholly inadequate, as solar and wind solutions must be engineered in from the very start of a project. In light of the serious and urgent threat of global warming, this approach verges on the negligent and is indicative of the developers' ignorance of, and lack of interest in, environmentally sound solutions.

3. We can find no indication of where on site the fuel storage for the "2,500 gallon drums" (we quote from the EIA, but cannot believe that drums of this size are seriously being proposed) of fuel will be. The large quantities of fuel which will be required for this site are a grave environmental concern, not only on site, but en route from Big Creek or Punta Gorda. We question whether the storage bunds would withstand an earthquake, which is a serious issue in this area. Spillage of fuel on this scale would be a disaster for the Port Honduras Marine Reserve which immediately borders the site, and for Punta Gorda. There is no mention of provision for specialist fire fighting equipment which would be required when storing this quantity of fuel.

4. We believe that there will be very high noise pollution from the generator or generators, and we find the suggestion that exhaust pipes will be buried underground to be extraordinary.

5. We find no clear description of how power will be generated, there is mention of "one or more" diesel generators, no description of size, no indication where they will be sited, no indication of how they will be operated.

6. The Terms of Reference call for energy supply to be identified during, construction, operation and maintenance phases. This has not been done.

7. There is no mention of the use of butane for cooking, which is the only practical alternative in remote locations where energy is being generated on site. There is no mention of storage, supply, movement or safety measures for handling of butane.

8. On environmental grounds, as called for in the Terms of Reference, the selection of diesel generated energy for this project fails. There is effectively no mitigation for the global warming effects of this method of power generation.

9. Wildlife

1. It is clear that the investigation of the wildlife on this site was cursory at best. In particular, the EIA fails to identify the presence of the rare Bay Snook, (Petenia splendida) present in the lagoon. This species is only present in a few areas in Belize, Mexico and Guatemala, and as such is of great conservation interest.

There is no serious attempt to identify species of conservation interest on the site, as called for by the EIA. The lack of knowledge of the presence of Bay Snook proves this - local people are fully aware of the presence of this fish.

We would expect to see a thorough and extensive study carried out to identify plants, animals, birds, insects, amphibians, reptiles, crustaceans, molluscs and fish present at and around the site.

2. It is frankly laughable to imagine that presence of a community of 400 plus people would not impact the nesting of turtles. The impact of building on this scale alone will be enough to deter turtles from nesting, never to return. For this to be even contemplated in a Marine Reserve is unacceptable.

3. The Terms of Reference call for a programme of monitoring to measure changes in species abundance, vigor and habitat. The monitoring programme suggested in no way meets this requirement. There are no base line measures of species, no description of how this measurement would be undertaken, or by whom, and no measures described to enhance the habitat value of the area, again, called for in the Terms of Reference.

10. Culture, Customs, Social

1. We have an over-riding objection to a development of this size and density being placed in this remote area of Belize. If built, this would be the largest coastal settlement between Placencia and Punta Gorda, - with a population approximately the same as Gales Point - and would be completely out of character with the pristine nature of Belize's south coast.

Although we have little to go on, the artists impressions offered show a grossly crowded, inappropriately designed and frankly ugly development which would not look out of place in a metropolitan suburb. It would be unthinkable to place a development of such ugliness on one of the world's most beautiful and un-spoilt coastlines - the south coast of Belize, The Jewel.

There is no attempt made to use local building styles or local materials, or to blend in any way with the surroundings. This is completely unacceptable.

2. The population would be entirely made up of incomers, who would live in an elite enclave, isolated from the rest of Belize, the residents' only interaction with local people being in role of employers. We believe this to be an intrinsically unhealthy model for what is claimed to be a "modern Caribbean village" development.

In our view, there is a serious danger that Punta Negra would simply become a client village of Astera, losing its cultural roots and independence.

3. Despite the mention of staff accommodation, there is no indication on the plans as to where this would be.

4. We could find a record of only six interviews conducted with Punta Negra residents, four of which were by individuals who were not fully named, as called for in the Terms of reference. There is no record of any other interviews as called for in the Terms of Reference. This is wholly inadequate as a demonstration of consultation.

5. Although TIDE is a key NGO in the area, other NGO's and citizen's groups were not consulted, for example, Southern Environmental Alliance, PACT, Monkey River Tour Guides Association.

6. There is no mention of the status of sport fishers who use the lagoon for fishing, despite their being an interested and affected group. Throughout, the EIA speaks as if the lagoon were in fact the property of Astera resort, which is not the case. For example, the EIA states that it will allow only fly fishing on the lagoon - with what authority? Sport fishermen wishing to catch and release bay snook use lures. This is a long term ongoing local practice and should be considered in the EIA.

7. The actual resident population of Punta Negra is around 16 persons, not 30 as stated, and these are mostly elderly people or children. The creation of 60 plus jobs therefore implies that there will be a need to bring workers in from outside. It is highly likely that the only jobs available to Punta Negra residents will be low status building and cleaning jobs (which in fact was stated at the EIA presentation in Punta Gorda). There is no accommodation available in Punta Negra for this number of incoming workers.

There is no discussion of seasonality. As residents are repeatedly referred to as "guests" throughout the EIA, we imagine - although it is not stated - that we are looking at a time share or fractional occupation model. Even a full residential model has to consider the snow-bird factor, in other words, people living in their home country throughout the summer and moving to Belize for the winter.

This implies that work will only be seasonal. There is no explanation as to how the seasonality of work will affect the local communities. Will people be allowed to live in workers' accommodation, if provided, even if they are laid off for the summer?

8. No consideration was given to the vulnerability of young local populations to people who might wish them harm. Underage sex with tourists is a serious problem in Belize, fully acknowledged by the BTB, BHA and BTIA. The developers give no indication of any awareness of this issue. This consideration is clearly called for in the Terms of Reference under the heading Customs and Culture.

9. Despite the much proclaimed social benefits to Punta Negra, there is no indication of how these will be achieved. Access to shops, which are likely to be more expensive than local residents can afford, is a minimal benefit (except perhaps for the shop owners). Access to health care is predicated on GOB being able to provide and pay for a health care professional, which seems unlikely. There is no indication as to how the promised "share" of potable water will be delivered to the village, and no indication that, for example, there will be provision of power - which would be a major benefit to the villagers. In fact, there is not a single promise of any real benefit to the villagers.

In most countries, a development of this size and potential impact would be expected to provide substantial benefits to the local community up front - not just crumbs from the table. Appropriate benefits would be; provision of electricity to the village, provision for sewage and waste disposal, rebuilding and funding of the school, building of a community centre and sports facilities etc.

It is unclear whether outsiders would be able to use the facilities of Astera. Shops are mentioned, but not access to restaurant, bar and sports facilities, and refueling of boats is specifically denied to outsiders. So we have the specter of facilities where you are allowed to be the worker, but not the customer. The question of integration, as required by the Terms of Reference, is not addressed.

10. As called for in the Terms of Reference, there is no mention of police/security services, or of fire services, nor of pest and vector control.

11. Disaster management

1. It seems clear that there is no plan for evacuation of residents in the event of hurricane, fire or other emergency. At the EIA consultation at Punta Gorda, it was made fully clear that residents were to be responsible for themselves. This is a crass and negligent attitude.

We were told at the EIA consultation meeting at Punta Gorda that residents will be evacuated to Big Creek. The developers' representatives were unable to explain how this would be done, or where the people would go once they had arrived.

As there is only mooring for 24 seagoing skiffs, then we can assume that these will be used for evacuation. How will they evacuate 465 people and even minimal possessions? And where will they actually go? The obvious place for people to run would be the nearest road access to the mainland i.e. Monkey River Village. Monkey River Village has a population of 200, and is in no way capable of dealing with such an influx of people. The hurricane shelter at Monkey River Village is not fit for use, the road is sometimes flooded, meaning escape by road is impossible (for example, during the near miss of Hurricane Felix when everyone was prepared to evacuate by boat.)

The thought of 400 plus people, unaccustomed to the requirements of hurricane evacuation, with a big storm bearing down fast and no evacuation plan in place or viable method of moving so many people out at once should be a great concern to GOB, as in the outside world, the government would be seen to be at fault if lives were lost. The ability of local populations to evacuate could also be jeopardised, which could lead to inter-community friction.

2. There is a comfortable assumption in the EIA that there will be plenty of warning before a hurricane hits. Hurricane Ida went from Tropical Depression to Category 1 Hurricane in 24 hours (1500 GMT 4th Nov to 1500 GMT 5th Nov. 2009). The disaster plan should be based on a 24 hour maximum warning time. Three days is unrealistic. The EIA therefore fails on this point.

3. There is no provision for emergency medical evacuation. As we were told that the only planned shop so far is a pharmacy, we are entitled to believe that the residents will be elderly, and therefore subject to sudden severe illness e.g. heart attack and stroke. There appears to be no provision for helicopter landing, or any form of medivac provision.

4. There is no mention of mortuary provision. In an elderly population of over 400 in a hot climate, this is a serious moral and hygiene consideration.

5. There is no mention of a police presence, or how the police will be accessed if required. Even the much smaller community of Monkey River Village has a resident police officer. There is no discussion as to Civil Security as called for in the Terms of Reference, apart from some minor mention of the registering of firearms and resolution

of disputes between guests and workers. It does not seem to occur to the developers that there might be theft, burglary, assault, even murder to deal with - between residents!

6. There is no evacuation procedure for fire, despite the fact that fires are a serious issue in Paynes Creek, and despite the presence of large amounts of combustible fuels on site.

7. There is no provision for earthquake, despite the recent destructive earthquake, the main effects of which in Belize were felt in Monkey River (just 7 miles away from Astera), involving the destruction of several houses and considerable loss of property. The rupture of containing structures for contaminants such as fuel, liquid waste, brine etc, or the rupture of the seawater canals into the lagoon as the result of earthquake has simply not been considered.

12 Alternatives

It is plainly untrue to claim that "the public's benefit is strongly in favour of the project's implementation." Indeed it is hard to find any benefit to the public. Judging by the opinions and mood of the people at the recent Public consultation in PG, the people and local Punta Negra residents are very much NOT in favour of this development.

Jobs? Developments elsewhere have shown us that cheap labour tends to be imported from immigrant areas, and locals being largely untrained for any meaningful work on residential sites such as this, end up, if they are lucky, with a very few low level jobs such as security guards, junior cooks and cleaners.

Tourism? The people buying these houses are, we are told, owner occupiers i.e. residents. They will doubtless purchase or bring with them their own boats, and crew them themselves. There will be little or no call for tour guides after the first six months.

Trade with the local community? PG, is the only place within easy reach in Belize which can offer anything to the residents. PG is 45 minutes away by what can be a difficult boat ride, even for experienced sailors. Undoubtedly there will be some restaurant business, some local purchases, and local trade, but not much. Residents will quickly discover that buying from Belize City or even importation from US or Guatemala is a better bet. Visiting Guatemala or Honduras is likely to be far more popular. Such an isolated community will never integrate into the life of Belize. In fact, the traditional orientation of Punta Negra for trading and shopping has been to Puerto Barrios.

It would appear from Table 23 that no options have been identified other than non-development which indicates again the precarious nature of this EIA. We would repeat that it is NOT reasonable to accept an option as being the preferred option when no alternatives have been identified. Not developing the area is ALWAYS an alternative until such time as the plan is agreed (if ever). We repeat, the Department of the Environment and the Government of Belize have no obligation to mitigate the losses of foreign or even Belizean investors who produce bad development plants and get rich quick schemes.

13 Potential impacts and mitigation

The construction of Astera will, by the developers own admission, lead to unavoidable damage to the shoreline of the lake and beach.

The EIA confirms there will be a temporary and perhaps permanent loss of flora and fauna only partially reversible.

The risk of pollution from run off and from effluent pumped into the sea is real and highly likely. Experience in Europe shows us that direct discharge into the sea inevitably leads eventually to pollution incidents - usually in time of flood or storm.

The lake is at high risk of effects of water abstraction as well as pollution via storm runoff. Again we believe this to be unavoidable, given the low lying land and high severe rainfall.

The knock on effects of silt and sea pollution could, by the developers own admission lead to shore erosion in the vicinity or perhaps on the nearby Cayes. No-one knows what will happen if sand is dredged from the seabed.

What is known is that lobsters in particular and fish are very sensitive to pollution, and even if they are able to survive in the area, their numbers may reduce and they would almost certainly not be fit for human consumption or meet export standards to the USA.

14. Monitoring and decommissioning

Monitoring plans are incomplete, inadequate, and lack technical expertise.

The EIA totally fails to make any mention of decommissioning, which in our opinion is perhaps the most important failing in the entire document.

With the uncertain economic times we face, the plethora of competing developments, the general inadequacy and evident lack of professionalism of the development team, we believe that should this development ever commence, it would be highly likely to fail.

Belize has many examples of projects which have been started and not finished, and just left to rot, a blot on our landscape and a danger to our environment.

It is therefore of the utmost importance that a full and detailed decommissioning plan be provided which would return the site entirely back to the state in which it was before development began.