IN THE SUPREME COURT OF SEYCHELLES

Shami Properties (Proprietary) Ltd.

of Sound & Vision House

Victoria, Mahé,

herein represented by its

Director **Mr. Shirish Dhanjee** **Plaintiff**

vs.

Oliaji Trading Company Limited

of Oliaji Trade Centre.

Victoria. Mahé

herein represented by its

Director Mrs. Soona Oliaji **1st Defendant**

And

Laxmanbhai & Co. (Sey) (Pty) Ltd

of Allied Building

Victoria. Mahé

herein represented by its

Director Mr. Ramji Premiji Kesra **2nd Defendant**

Civil Side No.440 of 1999

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Mr. S. Rouillon for the plaintiff

Mr. D. Lucas for the defendants

D. Karunakaran, J.

JUDGMENT

The Plaintiff in this action is a company and proprietor of a business premises known as *"Sound & Vision Building"* (SVB) situated at Francis Rachel Street, in the heart of town Victoria, Mahé. It is a 3-storey building consists of several office and shopping units on all three floors. This building was constructed in 1994-1995 by the building contractors known as "Harry Builders (Pty) Ltd."

The 1st Defendant herein is also a company and the proprietor of business premises - a shopping complex - known as "Oliaji Trade Centre" (OTC) situated adjacent to the said *"Sound & Vision Building"*. This building OTC is also a multi-storey building consists of several office and shopping units on all floors. The 2nd Defendant Laxmanbhai Pty Ltd is the building-contractor who constructed the "Oliaji Trade Centre" in 1996-1998

The Plaintiff completed the construction of the Sound & Vision Building in September 1995 and the Defendants started the construction of the Oliaji Trade Centre in 1996 and completed it in or about June 1998. The SVB was constructed on Parcel V6545 owned by the Plaintiff and the OTC was constructed on the adjoining parcel of land V3247 owned by the 1st defendant.

The plaintiff avers in his plaint that due to the construction of the Oliaji Trade Centre adjacent to the Sound & Vision Building, the Sound & Vision Building has been materially affected by the excavation and other construction works, which were carried out by the defendants for the erection of the Oliaji Trade Centre.

As a result of the said works by the defendants, the plaintiff avers that cracks have appeared in structural and non structural elements of the Sound & Vision Building due to the settlement of the existing foundation of the Sound & Vision Building by a combination of various elements caused by such excavation and other construction works carried out by the defendants in putting up the OTC building. According to the plaintiff the cracks started

appearing upon the commencement of excavation works on the Oliaji Trade Centre approximately in April or May 1996. There were no cracks on the Plaintiffs building prior to that date.

Besides, the plaintiff claims that its building was affected by the said excavation and construction works due to the total lack of shoring up or precaution taken to protect the soil below the plaintiff's building by the defendants before any excavation works were carried out, especially as the defendants were excavating well below the plaintiff's building foundation level. Moreover, it is the case of the plaintiff that defendants' fault in failing to shore up the land prior to construction of the Oliaji Trade Centre was the cause of the damage caused to the plaintiffs property. The soil below the plaintiffs building was also affected during construction of the OTC building due to the complete lack of precaution abovementioned by the defendant which resulted in severe earth movements when heavy machinery used in construction works loosened the soil below the plaintiffs building causing cracks in the plaintiffs building and settlement of the land.

The plaintiff further avers that the remedial work was necessary inter alia, to arrest the settlement process and repair the damage to the Sound & Vision Building. Such remedial work has caused and will cause the plaintiff to incur expenses. According to the plaintiff, the remedial work is still required to repair cracks in the walls and floors of that Building. Besides, the plaintiff claims that it has suffered loss and damage due to depreciation at the value of the Sound & Vision Building, because of the damage caused to that building, in addition to other consequential losses.

It is further averred in the plaint that the 1st defendant being the owner and custodian of the parcel of land V3247, is liable to the plaintiff for the loss and damage hereinbefore specified in terms of Article 1384 of the Civil Code of Seychelles. Moreover, the 1st defendant being the owner and custodian of the parcel of land V3247, which adjoins parcel V6545 owned by the plaintiff, the 1st defendant is liable in law (under article 1382) for such loss and damage caused to the plaintiff by the defendant by abuse of its right of ownership; in that, the erection of the OTC building on parcel V3247 caused loss and damage to the plaintiff in respect of the Sound & Vision Building to an extent that went beyond the measure of the ordinary obligations of neighborhood.

Furthermore, the plaintiff claims that the 2nd defendant, as the contractor who constructed the Oliaji Trade Centre, it is liable jointly and severally with the 1st defendant for the loss and damage suffered by the Plaintiff.

The plaintiff thus claims that it has suffered loss, damage and inconvenience as a result of the fault of the defendants. The particulars of such loss, damage and expenses allegedly incurred by the plaintiff are shown in the schedule to the plaint as follows:

SCHEDULE

1. Underpinning works carried out by Laxmanbhai & Co Rs. 120,000

2. Consultancy/supervisory fees by Joe Pool Associates Rs. 20,000

3. S. Dhanjee's visit to Singapore/Malaysia to search/identify

   Geotechnical company in April 1998 Rs. 20,000

4. Mr. Koo of Geolab Investigation visit to

   Seychelles May 1998 Rs. 20,000

5. Geolab's grout injection work in November 1998 Rs. 20,000

6. Cost of Mr. Koo's trip to Seychelles for carrying out

   the grout injection works Rs 190,000

7. Shipping/insurance costs of Geolab's special equipment Rs. 10,000

8. Local contractor's cost including cement/labor/

   transport etc... for the grout-injection works Rs. 35,000

9. Tax of the grout injection work Rs. 30,000

10. Cost of wok for repair of ground floor and various

Cracks (refer Barker & Barton repair valuation)	Rs. 210,000
11. Barker & Barton professional fees	Rs. 2, 500
12. Legal fees	Rs. 50,000
13. Moral damages	Rs. 300,000
14. Future costs including loss of future rent	Rs. 200,000
15. Incidental expenses i.e. telephone/fax etc...	Rs. 20,000
16. Loss through depreciation	Rs. 200,000
17. Cost of structural engineer (as mentioned in Mr. Koo's letter).	Rs. 10,000
18. Interest on disbursements	Rs. 10,000

Total Rs 1,632,500

According to the plaintiff, despite extensive and expensive remedial measures taken by the plaintiff, the damage in the plaintiff's building still exists and is continuing.

In the circumstances, the plaintiff claims that the defendants are liable to compensate it for the said loss and damage. Therefore, the plaintiff prays this Court for a judgment against the defendants jointly and severally in the sum of Rs. l, 632,500 with interest at the commercial rate and costs.

On the other side, both defendants refute all material facts averred in the plaint and dispute

the entire claim of the plaintiff. In their written statement of defence, the defendants deny the plaintiff's allegation that excavation and other construction works carried out by them had materially affected the *Sound and Vision Building.* The defendants also aver that if the plaintiff's building were materially affected the same was due to the fault and negligence of the plaintiff and/or his servants, agents, employees, contractors, architects or structural engineers, who constructed the building.

Moreover, the defendants state that if cracks had occurred in the plaintiff's building, they were not caused by the works carried out by the defendants. The defendants further aver that cracks if any, they could have been caused only by the plaintiff's employees, agents, servants, contractors, architects and engineers through their negligence and fault, in the construction of the *Sound and Vision Building.*

Further the defendants aver that in the event, which same is denied, of such prejudice, damages and loss, the Defendants are not liable in any manner and any sums whatsoever and that such loss prejudice and damages, if any, are due solely to the actions, omissions, fault and negligence of the plaintiff, its servants, agents, employees, contractors, architects and structural engineers. The defendants further aver that at the start of work on the "Oliaji Trading Centre", the defective nature of the plaintiff's building was drawn to the plaintiff s attention.

The 1st defendant denies that he is liable to the plaintiff under Article 1384 (1) or under any other Articles of the Civil code of Seychelles. The 1st defendant has averred in its defence that the construction works were contracted to the 2nd defendant, an independent contractor and principal, who performed the works in accordance with and instructions of the architect Mr. Harry Tirant and structural engineer, Mr. Joe Pool, both of whom were not the servants, employees, agents or preposés of the defendants but were licensed independent contractors, principals and professionals, contracted for their professional skills and that both defendants were not responsible for them or their acts or omissions, if any. Further and in the alternative, the 1st defendant avers that if it is found to be at fault, which same is denied, the Plaintiff was contributorily negligent and at fault.

The 1st defendant also denies that he was in any way or manner liable to the plaintiff. The 1st defendant further avers that there was no abuse of its rights of ownership and that the plaintiff does not have a cause of action against the 1st defendant. Moreover, the 2nd defendant avers that it was and is not liable for any damages, prejudice or loss if any, sustained by the plaintiff. According to the 2nd defendant, the plaintiff does not have a cause of action against the 2nd defendant. Further, the 2nd defendant avers that in the construction of the "Oliaji

Trade Centre", it followed and adhered to the plans and instructions of the architect and the structural engineer, both of whom, the 2nd defendant avers, were not its employees, servants, agents or preposés but were both independent contractors, principals and professionals. Hence, the 2nd defendant was and is not responsible for them. Further and in the alternative, the 2nd defendant avers that if it is found that it was at fault, which same is denied, the plaintiff was also contributorily negligent and at fault. In the circumstances, both defendants deny liability and seek dismissal of this action.

The facts which transpire from the evidence adduced by the parties are in essence, these:-

Mr Shirish Dhanjee - PW2 - a director of the plaintiff-company Shami Property (Pty) Ltd testified that the plaintiff- company is the owner of the Sound and Vision Building. Right next door to this building lies the building "Oliaji Trade Centre" (OTC) owned by "Oliaji Trading Company" the 1st defendant herein. This building OTC was constructed by the 2nd defendant, the construction company namely, Laxmanbhai & Co. (Sey) (Pty) Ltd. The construction of the "Sound and Vision Building" (SVB) was completed in September 1995, whereas the construction work for Oliaji Trade Centre began in or around April/May 1996 and the building was completed in 1998. According to Mr, Dhanjee the constructions works carried out on the "Oliaji Trade Centre" caused damage to his building. He noticed certain cracks started appearing on SVB, the moment the defendants started demolishing the old structures that existed then on the site. These cracks started appearing gradually, as the construction work progressed and heavy machines such as JCB, crane etc. were used. As a result there were a lot of tremors, which affected the SVB and more cracks started appearing. All the cracks on the floor and on the walls are still visible - vide photographs in exhibit P3 - despite his expensive and extensive measures to remedy the damages and maintain the structure of the building. Mr. Dhanjee also testified that there were no cracks on his building before, but all started appearing only during the construction period of OTC.

Mr, Dhanjee further stated that the building had been affected in several ways. All these cracks appearing on the walls and the floor obviously going down in the middle, it is still there today. Certain claims had been made before and that had been paid for. But what he is claiming now is compensation for the loss and damage he suffered as a result of the remedial work he carried out to rectify and mitigate the damage caused to the building due to

soil movement and settlement and also to fix the floor along the boundary and the cracks on the entire structure of the building.

He further sated that all the tenants like Mr Ramani - PW5- in the building SVB, the staff, people who had been around, all noticed the cracks. They also felt the tremors, which was going over quite a longer period of time during construction. Quite earlier on during the construction, there appeared lots of cracks and settlement. Not knowing what really was going on, it took Mr. Dhanjee a while to decide what to do. He was advised that he needed a geo technique engineer to come and arrest the soil movement/settlement. He did not understand what really happened to the building and the technical reasons for the cracks, soil movement, settlement etc. He did not know what actually it was and who to contact, who to approach, who was going to assist in whatever needed to be done. Later, after taking advice from local and overseas experts in the field, he understood what really caused the damage to his building. The cause for the damage was the soil below his building was not protected well before the defendants started the work on their site; so the soil below SVB became very loose and was completed exposed by the excavation carried out on defendants site. In order to prevent any further soil settlement, one had to fill in the void in the loosened soil. There is a special way of doing it, called ***grout injection.*** There is no expert in this field in Seychelles to do this special job. This had to be done only by a specialist construction-company from overseas. Hence, Mr. Dhanjee had to make some enquires overseas and look for such specialist companies to do that job. This move took him some time and was very expensive.

Further, Mr. Dhanjee stated that by the time he discovered the cause for soil loosening under his building, the whole area of "Oliaji Trade Centre" had already been totally excavated and the soil under plaintiff's building had already been exposed. Therefore, it was too late for him to make any efforts to arrest the settlement or the damages after the event.

The defendants couldn't go ahead with the construction work at the stage, when they realised that there was some mistake on their part in carrying out the excavation work without shoring up the adjacent soil. At that stage, that was in June 1996, Mr Joe Pool - DW4 - a Civil Engineer, who was in charge of the defendants' construction, immediately approached Mr. Dhanjee and told him apologetically that his building - SVB - could collapse, if no remedial measures were taken. In fact, Mr. Pool appeared terrified when he approached Mr. Dhanjee

and told that he would put up extra support along the boundary between the two buildings and arrest the loosening of soil.

The plaintiff carried out the remedial work in two phases. The 2nd defendant Laxmanbhai and Company did the first phase locally. The plaintiff engaged this company since they were the contractors for the OTC project next door; and they were already on site. The first phase involved what is technically called ***"under pinning"*** which means strengthening the foundation by constructing concrete columns below the ***"pad footing"*** foundation of the building. This can be explained in layman's language thus: Basically the building is built on pad footings; so there are about 8 to 9 pad footings along the boundary where the defendants had excavated. They were all exposed since the defendants had already removed the earth away. So, they could not bear the load of the building since the soil had been removed. The best way to solve this problem and to get on with defendant's work on defendant's site was to put up concrete columns below each of the pad footings. There were 8 pad footings, below each of them they had to dig obviously supporting the place first, and then somehow make an extra concrete column so that the ***pad footings*** would sit on them. That would prevent the building from sinking/going down on the side of the defendant's site. Thus, the first phase of the remedial work namely, ***"under pinning"*** was carried out by *Laxmanbhai and Company* and for that job the plaintiff had to pay them a total sum of Rs120, 000/-

After this work was done, the defendants proceeded with construction of their building. However, the second phase of remedial work as to settlement was still there as the soil had already been loosened. Obviously one had to solidify the soil in some way. That could be done only by a method, what is known as ***"grout injection"***. This can be explained in layman's language thus: Basically, a number of deep holes are dug around the area of loosening soil and some fluid cement material or concrete is injected through those holes using high pressure pumps with some very special machines. The injected materials enter the low pressure areas, solidify the soil and give better bearing capacity to prevent further settlements. Since this technology and facilities are not locally available, the plaintiff had to

engage an overseas company "Geolab (M) SDN. BHD" from Malaysia to do the job in Seychelles and prevent further settlement and damage to the building. This company provides consultancy and Geo-technical Engineering services.

In fact, the plaintiff first had to travel to Singapore and then to Malaysia and search for a company, which could do the ***"grout injection" in Seychelles.*** He identified two companies one was a Singapore company and the other one was a Malaysian company. The Singapore Company was more expensive and this job was too small for them. So, they recommended the Malaysia Company "Geolab (M) SDN. BHD" The plaintiff approached them and they agreed to come and first visit the building, identify the problem, find out the requirements and then they might agree to do the job. Accordingly, they came to Seychelles, surveyed the building in May 1998 and the actual job was done in November 1998. It was a grout injection work. This work was completed by **"Geolab"** with the help of a local construction company **"Unicorn Construction"**, which provided workforce, transport, cement and other miscellaneous requirements for the completion of the ***"grout injection"***. The plaintiff had to do all the organizing and arrangements to carryout this work. He had to bring in special equipments from Malaysia; it took some time; special materials were also brought in. The work took two weeks. They worked day and night so as not to cause inconvenience to the traffic, pedestrian etc. It involved boring 40 holes all around the place and then injecting cement mixture under pressure, which hardens after hours or days. This was done with a special pump which had been brought in; it sends the mixture to all spots where there were holes. It was under pressure so it could reach all distance soft spots to strengthen the soil under the foundation. The plaintiff had to spend around US$ 40,000/- to pay for that remedial work.

Mr. Dhanjee further testified that he was compensated by the defendant's insurers SACOS for some of the minor claims the plaintiff made in respect of expenses it incurred for plastering the damaged roof, paintworks, fixing the pavement outside etc. All these claims, which are not claimed in the instant suit, were paid by SACOS, which even had employed its own assessors to assess whether the plaintiff's claims were true and correct. All

those claims were paid presumably since the 2nd defendant had been very negligent and careless in what they were doing and caused loss and damage to the plaintiff, a third-party. That is why, their insurer (SACOS) paid for everything.

Moreover, Mr. Dhanjee testified that he received a number of complaints from the tenants, who were occupying the building at the material time as they could not stay in the building due to cracks, water leaks, noise, trembles and dust all around the building, which were all caused by the construction work carried out by the defendants. For instance, water went into one of the tenant Mr Ramani's office - PW5 - on the first floor on several occasions due to cracks and a lot of trembles affected them. On the ground floor is the Habib Bank and they were also complaining about the cracks and the noise. The Bank Manager, who was staying on the top floor in the apartment also moved out because of the noise and dust vide exhibit P5.

As regards existing damages to the building, Mr. Dhanjee stated that the main one is to the floor because on one side that is, towards the OTC side the floor is slopping but not on the other side. This shows obviously, the earth had moved more along the side of OTC building. The plaintiff, employed Barker and Barton Quantity Surveyor to inspect the SVB and give an estimate of the additional costs of works still required to be done and that includes all the cracks and the damage to the floor. They submitted a report quoting cost estimate for that repair alone at Rs 210,000.00 The plaintiff paid a fee of Rs 2,500/- to "Barker and Barton" for the same. It is not possible to do the floor work unless the tenants move out as the contractor will have to do the whole area, the entire floor have to be redone removing the tiles and the retiling it again.

Mr. Dhanjee further testified that the SVB was constructed by the building contractors "Harry Builders (Pty) Ltd" at the total cost of R2.2 million. He chose "Harry Builders" because at that time it was one of the contractors that were popular and they had built various buildings of the same size in town. For instance, they built "Kot Baba" building at the La Misere roundabout. They have done "Chez Deenu Building" next to the Hindu Temple.

They have done Deevas Arcade at Market Street. They have also done a few 3-storey buildings in Town including "Chung Faye" building at Mont Fleuri.

The SVB building was built according to plans, drawings and consultancy advice given by the experts in the field. Moreover, Mr. Dhanjee stated that the pavement outside Habib Bank, which had been done together with the building SVB was good before the defendants started construction on their site. However, this pavement was completely damaged because of the use of heavy machineries such as cranes, huge 10 tons trucks, JCB, which were passing on the pavement in and out, when the defendants were doing the construction. The pavement was not made to carry such heavy loads. The plaintiff carried out remedial works for the damaged pavement. However, SACOS paid for those expenses. The plaintiff is not claiming them in the instant suit. Besides, Mr. Dhanjee testified that travel- fares on his trips to Malaysia and Singapore to engage overseas companies cost him R20, 000. The "grout injection" charges were almost R200, 000, and there were additional costs of freight and insurance to bring those special equipments in and cost of accommodation. For the insurance alone, he had to pay Rs20, 400. It all had to be paid in foreign currency. The external cost was paid in US dollars, whereas the local cost was paid in Seychelles rupees. Further, the plaintiff claims a sum of Rs175, 000/- from the defendants towards interest applied at commercial rate on all the disbursements he made for the said remedial works. According to Mr. Dhanjee, the market value of his building has been adversely affected and depreciated as public have now come to know that the building had been damaged and repaired. Mr. Dhanjee further testified that because of the entire episode caused by the fault of the defendants, he suffered mentally and physically. He had to go from one expert to another for advice and consultations and had to organise different things from different sources. In that process, he had to undergo lot of stress, psychological pressure, inconvenience and many other difficulties. Hence, the plaintiff claims moral damage in the sum of Rs300, 000/- from the defendants.

Furthermore, Mr. Dhanjee testified that the cracks and other damages, which occurred to his building, were caused not by any negligence or fault or any defective workmanship on the

part of his own contractors, architects and structural engineers, who built his building, but only through the fault of the contractors who built the OTC building as they failed to take the necessary precaution before any work was carried out to protect the soil below his building. In the circumstances, the plaintiff claims that both defendants are jointly and severally liable to compensate the plaintiff for the said loss and damage. Hence, the plaintiff prays for the judgment in the total sum of R1, 632,500 with interest at commercial rate and costs.

Mr. Koo Kean Siang - PW2 - the General Manager of the Malaysian Company GeoLab (M) Sdn. Bhd testified that he is basically a civil engineer with a master degree in Geo-technical Engineering from the Asian Institute of Technology. He has been working in the field of soil and concrete technology since he graduated in 1986. He started his career as site engineer in Singapore. He has vast knowledge and wide experience in soil investigation, ground improvement, technical grouting and pressure grouting. He has also been involved in structural repairs, demolition of building, and soil implementation for deep excavations. He can conduct technical investigation and find out the factors that cause sever damage and cracks and even collapse of big buildings. As an expert in geo-technical field he has given expert opinion evidence in Courts of law in different countries and his evidence has been accepted. According to him, about 20 years ago, we did not have modern techniques, what we have today to do good foundation for big buildings. Nowadays, when we want to dig or excavate soil to lay deep foundation or very big basement for, let us say 2 or 3 storey buildings, we use lots of precautionary techniques such as shoring, strip piling, timber legging in order to protect the soil in the surrounding areas from collapsing and to save damage to buildings if any located on such areas. The "GeoLab" the company, the one he is now working for, is specialized in this particular field of geo-technology and is having branches in Singapore and three other states in Malaysia.

Coming back to the case on hand, Mr. Koo - PW2 - testified that Mr. Dhanjee - PW2 - in 1998 approached his company's branch in Singapore and sought their services stating that his building in Seychelles had cracks due to constructions carried out in the adjacent land. Mr. Koo readily accepted the work for the plaintiff's building, as it came out to be quite similar to the cases his company had been dealing with in the past. Hence, in May 1998, Mr. Koo came

down to Seychelles to have a preliminary inspection of the site. He stayed in Seychelles from 27th to 31st of May, 1998 and conducted site inspection and investigated the problem. He prepared a detailed preliminary report on the assessment of damage to SVB with remedial proposal. Mr. Koo produced a copy of this report in evidence and the same was marked as exhibit P1. The salient parts of the report inter alia, read thus:

1.0 INTRODUCTION

Our Company, Geolab (M) Sdn. Bhd. is a foundation, soil and concrete specialist, which has vast experience in undertaking inspection and remedial works to foundations. In April/May 1998, we were approached by Mr. Shirish Dhanjee of M/s Shami Properties (Pty) Ltd of Victoria, Mahé, Seychelles to inspect and advise on the reported settlement problem of Sound and Vision House in Victoria. Inspection visits were carried out on the 27th to 31st May 1998.

2.0 DAMAGE ASSESSMENT

A 3-storey Sound & Vision building was constructed on 1994/1995; the foundation of the building was reported to be isolated pad footings. The building was also reported to be sound and intact i.e. without any visible crack on structural and non-structural elements such as column, beam wall and slab ever since it was constructed until prior to the adjacent new building started its construction works in 1996.

It was further reported that cracks appeared on walls, beams, columns and floor slab immediately after the construction activities in the erection of New Temooljee Building next door, starting from earthworks till completion of the building in 1998.

Our recent site inspection on the building in May '98 revealed that cracks appeared on the structural and non-structural elements such as column, existing beam, slab and wall of the building, which is due to settlement of existing foundation, which is normally caused by any one or combination of the following factors:

1. The lowering of ground water level.

2. Soil movement

3. Consolidation of compressible layer

4. Differential settlement

5. Heavy compaction activities close by the vicinity of the building.

3.0 REMEDY

3.1 REMEDIAL METHOD

When a foundation failure occurs, various type of underpinning works can be adopted for stopping the excessive settlement permanently such as:

1. *Micro piling works*
2. *Jet grouting*
3. *Pressure grouting*

3.2 REMEDIAL PROPOSAL

The choice of remedial methods will depend mainly on technical, site constraints and/ or financial considerations. In the absence of information on sub-surface soil data, structural condition of existing footings and in view of space constraints and occupants within the premises, we propose to carry out remedial method which is by using pressure grouting. In this method, non-shrinkage cementations grout will be pumped into the ground with certain pressure for stabilizing the soil underneath the footing (the compressible zone) in order to prevent further settlement as well as to improve the soil bearing capacity (refer page 4&5 for the pressure grouting works quotation and terms and conditions).

4.0 CONCLUSION

The abovementioned has happened due to earthwork activities such as excavation work, ground compaction and movement of heavy machinery in the vicinity of the existing building without taking proper precaution, and has resulted in lowering of ground water table, soil

movement and differential settlement of foundation of Sound and Vision House.

Thus, after conducting his investigations, the expert Mr. Koo came out with a proposal and a quotation recommending that *"grout injection"* is the best method to repair and arrest further settlement from occurring. Actual work started in November 1998. He sent his project coordinator to Seychelles to supervise and carry out the work for the plaintiff's building. The work was carried out accordingly. The plaintiff paid the sum US$ 35,000/- (then) equivalent to SR200, 000 to GeoLab. Mr. Koo after the completion of the remedial works prepared a report in exhibit P2, which inter alia, describes the works done as follows:

Introduction

1. Remedial method by using pressure grouting to foundation of Sound and Vision House, Victoria, Mahé, Seychelles was implemented and works were carried out between 14- 27th November 1998. In this method, non-shrinkage cementations grout was pumped into the ground with certain pressure for stabilizing the soil underneath the footing (the compressive zone) in order to prevent further settlement as well as to improve the soil bearing capacity.

2. Procedure of Works

Refer below - method statement.

3. Mackintosh Probe Test Results and Pressure Grouting Works.

10 nos of Mackintosh Probe Test [M1 to M10] as indicated in location plan - Appendix A) were carried out and the test result recorded that approximately 3.0 m from ground level was compressive material below 3m range between 20 - 30. It was further confirmed that petty clay with traces of sand were encountered during hand augering from 0 - 3.m. Therefore, soil improvement by using pressure grouting was carried out from 0 - 3.0 m below ground level at 32 locations as indicated in Appendix A.

A total of 361 bags of cement were pumped into 32 grouting point and as the cement grout percolate through the annulus and voids in between soil particles the bearing capacity of the

soil will definitely be improved. Generally the unconfined compressive strength of soil-cement grout mixture can be expected in the range of 30 - 5OKN/m2. Since the bearing capacity of the soil has been improved, further settlement of the building will not be expected to occur. However, settlement monitoring such as installing tell-tale on crack line will be useful to monitor/detect any occurrence of settlement after the soil improvement works.

1. ***Method Statement***

   1. Bore a 4" diameter hole into concrete slab near the column area where ground improvement to be carried out.

2. *To carry out soil test by using Mackintosh Probe inside the cored hole in order to determine the soil bearing capacity.*

Extract soft material from the cored holes using hand auger method which reveals from Mackintosh Probe Test result.

Repeat step 1 to 3 at locations where soil improvement works to be carried out.

3. Patch up all the cored holes with quick hardening cement and insert inlet and outlet grout tubes for pressure grouting purpose.

Pressure Grouting

6.1 Material Ordinary Portland Cement (OPC)
Sika lnterplast-Z (additive)
Water Cement Ratio = 0.45

6. 2 Mixing of Grout

Pour 22.5 liters of water into the grout mixer first, and then add 50kg of Ordinary Portland cement (OPC) and 0.25kg of Sika Interplast-Z. For thoroughly mixing, it should continue at least 2-3 minutes by using mechanical mixer until uniform consistency is obtained.

6. 3 Grouting Equipment.

The grout injection equipment (using high pressure piston pump) should be capable of continuous operation with a little variation in pressure and should be able to circulate the

grout to fill up the voids. The equipment should usually have a delivered pressure not exceeding 1 ON/mm2.

6.4 Pumping of Grout

Flowable cementations grout should be continuous and it should be slow enough to avoid segregation of grout. The grout must be pumped until a pressure of 20 - 30 PSI is achieved in order to ensure complete filling of the void/gaps. The grouting operation shall commence from grout pipe at lowest grout point and proceed progressively until the proceeding grouting pipe is completely filled by observation from the overflow of the successive grout pipe.

6.5 Removal of Grouting Pipe.

All grouting pipe will be cut and removed after they are hardened.

The expert Mr. Koo was cross-examined by the defendants' counsel Mr. D. Lucas at length challenging the accuracy and validity of the opinion evidence given by him and in the process disputed the technical aspect of his propositions on which the expert based his opinion. Mr. Koo under cross examination admitted that although it was not good to build on highly compressible materials, in modern times the geo-technology had developed to such an extent that building can now be erected on any type of soil provided necessary precautions are taken. Now, Engineer can build anything, it depends on how much you have, you can always design the structure to suit the requirements of soil because there are many modern techniques like soil improvement, etc. Technically there are so many types of foundation, pile foundation, raft foundation, isolated footing, continuous footing, combine footing. Only soil engineer can tell after gathering a lot of information on the soil, the soil strata, etc as to which type of foundation is the best in a particular case.

Further Mr. Koo maintained in cross-examination that the purpose of his visit to Seychelles was to first find out what had caused the problem to the plaintiff's building and what the remedies he as an expert, could propose and execute to solve the problem. He did

not come here to construct any building, or to testify in Court for or against a party, but only to do his specialised job of grouting and to strengthen the foundation to the plaintiff's building. In his opinion **"pile foundation"** is the best, for any building erected on the terrain like that of the plaintiff. Actually there are many solutions to put up a good foundation. Because when one gives proposal to foundation they will give the client to choose. 1, 2, 3 and 4. It will depend on the budget and depend on your design. He further stated that ***"jet-grout pile"*** by pumping cement to improve the strength of the loose soil is a very modern technique because if one says that the budget is not a problem one can use "**a jet-grout pile"**. That is the second best in his opinion.
As mentioned in ***Tomlinson*** (an Authoritative Book on Geo-technology) even raft foundation can incur differential settlement.

According to Mr. Koo, even if a building erected on soil consists of different strata, which is prone to differential settlement, as long as one does not disturb the terrain below the building by carrying out excavation work around or by creating some soil movement around, and as long as you do not impose different loading on foundation, then the building will not collapse or be affected. He further stated that even though "differential settlement" might happen in cases, where the soil consists of "different strata" containing highly compressible organic materials beneath, such settlement might take only months not years. In fact, highly compressible material undergoes immediate settlement within months.

Further, Mr. Koo stated in cross-examination although ***Tomlinson*** says that differential settlement can occur within a few months and can go up to three years it all depends upon the amount of the load applied, and also it depends on the soil. Hence, each case has to be determined based on those variables. According to Mr. Koo, mere variation in strata on its own will not lead to differential settlement, unless an external factor or force such as load on the building or soil movement such as nearby excavation applies on the system.

It is correct to say that there are different measures of precaution one may take to alleviate the effect of differential settlement. One way of alleviating an effect of differential settlement, is the provision of **a rigid raft foundation** either with a fix slab or with deep

beams in two or three directions. The second way of alleviating differential settlement would be the provision of **deep basements** to reduce the ***net bearing pressure.*** A third way of alleviating the effects of differential settlement is the transference of foundation loading to deeper and less compressible soil **by means of basements, piers or pipes.** A fourth ways of alleviating the effects of differential settlement is the provision of ***jacking pockets or brackets in columns to re-level the soil strata***. There is also a fifth or final way of alleviating differential settlement is the provision of additional loading on variable areas. These are the five ways of precautions, which one may take when building a foundation on different in strata. Although all these precautions suggested by ***Tomlinson*** are relevant, the fact remains such precautions are not necessary provided the load is within the threshold limit and there is no external variation in the soil around. In this particular case, in Sound and Vision foundation the footing level is only 650 mm below the ground level. That is about a few feet below it. They do not involve a very high loading and the old Temooljee building adjacent to SVB, which existed then, had been built on a very shallow foundation. The necessity to arrest the settlement did not arise as it all depends on the situation whether there is a nearby building, whether there is any sensitive building in the vicinity. Hence, according to Mr. Koo there was no necessity for the plaintiff to take any preventive measure to arrest differential settlement at the time when plaintiff constructed his building. Further Mr. Koo stated that he received a total sum of $40,000 from the plaintiff for all his charges and expenses including his professional fees, his labours to carry out the works, his travel expenses plus equipment everything. Mr. Koo also testified that mixing concrete is not done properly, it can create only void in the material of the structure that will have no bearing to differential settlement. Further he testified to the effect that whether plaintiff's building is orthogonal, rectangle or rhombus such shapes have nothing to do with differential settlement. Further Mr. Koo stated that from the cracks pattern and the cracks waves found on the building he concluded they were only caused by differential settlement and that the excavation, ground compression and movement of heavy machinery has resulted the lowering of ground water table. The foundation was only 650mm deep

Mr. Valji Patel - PW3 - the Managing Director of the construction company "Harry Builders", testified that his company had been involved in the construction industry for10 years. Before he started his own construction company he used to work with Laxmanbhai as supervisor and he even supervised the big projects like Central Bank Building, Unity House and Independence House, when he was working with Laxmanbhai.

Although "Harry Builders" had class 2 licence before, only in 1994 it obtained Class 1 licence, which could enable them to build 3-storey buildings. They had obtained this licence, when they built SVB. His company was the one, which constructed the Sound and Vision building. One Mr. Korday was the architect and Mr. Prea was the engineer, who was actually involved in the project. Mr Korday left the Republic halfway through construction and Mr. Prea took charge of supervision of the work. His company has constructed a number of buildings in and around town Victoria such as Chez Deenu Building, Market Street, Hassanali Building, Chung Faye Building, New Star Building, Chalam Shopping Centre at Cascade, Mr Ramu's Building, Market Street etc. When he compared the Sound and Vision Building with the other projects, he stated that he did not come across anything special or any problem with the project of SVB. There was nothing wrong with the building because no complaint was even made and the plaintiff fully paid him for the work. He did not see anything unusual about the soil or with the earth texture at the said site when constructing the building compare to the other building. As usual they did the foundation as per the approved plan, it was inspected and then they continued with the work. He never had any complaint about cracks in any of the buildings he built around town. He did not take any special precaution to protect the building next door as there was no need. They started the work as they did in other places. There was an old building at the site that had to be demolished and then built the SVB. Although there was an old building adjacent to plaintiff's property they did not dig up to their foundation. Normally, if they had to dig right up to the foundation of the other building they protect the soil from crumbling from the other property, when they do excavation by putting plywood in between the boundary of the construction site and the other property. Further Mr. Patel testified that there was no negligence or fault on the part of the building-contractor or the architect or the engineer in the construction of the SVB. Each and every step of the construction work was supervised and checked and approved. So there was no problem.

In cross-examination, Mr. Patel testified that although they do construction

in accordance with the approved plan, at times, when necessary, they make adjustments for example, on dimensions etc. if it is shown to them by the Project Officer that such minor adjustments are necessary. Sometimes, they as builders question even the Engineer's structural plan although they are not more qualified than the engineer regarding the structures. However, if they encounter any problem in the construction they used to write to the planning authority. After investigation, when the planning authority gives the go ahead, then they proceed. It is always the case that they have to give notice to the planning authority when they lay the concrete for the foundation; they have to inspect the place before they start the building itself. This is planning regulations; this has nothing to do with the structural engineer. They as builders have no say in the structural details given by the engineers. When they undertook the construction of Sound and Vision they had sufficient experience as a building-contractor. In the construction of SVB, they did everything in accordance with the approved plan. They dug foundation 500 or 700cm below datum. Almost 75% of the earth was solid earth as they started excavation. There were some with soft soil on different isolated spots, that was removed and in its place coral was placed. It was not necessary for them to dig further down because they had reached solid earth to lay the foundation. Even, had there been any necessity to dig deeper, it would not have cost any extra money for them as the client would normally be charged for such extra works. Also it was not a question of time it was not necessary for them to dig deeper on those spots. Thus, Mr. Patel concluded that "Harry Builders" did not commit any fault of any nature whatsoever or the architects or engineers, who rendered professional services in the implementation of the project in respect of SVB.

Mr. Daniel Blackburn - PW4 - a Chartered Quantity Surveyor testified in substance that in March 2002, at the request of the plaintiff inspected the SVB for the purpose of making a cost estimate for the repairs to be carried out for the building. Upon his inspection, he noticed several cracks on the walls of the OTC side of the building and on the floor. The ground floor had sunk for 7 to 8 cm on the OTC side of the building at an angle, which had resulted in cracks all around the floor. He prepared a detailed report on the cost estimate for the repair-works required to fix those damages. His report was produced in evidence and admitted as exhibit P26, which reads thus: -

1. General

1, Daniel Blackburn - Chartered Surveyor/Corporate Building Engineer, the sole proprietor of D B R Blackburn Consulting has been appointed by Mr. Shirish Dhanjee the owner of the SVB property to estimate the cost of repair works.

Following his instruction, I have inspected the site on the 2nd March 2002 in order to ascertain the damages. This building is partly attached to newly built Temooljee & Co. Ltd Oliaji Trade Centre on the northern side. The main structure of this building is made, of reinforced concrete frame including upper floors and stain, and whereas the walls are in rendered block work and painted both sides with the exception of the internal walls in Toilets and Tearoom which are partly faced with ceramic tiles.

2. Inspection of Building

a) Ground Floor
The ground floor is occupied by Habit Bank.
I found that about two-third (approximately 17 meters long starting from the front) of the external Longitudinal substructure along side Temooljee & Co. Ltd. Oliaji Trade Centre has gone down or settled lower down the ground. As a result of that the floor in Passage, Manager's Office, Secretary Section and Computer Room has gone down by about 80 mm and caused several crack to walls. I estimate that the cost of putting these areas into a good state of repair is as follows:

1. Passage/Manager's Office/Secretary Section/Computer Room

- Removing the contents before starting the demolition 2,000.00
- Dub doors before starting the demolition works

and set aside for reuse 1, 000 00

*- Demolishing the affected part of the **floor** and make good to receive new one 15,000.00*
- Replacing the affected concrete floor (85 square meters) 25,000. 00
- Ditto ceramic floor tiles. . 35,000 .00
- Replacing the damaged block work between Safe and Record room 5,000.00

- Making good of other minor cracks in Safe and Record Room 2,500.00
Ditto. in Manager' Office 2,500.00
- Ditto in Secretary Section 1,500.00
- Ditto in Computer Room 2000.00
- Replacing the damaged ceramic wall tiles

in Computer Room's Toilet 1.500. 00
Making good to the lintel over the main entrance door 750.00
- Touching up and palming 7,500.00
Placing back the contents 2,000.00
-Fixing back the doors 1,200. 00
- Removing debris on site 4,000.00
= 108,450.00

Sub Total SR 108,450.00

2) First Floor
Two-third of the First floor is occupied by Sound and Vision on the eastern side, and the other western part is occupied by an accounting firm.
There are cracks on the external and internal block walls resulted from the subsidence of the building.
I estimate that the cost of putting these areas into a good state of repairs is as follows:-

1. Portion occupied by Sound & vision
Removing the contents before starting the demolition 2,000.00
- Ditto doors before starting the demolition works and set aside for reuse 500.00
- Ditto windows 2,000.00
- Replacing the external damaged longitudinal bloc work on the southern side 23,000.00
- Making good to other minor cracks in Manager's Office and other areas 4,000.00
- Replacing the damaged ceramic wall tiles in Toilet 1500. 00
- Touching up and painting 7,500.00
- Placing back the contents 2,000.00
- Fixing back the doors 1,200.00
- Fixing back the windows 3,000. 00
- Removing debris on site 2,000.00

Sub Total SR 50,700.00

2. Portion occupied by an Accounting firm
Removing the consents before starting the demolition 2,000.00

- Ditto doors before starting the demolition works and set aside for reuse 500.00
- Ditto windows ditto 500.00
- Replacing the external damaged block work on the northern/western sides 3,500.00
- Making good to other minor cracks 2,000.00
- Touching up and painting 5,000.00
- Placing back the consents 2,000.00
- Fixing back the doors 700.00
- Fixing back the windows 70000
- Removing debris on site 1,000. 00

Sub Total SR 17,900. 00

3. Stairs
- Repairing the cracks in stairway 2,000.00
- Touching up and painting 2, 000, 00

Sub Total SR 4,000.00

Subtotal SR 177,050.00
4. Preliminaries 17,703. 00

Total ***SR 194,755.00***

4. Summary
From my inspection I formed the opinion that the expenditure. Involved in the recommendations outlined above should be sufficient to make the building thoroughly sound and fit for its purpose.

(SD) D. Blackburn QSC

Mr. Blackburn testified to the facts stated in the report above. According to Mr. Blackburn, in estimating the cost of repairs he used the methodology, which is universally applicable and is based on mark up prices of the materials and labour. Despite a lengthy cross-examination by the defence counsel, he maintained that all the prices of the materials and of labour he applied in the valuation were reasonable, not exaggerated in any manner. He also assisted the Court when it had locus in quo and inspected the building on 12th February 2003 vide report on *Locus in quo.*

Mr. Ramani - PW5 - a Chartered Accountant is a tenant occupying an office premises (Suite 2) on the first floor of SVB. He moved into this office in July 1995. He testified that as a

tenant he had a bad experience during the period the defendants were doing the construction next door. There were lot of dusts, sounds and vibrations. The tables in his office were shaking, whatever is put on the table that would just move here and there. It lasted for a few months. The tenants were complaining to the plaintiff as they could not work peacefully. When he moved in the building was perfect. There were no cracks. All the cracks started to appear in SVB only during the construction of OTC building. They were concentrated on the OTC side of the SVB. One particular day, when the work on OTC was in progress there was sudden seeping of water into his office, which destroyed lot of files and documents. As soon as Mr. Ramani noticed the cracks, he immediately complained to his landlord, the plaintiff. He further stated that during the construction of OTC building, the contractors came to his office and were trying to put some kind of iron bars and a number of pipes in his office to give some sort of support vertical to the structure. The cracks started only after they put up that support. It was causing the tenant lot of inconvenience.

Mr. Ramani further testified that as an accountant, under Business Tax Act the plaintiff being the owner of SVB can claim depreciation to its building at 50% first year after construction, next subsequent two years at 25%. Any expenditure incurred on repairing the building will be treated as expenditure for tax purposes. However, Mr. Ramani stated that plaintiff or any company for that matter has the right to claim damages from others for causing damage to its building. The applicability of tax laws or tax liabilities attached to the company has nothing to do with such claims.

Mr. Steven Madeline - PW6 - an employee of the plaintiff-company testified in substance that he has been working for the plaintiff for the past 12 years. He has been working in one of the office units of SVB. When the defendants were constructing OTC building using big machines, they caused lots of noise and vibrations. As they progressed with their construction work, he noticed cracks started appearing in the walls and later on the floors of the building. He further stated that there were no cracks before. Moreover, the tenants in the building suffered a lot of inconvenience due to noise and dust pollutions caused by the defendants' construction activities next door. He also confirmed that a Malaysian company involved in the remedial work and repaired the building foundation. He at one stage even thought, that the SVB might collapse and Mr. Dhanjee was also seen to be afraid and worried that his building might collapse because of the damage caused by the excavation and construction activities

taking place in the adjacent property. He further stated that the defendants were making deep excavations close to SVB as deep as about 6 feet.
In view of all the above, the plaintiff claim that both defendants are jointly and severally liable to compensate it for the said loss and damage in the sum of Rs 1,632,500/- And, hence the plaintiff seeks judgment accordingly with interest and costs.

Both defendants on the other side having denied liability in toto, adduced the following evidence in defence.

Mrs. Sonia Jamshed Oliaji - DW1 – a director of the Oliaji Trading Company owners of OTC building testified that in 1996 the first defendant carried out development on its parcel of land V3247 adjacent to SVB. The 1st defendant decided to construct a complex with office blocks and to extend their super market on the ground floor into that area. Physical study was done and then they appointed the necessary professionals to carryout the projects. They chose "Tirant and Associates" as the architect and "Joe Pool and Company" as the Engineers for consultancy services. The building contract was given to the 2nd defendant "Laxmanbhai Company". The architect asked them to get a "Quantity Surveyor' and the plaintiff chose one Mr. Alton for that service. The architect designed the building, supervised the building and ensured that everything was done as per his design. There is a cut-off point, where the structural side was taken care of by structural engineer. The QS gave the certificate that the work is done to that degree as per the QS. Then, the architect used to tell the 1st defendant to pay the contractors. Thus, the project was executed. According to Mrs. Oliaji, those who worked with the project were not her employees or agents. They were independent professionals. They were providing services for a fee. The architect, engineers, quantity surveyors and the contractor, whom the 1st defendant had employed or retained for services carried out their respective jobs or rendered services very well with due diligence and she was satisfied with the construction of the building OTC.

Mrs. Oliaji stated that they started the construction of OTC after obtaining the necessary

permission from the Planning Department. In fact, the new building OTC is an extension of an older building built in 1951. This older building borders one side of the new building whereas the plaintiff's building SVB borders the other side of OTC. All construction activities and excavation carried out for OTC building did not affect the said old building or its foundation nor did those activities affect the users or occupants of the old building. Absolutely no damage was caused to the adjacent old building. These two buildings have been joined together and they are still perfect. Therefore, she stated that none of the defendant is responsible to the alleged damage to the SVB. In cross examination, she admitted that although there are some cracks in the old building, they were not caused by the construction of the OTC but those crakes appeared because the building itself was old. She also stated that even in the new building there are cracks due to soil settlement. Moreover, she admitted that she did receive complaint and claims from the plaintiff in July 1999 after the construction of OTC asking for damages but she did not reply to them but forwarded to the architect Mr. Tirant (DW4).

Mr. Ravji Premji - DW2 - a Director of the 2nd defendant-company Laxmanbhai Pty Ltd, a building-contractor, testified that this company was first incorporated in Seychelles in 1972 as a construction company. Since then until to date this company has carried out a number of projects of construction works and has built so many building all over Seychelles. It constructed Mahé Beach Hotel in 1972, Lemuria Hotel in Praslin, Ste Anne Resort on St. Anne Island and Fisherman's Cove in Mahé, the Central Bank Building, Independence House, SMB headquarters office block in Victoria to name a few.

They have also constructed large buildings between two existing buildings like Sham-Peng-Tong buildings in Town. However, it is only in the project of OTC, first time they encountered a problem with plaintiff's building where there has been a claim arising out of their construction. The 2nd defendant started the OTC project in July 1996. It took about one and a half year to complete the project. There was already an existing old building on the site. To clear the site first, they had to demolish that building using small excavators and crane for lifting the trusses. They did not use any other heavy machinery for demolition work, which took over a month. According to Mr. Premji, the amount of vibration caused by the demolition work in the site would have been less than that of the vehicular traffic passing on the main road near the site. Mr. Premji further stated that as an experienced contractor, the movement of machineries and vibrations caused from demolition work is not sufficient to damage the SVB, had it been properly built. They have been using those machineries elsewhere but never faced with such problems.

When the foundation of the old building on the site of OTC was being removed, they noticed the foundation of SVB was exposed as it had been only 500 -600 mm deep from ground level. As they were excavating the ground they also noticed some organic material at 1.5 - 1. 8 meters deep from the ground level. They immediately reported the matter to the structural engineer Mr. Joe Pool, as it was not advisable to put up a three storey building such as OTC on the soft soil. It is the contractor's responsibility to make sure the ground is hard enough to take the footing and to bear the load of the structure. As per the advice given by the structural engineer, they removed the organic material and refilled with coral but did not do excavation near the SVB. After having spoken to the plaintiff about the problem, the engineer asked the contractors to do underpinning to support the structure of the plaintiffs building. This was carried out on stages - portion by portion - by putting mass concrete under the existing foundation of SVB. It was done all along the foundation of SVB along the boundary line. It was done to strengthen the foundation of the SVB. It took about 3-4 weeks to complete the work of underpinning. After underpinning, they did the excavation along the boundary where the underpinning was done. This was also done on stages.

If "Harry Builders" had failed to take advice from structural engineers after they noticed soft material underneath it is imprudent on their part to proceed with construction without taking necessary precautions. During excavation Mr. Premji noticed at different places there were organic material as deep as 2.5 meters from the ground level under the foundation of SVB. Further he stated that if the plaintiff and their contractor "Harry Builders" had proceeded to construct the SVB ignoring the fact that there had been organic material below that area, they have done so at their own risk. According to Mr. Premji, the cracks found in the walls of SVB were not caused any of the construction activity they carried out at the OTC site. Further, he testified that the said construction activities did not affect even the old building - Temooljee Supermarket – on the other side of the site.

Mr. Premji stated in cross examination that the Managing Director of Harry Builders, Mr. Patel - PW3 - was working for the 2nd defendant Laxmanbhai before he started his own construction company. Although he had been involved in many projects like Central Bank Building etc. whilst with Laxmanbhai, he was working only as General Supervisor. On the question damage to SVB Mr. Premji testified that during demolition work on OTC site they used big machines like JCB, Crane etc. as shown in the five sheets of photographs in Exhibit P25. They took all precaution necessary to protect the building SVB. The foundation of SVB was not deep enough. It was exposed during excavation. They did underpinning to the foundation of SVB in stages. However, he admitted that underpinning does not protect any building against damage caused by vibrations. He stated that he noticed the pavement of SVB was going down (sinking) because of their heavy trucks movement. He further admitted that

the Insurer SACOS paid on behalf of the 2nd defendant, some of the claims made by the plaintiff against it for leakage. The 2nd defendant did not cause any damage to the plaintiff's building on purpose. According to Mr. Premji, had the SVB been constructed in a good workmanship manner, no damage would have been done by the construction activities carried out on OTC site. Moreover, the SVB got damage due to defects in its design. The structural engineer at one stage expressed fears to him about the fact that the edge of the foundation was exposed. This was immediately reported to the plaintiff. During excavation shoring up was done by iron sheet pilling. It was also not mass excavation but was done on stages. Even the organic materials were removed on stages after refilling portion by portion with coral and compression. These works did not affect SVB causing vibration or otherwise.

As regards underpinning the foundation of the Sound and Vision building, Mr. Premji stated that they did everything according to the instruction given by the structural engineer. In the circumstances, Mr. Premji testified that the 2nd defendant as a building contractor did not commit any fault nor did they act or do anything negligently in the course of their construction activities on OTC site in such a manner to cause damage to the SVB. Hence, they are not liable to compensate the plaintiff for the alleged loss and damages.

Mr. Harry Tirant - DW3 - who is practicing as an architect under the business name of Tirant Associates testified that he was the architect and also the lead consultant responsible for the project management of the building contract in respect of OTC. But in the traditional appointment of the architects as the lead consultant, it is his responsibility to administer the terms of the building contract on behalf of the clients and as lead consultant obviously guide the project through. But it is slightly different from what is now called "project management" If an architect works as "project manager" he also get involved with procurement of materials and so on. As regards the OTC project, his specific responsibility was, apart from designing the project, producing architectural drawing, obtaining planning permission with the quantity surveyor, he also obtained tenders for the project. Once the contractor had been appointed his role was to visit the site on a regular basis to see that the architectural work was being carried out in a competent manner and in accordance with the architectural design and drawings. Also, the terms of his appointment were to conduct site visits and to give instructions to contractors, sign payment certificates, and at the end of the contract to carryout

inspections to put right any obvious defects before handing over the building to the clients.

According to Mr. Tirant, in the case of a building, the architects are in a way the lead consultants. They listen to the client and then interpret that and make a drawing. That drawing initially very sketchy, at some stage that drawing is approved by the client and the engineer is then brought in because his responsibility is to design the walls, the beams, the columns and effectively design the building to make it stand up. An architect without an engineer with a multi-storey structure would actually not be able to make his sketch a reality because the engineer is the one that makes it stand up. The engineer is responsible for the safety of the building. He would have to submit the drawings to the planning authority and he would have to supervise to make sure the building would be constructed according to the structural drawing. As regards the OTC project, his architectural drawings and the structural design given by the engineers were all approved by the relevant authorities. The client or the architect would not have any say in the engineering or structural design given by the engineer to design the building. But at the end of the day the engineer was the one who came up with the final solution and the architect had to accept it. In accordance with the contracts in place in Seychelles the contractors have to build according to the drawings of the architect and the engineer. If for any reasons they feel there is need for deviation, then they would consult with the engineer and the architect.

In respect of the Oliaji Trade Centre, initially the project drawings as produced, there was need to modify the entrance to the building and the position of the lifts because at some point the engineer decided that he would not be able to support the lift shaft and the staircase right against the boundary. A decision was made to amend the design leaving a gap of at least 2 or 2.5 meters between the buildings so that there would be no forces directly applied on the boundary. As a result of that Mr. Tirant had to modify the position of the lift and the entrance and staircase as well, which is why today there are steps leading up to the office part of the building. Effectively they did not have to excavate to that depth right up the next building. It was because the engineer felt that the foundation of the adjoining building was not adequate or was too close to the line of the boundary and it would be wiser to take any loads of the

building away from that area so as not to have additional forces on that area. Mr. Tirant made a proposal to the engineer and he implemented it. According to Mr. Tirant, it was successful in the sense that what he came up with was achievable according to the engineer. On the issue as to the alleged negligence on the part of the defendants, it is relevant to quote the following questions and the answers given by the architect in this respect:-

Q It has been averred by the plaintiff that works on the construction of the Oliaji Trade Centre necessarily caused damage to the adjoining building. What, if anything, do you have to say about that?

A It is very difficult for me to say anything. As an architect I cannot argue technically whether it caused damage or not because this you can prove by the engineering calculations and formulas. What I know as the architect is that we did the best we could, not to endanger the building. In fact, this is a situation you have when build buildings on adjacent sites. As architect you make decisions with regards to lows and heights, ventilation and so on and also the architectural aspect. But beyond that the engineer decides the best foundation and design. To the best of my knowledge we did the best we could, not to endanger the adjacent building.

Q You stated that you modified the architectural design. Did you do that on your own or the engineer advised you to modify?

A I do not recall exactly the circumstances but certainly when I first was commissioned by the client I came up with the design which was approved. By the time we came to the detailed design it was then obvious that the Sound and Vision were planning to erect a building right up against the ground with a solid wall. I then proceeded to modify my design to what the building is today. After the construction, at some point - I don't recall exactly - because I was out of the country in Nairobi, I received a call from the client saying there seemed to be a problem at the site and there was need to re-look at the building. In construction, every now and then there is a hitch and the client sometimes overreacts and expects decisions quickly. In this specific case, basically the design as it was, the position of the entrance, the staircase, and the lift, it was felt that if these structures would be best moved away from each of the boundaries so that the engineer could then design the foundation in such a way that the weight of the building was not lying directly on the boundary. And because of the foundation design, I think it was 1 or 1.5 meters deep, if we had had a beam and the same design right up next to the building we would have been below the foundation of the Sound and Vision Building. The engineer made a decision to stop at a point about 2 or 2.5 meters away from this line so that this excavation would be done here and this part of the building would be just a slab coming up against the edge without having to go down. Hence,

we have the steps going up that area. If I remember rightly the engineer even suggested that the part of the loading of the Sound and Vision Building was actually coming on to the site of the Oliaji Trade Centre and hence it was better that there was no structure, that this weight was being applied additionally. And it was successful in the sense that what I suggested the engineer made it work.

Q Were you satisfied that all measures were taken by you to ensure that no harm was caused to the other building?

A Yes because it is possible to build between two structures and there was no reason why my design should have been offset from the boundaries for whatever reason. But the actual management of the structure or the forces of this building was left to the hands of somebody that I considered to be a competent engineer, Joe Pool Associates.

Q In your years of experience have you drawn a plan of similar size?

A Yes, we have done the Sham-peng-tong Plaza; we have also done plans for Capital City and also the Air Seychelles Building the Creole Spirit. I think the Sham-peng-tong Plaza is the most similar situation as Oliaji Trade Centre in the sense that we have other buildings on the sides that we had to take into account.

Q Did you on those other projects experience similar problems as Oliaji Trade Centre?

A In the case of Sham-peng-tong there were issues like rainwater pipes and foundation projecting on to the other side. But again the engineer took measures to counter for that. There was some piling done by driving pipes down to the depth of 10 to 12 meters. In this case there were some cracks which appeared in the Srinivasen building which is a very old building and those were patched up.

Q Were major repairs done on those cracks?

A Not it was a very old building of stone and by the nature of the construction of the wall cracks appeared.

Q When you say that piling was done, what is entailed in pilling?

A There are different kinds of piling. In this case there was a hollow tube that was driven into the ground and the material within was excavated and then concrete was poured into the hollow tube to create a pipe.

Q How many were pipes were put?

A I don’t recall, may be 96.

Q How were the tubes driven in?

A Basically you would have a crane and weight put to drive the pipe down.

Q In such a process would there be vibrations?

A Yes.

Q What sort of vibrations?

A I cannot put it in any terms or figure but generally the vibrations would be felt around the place. From what I understand because of the nature of the subsoil the possibility of vibration travelling is there.

Q For such projects, who would be responsible for ensuring that no damage is caused on the building?

A I would say that under the building contract the contractor would have to ensure that the execution is such that he does not cause damage to adjoining property. The execution is based on drawings and specifications and instructions given by the engineer. I would say that both the engineer and the contractor. But under the building contract the implementation lies with the contractor. In a situation where the contractor feels that there is a problem with the implementation of what has been proposed or designed by the engineer then he would have to refer back to the engineer and say he has a problem with this or that and ask if there is another way of doing it. But he cannot go and do it his own way. The engineer has to be satisfied that the alternative way is the good way. In terms of the design it is the engineer that has to ensure that and the contractor also in implementation because you may have the best design but the implementation may cause damage.

Mr. Joe Pool - PW4 - the Engineer, in charge of the OTC project testified that basically he is a licensed structural engineer operating the firm Joe Pool Associates, in Seychelles. They do various structural engineering works throughout the Island. He is practising as Structural Engineer for about 35 years. He has been involved in a number of construction projects in Seychelles. In July 1996, they were appointed as the structural engineer for OTC project. Their services as structural engineer was to ensure that all the loads that are part of the building are transmitted correctly and safely to the ground through the foundation by whatever means they are. They are also responsible of the drawing of structural design for the building. They are also responsible for seeing that the foundation design is followed by the contractor Laxmanbhai. The architects were Tirant Associates. The Engineers supervised

every single step of the construction.

First, the contractors prepared the site. Before starting the excavation for the foundation, the structural engineers generally have to make certain assumptions about the ground conditions. They make an assumption that they are going to achieve a certain amount of pressure at a certain depth. In fact, when they design the structure and drawings they normally design it based on that assumption. However, when they really start the excavation on the site, if they find their assumptions were incorrect, then they will have to make some other alternative arrangement. In the case of OTC, they had assumed that at a depth of 900mm from the existing ground level, they would get the strata of the soil capable of sustaining the load of the intended structure. However, when they really excavated the area bordering the SVB, the ground realities were different. Contrary to their assumption, they found the layer of strata at that expected depth were found to be incapable of sustaining the load and unsatisfactory. The strata were too soft, too compressive. So they asked the contractors to excavate further without disturbing the foundation of the SVB. As they dug further they found a very deep layer approximately 60 cm deep of dead vegetation or compressible layers. Upon a wider excavation, they found out that the said compressible layer had been spread across the whole site. This layer was also progressing underneath the foundation of the SVB. Having seen the progressive condition of the compressible layer underneath SVB Mr. Pool realised the danger involved and approached Mr. Dhanjee - PW2 - and explained to him that in putting the foundation for OTC, they needed to be a little cautious. Mr. Pool also asked Mr. Dhanjee to give him all the structural drawings pertaining to the foundation of SVB so that he could verify the strength of the foundation. Mr. Dhanjee was very accommodating and gave all the structural drawings. Mr. Pool also conducted a physical inspection of the SVB. There were some cracks in the walls between Temooljee and Dhanjee. They appeared to be old and could have occurred before they started excavation on Temooljee's site. Having examined the structural drawings of SVB and inspecting the building, Mr. Pool found that the SVB had been structurally designed very badly. According to his opinion, the structural design of SVB was defective and likely to have an impact on the OTC project. Hence, Mr. Pool compiled a report in this regard in June 1996 and submitted to their client OTC. A copy of this report

dated 5th June 1996, was produced in evidence and marked as exhibit D2, which inter alia reads thus:

"As the above calculations show, the pressure on the ground at the boundary can be as great as 688KN/m². Traditionally foundations to buildings in Victoria area (not being directly on rock) have been designed using a safe bearing capacity of 50KN/m². At times 75KN/m² has been used when it has become unavoidable. In our experience we have not come across a situation where higher bearing pressures have been used in this area. It must be emphasised that the above calculations are rough for a guideline and thus no account has been taken for possible moment connection between the footings and their columns, which would make the situation worst.

Conclusion

It is obvious that this building was designed structurally without due care and consideration. From the design concept to the working drawings there are, in our opinion, a series of errors, which have gone unchecked through the whole design and planning process. It would appear that no proper site investigation was carried out as we feel sure that the compressible layer found on the Oliaji site must extend at least partly under this building also and to knowingly construct foundations on this material would be negligent. History tells us of a landslide which occurred in the late 19th century which covered Victoria in mud. The foundations to Victoria House showed evidence of this. The Oliaji site also bears testimony to this event with the organic layer discovered. In such a situation to choose an independent pad footing type is risky at best but when combined with such high differential bearing pressures it becomes irresponsible.

To accept bearing pressures of this magnitude in this situation is totally negligent but to impose them on a neighbouring site is unprofessional.
With all the above comments and findings, one begs the questions; was the Engineer a qualified, licensed Engineer? Did the Planning Authority check the Structural calculations and drawings prior to giving them their seal of approval?
Finally, one very worrying aspect of all the above, is that with time there may well be quite large settlement along the boundary with the Oliaji Trade Centre. A small rotational

settlement at the base will cause the vertical wall at the top to move significantly outwards, out of plumb, even as far as to lean onto the new adjacent structure and shed load onto it. We should therefore like to propose a gap of 100mm be maintained between the two buildings and that this be monitored during construction and periodically thereafter.

Mr. Pool further testified that the pressure underneath the base of SVB was not spread evenly. It was grossly different at different points. The one along the edge of Temooljee was very high to the maximum of 688 KN/m², and at the central columns were giving a bearing pressure of approximately 190 KN/m², whereas the acceptable maximum limit for such design could be only 75 KN/m². They had adopted individual/single pad footing foundation throughout SVB, which type is not good in case of suspicious ground as this type will not spread the load to its maximum. In fact, for OTC they used raft foundation with ground beam to spread the load to its maximum. Unless it is a very lightly loaded structure, it is not advisable to put up a heavy loaded structure such as SVB on compressible layers. On the other hand, compressible layers could be removed and replaced by solid material fillings and then heavily loaded structure could be built on such grounds. Most of the buildings Mr. Pool had done in Town were 75 KN/m² at the absolute maximum. It is erected on the mountain one can go up as high as 250 KN/m² and if built on rock can go up even to 250 KN/m². This assessment on standardisation is purely based on experience. The Seychelles Bureau of Standard has not done any soil investigation in Seychelles to set any standardisation in this respect.

Mr. Pool having given a copy of his report - exhibit D2 - to Mr. Dhanjee advised him to do the *under pinning* to the foundation of the SVB to avoid or minimise the risk of damage to the building. Mr. Dhanjee acting upon his advice retained the 2nd defendant Laxmanbhai to do that job. The under pinning was accordingly carried out by "Laxmanbhai" and the plaintiff paid for it. Mr. Pool further testified that even if there were no construction activities going on next door at OTC, still the plaintiff's building would have sustained those damages due to differential settlement as SVB is built on highly compressible layers. According to Mr. Pool, the term differential settlement means it gets settlement which is different from the various points. In structural engineering, they don't mind settlement provided it is uniform settlement. It is differential settlement that causes the problem of cracking in building. The

SVB building stands on very soft and compressible strata on OTC side, whereas the other side it stands on hard strata. It is a contributory factor to differential settlement. Further Mr. Pool stated that while they were doing under pinning to SVB, they found a log possibly around 30 cm under the SVB and they had to cut off with a saw in order to do the under pinning. They did not do any "Shoring up" or "Sheet Piling" while excavation, as there was no need for them to take those measures. According to Mr. Pool the compressible layers found beneath the SVB relates to a landslide that happened there 100 years ago. The evidence was seen when they built the Victoria House.

In cross-examination, Mr. Pool admitted that the 2nd defendant used compressors to break the concrete building that existed on OTC site. These machines generally produce substantial noise, which is louder than that of passing traffics. The initial structural design for OTC had provided for excavation to the level up to 60 to 70 mm deep. However, they had to continue digging further down because of the presence of compressible material and could not achieve the hard strata to the required standard. Mr. Pool also stated that although the acceptable load-limit for buildings in the area of town would be around 50-75 Kilo Newton per Meter Square, it varies from one place to another, as different areas of the Island are capable of taking different levels of pressure. Only, when the load exceeds the critical limit, differential settlement would take place. As they started digging close to SVB foundation, they did not take any precautionary measures to protect the building, as there was no need to do so, at that stage. As and when they discovered that the foundation of SVB was shallow and built on compressible layers, they realised the potential danger that was likely to affect the building. Hence, Mr. Pool advised Mr. Dhanjee to do the under pinning in order to strengthen the foundation of SVB. According to Mr. Pool, the major cause that contributed to the damage to the SVB was its "unprofessional structural design" built on a ground with compressible layers that resulted in differential settlement. In his opinion, Mr. Pool concluded that the "Pad Footing" foundation on which the SVB stands is not good for grounds comprising compressible layers. Given the nature of the strata beneath the ground, the builders or the engineers should have used "Raft Foundation" for SVB not "Pad Footing". Moreover, Mr. Pool stated that the construction activities carried out by the defendants on

Temooljee's site would have contributed or caused only minimal effect on the SVB. Even the adverse effects caused by "differential settlement" could have been averted by making a proper "structural design" to distribute the load and counter balance the adverse effects due to compressible layers. Hence, Mr. Pool testified that the defective structural design, differential settlement, pad footing foundation and the compressible layers found beneath the foundation of the building were the causes for the damage to the building. The defendants' construction activities did not cause those damages.

In view of all the above, the defendants contend that they are not liable in law either jointly or severally to compensate the plaintiff for the alleged loss and damage. Therefore, the defendants seek dismissal of the suit with costs.

I meticulously perused the pleadings and the evidence adduced by the parties including a number of documents marked as exhibits in this matter. I gave a careful thought to the submissions of both counsel touching on several questions of law and facts. The Court also had the opportunity to visit the *locus in quo.* The court observed the location of the SVB in relation to OTC. It noted the damage including the cracks in the ground floor and in the walls around as well as the general condition of the SVB. Having diligently examined the areas of contentious issues and the relevant provisions of law, to my mind, the following are the fundamental questions that arise for determination in this suit:-

1. *Did the 1st defendant as owner of Parcel V3247 commit any fault under Article 1382 by abusing its right of ownership in causing damage beyond the measure of the ordinary obligations of neighbourhood?*

Did the 2nd defendant "Laxmanbhai" commit any "fault" in terms of article 1382 of the Civil Code in the course of the construction of the building "Oliaji Trade Centre" and in that, did it cause damage to the plaintiff's building SVB? - If Yes

Is the 1st defendant vicariously liable for the damage caused to the plaintiff's building by the fault of the 2nd defendant?

Incidentally, was the damage to the plaintiff's building caused by the use of the property - land V3247 – of which the 1st defendant had custody as its proprietor? - If so;

Is the 1st defendant liable for the damage caused to the plaintiff by that property held in his custody in terms of article 1384 (1) of the Civil Code?

2. *Was that damage caused solely due to the fault of the defendant/s or was there any*

contributory negligence on the part of the plaintiff's builders, who constructed the SVB?

- If so;

What is the extent or degree of contributory negligence, if any?
What is the legal impact of such contributory negligence on the quantum of damages awardable to the plaintiff? and
What is the quantum of damages the plaintiff entitled to, if any?

Undisputedly the Sound & Vision Building was constructed in September 1995 on a parcel of land V6545owned by the plaintiff whereas the Oliaji Trade Centre was constructed in 1996 on an adjoining parcel of land V3247owned by the 1st defendant. The 2nd defendant was at all material times, the contractor employed by the 1st defendant to erect the Oliaji Trade Centre. The plaintiff basically alleges that the Sound & Vision Building was materially affected by the excavation works and the construction of the Oliaji Trade Centre on the adjoining land owned by the 1st defendant. Remedial works were necessary to arrest the settlement process of the soil and repair the Sound & Vision Building. There is still remedial work to be done. The damage still exists and is continuing. There is loss and inconvenience allegedly incurred by the plaintiff due to the damage. The plaintiff therefore, sues both defendants conjointly under different and alternative causes of action. There are two limbs to the said cause of action, namely:

(i) the 1st defendant as owner of Parcel V3247 for abuse of its right of ownership, which is a fault under Article 1382 and whereby caused damage beyond the measure of the ordinary obligations of neighbourhood and the 2nd defendant as co-author of such fault of the 1st defendant.

(ii) Alternatively, the 1st defendant as owner and custodian of Parcel V3247 liable for the damage it caused to the plaintiff under Article 1384-1 of the Civil Code of Seychelles and the 2nd defendant as co-author of such fault of the 1st defendant.

Before one proceeds to find answers to the questions hereinbefore formulated, it is

important first to determine the ancillary "issues of facts" raised by the parties, since findings on those issues form the factual basis for the answers to the questions.

In fact, the first limb of the cause of action is based on the principle of "fault" under Article 1382, the most famous of all the articles of the Civil Code. As A. G. Chloros has rightly observed in his book ***"Codification in a Mixed Jurisdiction"*** in the Civil Code of Seychelles this principle has been expanded substantially beyond the brief statement of the principle of liability for fault. The original article found in the French Code is preserved in paragraph one, but four other paragraphs have been added to it. The object was to incorporate in the Code principles which require definition. Thus, it is clearly stated that the three elements required in order to establish liability are (i) **damage** (ii) **a causal link** and (iii) **fault.** In French law these principles were worked out by the jurisprudence; but, if the law was to be simplified, it was essential to reduce to the minimum the need to go beyond the Code and resort to the French principles and jurisprudence. Nevertheless, the expansion of article 1382 did not occur arbitrarily but is based upon the jurisprudence which it has sought to replace as Chloros observed in his book. Hence, this court inevitably resorts to a foreign law and jurisprudence.

Having said that, paragraph 2 of article 1382 defines fault on the basis of principles adopted by the French doctrine. This paragraph stresses that fault may be the result of a positive act or of an omission. Paragraph 3 incorporates a definition of **abuse of rights**. This is implied in the French law of contract but in a long process of case law-development supported by the doctrine, ***abuse of rights*** acquired the status of an independent tort. I will now proceed to examine the evidence on record to find out whether all the said three elements are present in the instant case in order to establish liability against the defendants either under article 1382 or under Article 1384-1 or simultaneously under both articles of the Civil Code of Seychelles.

Element (i) Damage

Obviously, as regards the requirement of the element (i) in the instant case, it is not in dispute that the plaintiff's building (SVB) has sustained structural **damage** including cracks in the ground floor as well as in the superstructure. The damage started to manifest in mid

1996, during the period the defendants had started construction of the OTC building on the 1st defendants land Parcel V3247. It is also not in dispute that following the said damage to his building, the plaintiff had to carry out two major expensive and extensive remedial works to repair the building namely, (i) *under pinning* and (ii) *grouting injection*. The nature and the extent of both works and the circumstances, which necessitated the plaintiff to carryout those works to his building, are rehearsed in detail supra. Hence, I find on facts that the plaintiff's building SVB did sustain **structural damage** during the period the defendants had started the excavation and construction work on Parcel V3247 lying adjacent to SVB.

Element (ii): causal link

Now, the most contested and the most important issue in this matter is to find out whether there has been any ***causal link*** between **the alleged acts** of the defendants and the **damage** happened to the plaintiff's building. In other words, whether the construction work carried out by the defendants to put up the building "OTC" on the adjoining land owned by the 1st defendant solely caused or contributorily caused the damage to the plaintiff's building. This alleged **"causal ink"** is the crucial area of issue, which involves a specialised - scientific and technical knowledge - where the expert opinion evidence is much required so as to assist the court in resolving the issue. However, this is the area, where the experts-opinion remains much divided. In fact, four expert witnesses namely, the Geological and Structural Engineer Mr. Koo (PW1), the Chartered Quantity Surveyor Mr. Blackburn (PW2), the Structural Engineer Mr. Joe Pool (DW4) and the Architect Mr. Harry Tirant (DW3) all testified giving their expert opinion on the main issue as well as on matters incidental thereto. When I carefully examined the expert evidence in this respect, three questions necessarily arise: (1) Is the subject concerning which the expert witness testified, one upon which the opinion of an expert can be received? (2) What are the qualifications necessary to entitle a witness to testify as an expert? And (3) Does the witness have the necessary experience and technical qualifications? Upon evidence, I am satisfied that the subject involves a specialised field of science and engineering. Only expert in that field can have a knowledge and understanding of

the specialised matter in question, which the judge cannot possibly hope to have. Hence, expert evidence is required and so receivable by the Court in order to obtain from them an "informed opinion" on the fact in issue. Besides, I find all four witnesses are suitably qualified and competent to give opinion evidence directly on the "fact in issue" namely, the **"causal link"** or touching on matters incidental thereto as the subject in issue falls within their chosen field of specialisation. However, whatever the expert-opinion given on any issue based on experience, knowledge and skill, the court is not bound to blindly accept that opinion to be correct and accurate unless that expert gives reason/s to the satisfaction of the court for arriving at such opinion. The court has the power and the wisdom to gauge the degree of accuracy and correctness of the expert-opinion on the touchstone of the reasons on which that opinion is based. Only upon such satisfaction, the court can rely and act upon that opinion. Bearing these principles in mind, I diligently examined the opinion evidence given by the experts in this matter.

It is the opinion of the expert Mr. Koo that the plaintiff's building sustained damage due to settlement of existing foundation, which is normally caused by any one or combination of the following factors:

1. The lowering of ground water level

Soil movement
Consolidation of compressible layer
Differential settlement
Heavy compaction activities close by the vicinity of the building

In conclusion, Mr. Koo stated that the abovementioned have happened due to earthwork activities such as excavation work, ground compaction and movement of heavy machinery in the vicinity of the existing building without taking proper precaution, (which hereinafter referred to as the alleged acts) and has resulted in lowering of ground water table, soil movement and differential settlement of foundation of Sound and Vision Building. Further, Mr. Koo testified that in his opinion **"pile foundation"** is the best method, for any building erected on the terrain like that of the plaintiff. He further stated that ***"jet-grout pile"*** by pumping cement to improve the strength of the loose soil is a very modern technique because if one says that the budget is not a problem one can use "**a jet-grout pile"**. That is the second best in his opinion. He noted that as mentioned in ***Tomlinson*** (an Authoritative Book on Geo-

technology) even **raft foundation** can incur differential settlement. However, the plaintiff's building has been erected admittedly on **"Pad Footing**" foundation, which is not considered to be the best by the experts given the nature and compressible material found in the layers beneath the foundation of SVB.

Having thus analyzed the opinion-evidence given by Mr. Koo and other experts in totality, I conclude that even though Mr. Koo did not state that the commission of **"the alleged acts"** by the defendants, on the adjoining land was the "**sole and immediate" cause** for the damage to the plaintiff's building, it is very evident from his opinion that those acts were "**the primary cause"** and not simply "**a cause"** amongst others, for the damage to the SVB as stated in the opinion-evidence given by the expert Mr. Pool. Indeed, the reasons given by Mr. Koo for his opinion are in my view, valid, more convincing, more probable, more credible and more accurate than that of the other experts on this issue of the **"causal link".** Undoubtedly, the damage to the plaintiff's building has happened due to earthwork activities such as excavation work, ground compaction and movement of heavy machinery in the vicinity of the existing building without taking proper precaution, and has resulted in lowering of ground water table, soil movement and differential settlement of foundation of the Sound and Vision Building. Hence, based on the opinion-evidence given by the expert witnesses in this matter, I find and conclude that there exists the necessary ***causal link*** between the **acts** of the defendants and the **damage** caused to the plaintiff's building.

Element (iii): Fault

When the defendants carried out **"the alleged acts"** including the deep excavation works for the foundation of OTC building on their site, obviously the defendants did not take necessary or any precaution and reasonable care to arrest the soil movement from the adjoining land, where the plaintiff had already built a 3-storey building consisting of several offices, shops and residential units on three floors. In my judgment, "**the alleged acts"** of the defendants in this respect were **"the primary cause"** for the **"damage"** caused to the plaintiff's building, as found supra and the defendants in that process obviously, failed to take necessary precaution and reasonable care. In fact, the 1st defendant as the owner and custodian of the

land Parcel V3247 abused its right of ownership resulting in such loss and damage to the plaintiff and so I hold.

Indeed, an owner of land commits a fault under Article 1382, known as an "**abuse of his right of ownership**", if he carries on an activity on his land which causes prejudice to a neighbour if such prejudice goes beyond the measure of the ordinary obligations of neighbourhood. In the case of **Desaubin Vs UCPS SLR 1977 p164**, the court held thus:

Under the Seychelles Civil Code, although an attempt had been made in Article 1382 to define and restrict the notion of "fault , the equivalent of "faute" in the French Civil Code, and the definition of fault in the Seychelles Code seemed to require an element of imprudence or negligence or an intention to cause harm, it appeared from paragraph 3 of Article 1382, as well as from sect- 5 (2) of the Seychelles Code, that there was nothing exclusive in such definition and that the concept of "fault' had not been curtailed within the narrow compass of the definition in the Seychelles Code. Hence the legal position had not been changed by the enactment of the new Article 1382.

Under the French Civil code, the principle evolved ……..is that the defendant is liable in tort only if the damage exceeds the measure of 'the ordinary obligations of neighbourhood. Negligence or imprudence in not taking the necessary precautions to prevent a nuisance are not indispensable for liability which may exist even where the author of the nuisance has done all he could to prevent it, and the damage is the inevitable consequence of the exercise of the industry.

The 1st defendant in this matter has abused its right of use and enjoyment of the property in its custody to the detriment of the owner of the adjoining property. By triggering soil movement the defendants have caused the damage exceeding the measure of 'the ordinary obligations of neighbourhood. This is obviously, a fault in terms of Article 1382 (3) as discussed supra. The 2nd defendant is also the co-author of the fault of the 1st defendant. Hence, I find that both defendants are jointly and severally liable in terms of article 1382 (1) of the Civil Code, which reads thus:

"Every act whatever of man that causes damage to another obliges him by whose fault it occurs to repair it"

Besides, I note, although Mr. Ravji Premji - DW2 - the building contractor of OTC testified that they did "Shoring up" or "Sheet piling" during the excavation work, Mr. Pool - DW4 - the structural engineer who actually involved in the project, candidly admitted in his evidence that they did not do any "Shoring up" or "Sheet Piling" during excavation, as there was no need for them to take those measures. At the same time, it should also be noted that generally in other projects when they (the 2nd defendant) constructed large buildings between two existing buildings in town such as Sham-Peng-Tong building and faced with a similar situation, they did take necessary precaution as reasonable builders to protect the adjoining building namely, the Srinivasen Building. In this regard, the architect Mr. Harry Tirant - DW3 - who was also involved in the Sham-Peng-tong project testified that piling was done in that particular project by driving pipes down to the depth of 10 to 12 meters by the contractors. Despite, such measures, according to Mr. Tirant there were some cracks which appeared in the Srinivasen building, which is a very old building and those were patched up. Therefore, it is evident that the 2nd defendant did not take necessary precaution to the degree required of them as reasonable building contractors. In that respect, the 1st defendant is liable not only for the damage it caused by ***abuse of its right of ownership*** but also for the damage caused by the act/fault of its employee the 2nd defendant for whom the 1st defendant is vicariously responsible in terms of Article 1384(1) of the Civil Code and so I find. In fact, *under pinning* was carried out by the plaintiff, admittedly upon the advice given by the defendants' structural engineer Mr. Joe Pool - DW4 - who obviously, expressed his concern if not fear, in that he impliedly forewarned the plaintiff about the possible damage the SVB might sustain if ***"under pinning"*** were not done, prior to the erection OTC building. Despite his geological knowledge on the history of landslide and the nature of the soil and the terrain on which the SVB had been built, Mr. Pool being the structural engineer of OTC project, in my view, should have advised the defendants in good time before alerting the plaintiff, about the potential danger and the damage, which the excavation and construction on OTC site

might cause to the existing building on the adjoining property of the plaintiff. He should not have allowed the contractors to start excavation on the boundary along the foundation of the SVB, without taking necessary and effective precautionary measures to arrest the possible soil movement. Although he advised the plaintiff to do "under pinning" such measure has not proved to be fully effective and successful. In the circumstances, I find the defendants are liable for the fault or negligence of any of its employees, workers, agents or servants, when that caused damage to the plaintiff's building.

As rightly submitted by Mr. Rouillon, a person is liable not only for the damage that he has caused by his own act but also for the damage caused by things in his custody. The owner of land is also its custodian as he has and never loses the use, direction and control of the land or of the constructions and other operations thereon vide (i) ***de Commarmond 3 SCAR (Vol 1) at page 155, (ii)*** **Coopoosamy 1964 S.L.R 82 at page 86 and (iii) Trib. Grande Instance de Toulouse 17 Mai 1971. D 1972 Somm 67**

In fact, liability under Article 1384-1 above quoted is 'near absolute'. There is a presumption of liability raised against the person who has the custody of the thing by which the damage is caused. Such presumption may be rebutted in three cases only, that is, if the person against whom the presumption operates can prove that the damage was solely due:
(I) to the act of the victim; or (2) to the act of a third party; or (3) to an act of God (force majeure) external to the thing itself ***per justices of Appeal Sauzier and Goburdhun in de Commarmond (vide supra)***

It is also pertinent to note herein that the application of Article 1384-1 of the Civil Code to cases of damage arising from soil movement due to excavations of soil and other construction works on adjoining land is supported by the authorities cited by the plaintiff's counsel vide: ***(i) Lalou. Traite de Ia Responsabilité Civile Paragraphes 1205 and 1206 and (ii) Ste. Mobil Oil Française v/s Entreprise Garrkjue Tri.gr. Inst Bayonne 14 décembre 1970 J.C.P 1971 16665.***

In Ste. Mobil Oil Francais v/s Entreprise Garrigue vide Trib.gr.Inst. Bayonne 14 Decembre 1970 J.C.P 1971 16665 a construction Company was held liable under Article

1384-1 of the Civil Code - in a similar situation as we find in the present case - for the damage caused to a service station adjacent to a residential building erected by the Company, following the modification of the solid and liquid elements of the subsoil making up the thing which the Company had in its custody, given that such modification directly caused the movement of the sub-soil belonging to the service station which in turn damaged the building of the service station.

Because of the marshy nature of the sub soil, the building work envisaged raised inevitable risks. However the architect in this case could not be held responsible towards the Construction Company which had accepted the risks involved in erecting the building after having been informed fully by the architect of the risks.
The construction Company must therefore assume the consequences and undertake the necessary repairs to the service station in spite of the flimsy nature of its construction (absence of foundations)

I too agree with the submission of Mr. Rouillon in that although the 2nd defendant was an independent contractor employed by the 1st defendant to erect the Oliaji Trade Centre according to plans and instructions by other independent contractors as architect or structural engineer, still the 2nd defendant is in law jointly and severally liable with the 1st defendant for the prejudice suffered by the plaintiff as co-author of the fault of the 1st defendant vide: ***Jurrisprudence Generale, Dalloz & Sirey 0.1972. Somm 49 3.Civ 8 Juillet 1971***

It is the submission of Mr. D. Lucas, learned counsel for the defendants that any loss or damage occasioned to the plaintiffs building arose through the plaintiff's own faute or those of his agents, preposés, architects, structural engineer in the construction of the Shami Properties building. Expert evidence showed that damage to the plaintiff's property had occurred due to ongoing differential settlement and furthermore, prior to the defendants starting construction and the evidence prove conclusively that the damage was caused by the faute of the Plaintiff's engineer and contractor.

With reference to the claim under Article 1382, it is the Defendants' submission that such claim is not sustainable. Article 1382 (3) refers to the act of causing damage to neighbouring property in a manner which goes beyond the ordinary obligations of neighbourhood. (See A.G Chloros Codification in a Mixed Jurisdiction) (Page 123) Article 1382 (3) - (abuse of rights) , state that fault may consist of an act or omission the dominant purpose of which is to cause harm to another, even if it appears to have been done in the exercise of a legitimate interest. According to Mr. D. Lucas there is no evidence on record evidencing that the defendant's dominant purpose were to cause harm to the plaintiff. Indeed the evidence on record does not show that the construction works were carried out in anyway other than professionally.

I gave careful thought to various lines of defences raised by the defendants in this matter. As I see it, the 2nd defendant as well as the 1st defendant may have a remedy against the other independent contractors, but following and adhering to their plans and instructions cannot in law exonerate the defendants from liability towards the plaintiff as this is not a defence under Article 1384-1. As rightly submitted by Mr. Rouillon that although the defendants were at liberty to join the independent contractors in guarantee as co-defendants in this suit, they did not choose that course of action for reasons best known to them. ***See D 1973 Somm 148 Colmar, ler ch 12 Decembre 1972.***

Against the 1st and 2nd Defendants under Article 1382 of the Civil Code, the Plaintiff has obviously invoked, as stated above, two different causes of action against both defendants. The first cause of action is based on Article 1382-3 and the second rests on the application of Article 1384 (1) of the Civil Code. The only defence open in this case for the defendants to dispute liability with regard to the both causes of action is proof by the defendants that the damage was caused solely either

(i) by the act of the plaintiff himself; or

(ii) by the act of a third party for whom the defendants were in law not Responsible or

(iii) act of God (Force Majeure)

Upon evidence, I find the defendants have not established any such defence. Having said that, it is necessary to analyse in some detail the various defences raised by the Defendants and

their effect on the plaintiffs claim under Article 1384-1.

In the defence the defendants aver that the prejudice (if any) suffered by the plaintiff was due solely to the actions, omissions, fault and negligence of the plaintiff, its servants, agents, employees, contractors, architects and structural engineer. The defendants also aver that at the start of work on the Oliaji Trading Centre, the defective nature of the plaintiffs building was drawn to the Plaintiffs attention. As pointed out by the plaintiff's counsel this averment by the defendants is an admission of the fact that when work started on the site of the Oliaji Trade Centre, the Sound & Vision building had already been erected and standing on the adjacent site. Having thus, known the danger and foreseen the damage, which their acts were likely to cause to the plaintiff's building, the defendants have indeed, brought their concern to the attention of the plaintiff. This, in my considered view cannot and is not sufficient to constitute a valid defence in law, to exonerate them from liability either under Article 1382 or 1384(1) of the Civil Code. If fact, the careless attitude of the defendants in carrying out the construction by taking the risk at the plaintiff's cost clearly constitute an error of conduct, which would not have been committed by a prudent man in the special circumstances in which the damage was caused. As Mazeaud defines in Traité Théorique et Pratique de la Responsibilité Civil, Tome I page 504, under a quasi-delectual « fault » the person who has committed it does not act with « intention de nuire » whereas in delictual fault that person acts with « intention de nuire » Therefore, the expression namely, "dominant purpose is to cause harm" used in article 1382(3) of our Civil Code is not an element which is necessary to constitute a "fault" in all cases, but this expression includes even "intended acts" that may fall within the concept of fault. Hence, the issue of "intent to harm" raised by the learned defence counsel is not relevant to the case on hand. Be that as it may.

The case of the plaintiff is that the cracks and other damage to the Sound & Vision Building only appeared after work started on the Oliaji Trade Centre.
It may be that the Sound & Vision building did not have deep foundations or even inadequate foundations given the nature of the soil. However, since it has been found supra that the soil movement under the Sound & Vision building was caused by the excavation and other

construction work on the adjacent land, the owner of that land and building, that is, the 1st defendant is liable under Article 1384-1. The case of Mobil Francais (supra) reported in J.C.P 1971 16665 is directly in point in this regard.

Contributory Negligence

I accept the evidence of the expert Mr. Koo in that, even if a building erected on soil consists of different strata, which is prone to differential settlement, as long as one does not disturb the terrain below the building by carrying out excavation work around or by creating some soil movement around, and as long as you do not impose different loading on foundation, then the building will not collapse or affected. That is why the Court has found supra that the **alleged acts** of the defendants constituted the **"primary cause",** not the **"sole cause"** or **"a cause"** for the damage to the plaintiffs building. At the same, no reasonable tribunal can turn a blind eye to the other side of the expert evidence, which reveals that there had been other factors such as "unsuitable foundation", "uneven load distribution", "unprofessional structural design", which all have acted cumulatively as catalysts activating the process and contributing to the damage of the SVB. I would call those catalyst factors as the **"secondary causes"** for the damage occurred to the SVB**.**

Admittedly, Harry Builders Pty Ltd, which constructed the SVB, did not completely remove the compressible layers of the organic matter found underneath all along the area before they laid or reinforced the foundation for the building. Moreover, they used only "Pad Footing Foundation" for the SVB paying no attention to the nature of the subsoil, which required a stronger foundation because of its extensive compressible layers found underneath. In his opinion, the expert Mr. Pool also stated that the **"Pad Footing Foundation"** on which the SVB stands is not good for grounds comprising compressible layers. Given the nature of the strata beneath the ground, the builders or the engineers of the plaintiff should have used **"Raft Foundation"** for SVB, not "Pad Footing". Even the expert Mr. Koo stated in his opinion corroborating that of Mr. J. Pool that **"pile foundation"** is the best, for any building

erected on the terrain like that of the plaintiff. Actually there are many solutions to put up a good foundation. Because when one gives proposal to foundation they will give the client to choose among different methods of foundation. It will depend on the budget and depend on the design. He further stated that ***"jet-grout pile"*** by pumping cement to improve the strength of the loose soil is a very modern technique. If the budget is not a problem one can use "**a jet-grout pile"** to have a very strong foundation. That is the second best in his opinion. However, the plaintiff's contractors or engineers have obviously, did not use the best or the second best method for laying a foundation strong enough to withstand the load and differential settlement. The load distribution of the SVB and the structural design were also not done properly, professionally and to the required standard, though expert opinion differs on this issue. Having considered all, in my judgment I find that the contractors, the architects and the structural engineers who constructed the plaintiffs building have also contributed their share of the "**secondary causes"** to the mishap, which the plaintiff is now facing. In the circumstances, I hold that the defendants are jointly and severally liable only to the extent of their share of responsibility to the damage caused by the **"primary cause".** Therefore, I find there is divided responsibility - ***responsibilité partagée*** - as propounded by Justice Sir Campbell Wylie CJ (as was he then) in ***Charlot and another Vs Gobine No. 5 SLR 1965.*** Hence, the plaintiff would lose his right to damages to the extent of his responsibility for the "**secondary causes"** that contributed to his own damage.

Although English law of tort, recognizes "contributory negligence" on the part of the plaintiff or any third party as a valid defence against tortuous liability, our law of delict under Article 1382 or 1384 of the Civil Code does not seem to have expressly recognized the concept of ***"contributory negligence"*** as a defence against liability. Is then, contributory negligence available under Article 1384(1)? The French commentators and the Jurisprudence have answered that question in a positive way. It does exist under 1384(1) and like wise it should also exist under article 1382 (1) to (4).

In support of this proposition, we find for example, in Dalloz Encyclopédie de Droit Civil 2nd ed. Tome VI, Verbo Responsabilité du Fait des choses inanimées, note 573, which provides that

"573. Alors que le fait d'un tiers ne peut normalement entraîner qu'une exonération totale de la responsabilité du gardien, a l'exclusion d'une exonération partielle, le fait ou la faute de la victime pourra entraîner aussi bien une exonération partielle qu'une exonération totale de la responsabilité, le problème ne se présentant pas de la même façon que pour le fait d'un tiers".

This refers to Article 1384(1). This is what the Commentators have said and again in Mazeaud Traite Théorique et Pratique de la Responsibilité Civile, Tome II, note 1527 at page 637:

Aujourd'hui les arrêts affirment que le gardien doit être exonère partiellement, dans une mesure qu'il appartient aux juges du fond d'apprécier souverainement, si le fait relève a l'encontre de la victime, quoique non imprévisible ni irrésistible, a cependant contribue a la production du dommage".

This being so, since contributory negligence may be pleaded in a claim founded on Article 1384(1) from which our Article 1383(2) has been inspired, then that defence may also be pleaded in a claim based on Article 1383(2) because, as I have said supra, that Article in our Code Civil has been borrowed from Article 1384(1) of the French Civil Code.

At the same time, it is interesting to note that as ***Laloutte JA observed in AG v Jumaye (1980) SCA at p 12*** that in Article 1383 (2) in relation to motor accident cases, an attempt has been made to solve by legislation one of the difficulties which had arisen in France that time in connection with collision with motor vehicles. According to his interpretation, that legislature has removed "contributory negligence" from being raised as a defence to liability under article 1383 (2). Be that as it may, in the Case of: ***D. 1982, 25 Mandin v. Foubert - Cour de cassation*** -the Court in view of article 1382 of the Code Civil held thus:

"Given that a person whose fault, even if criminal, has caused damage is partially relieved of liability, if he proves that fault on the part of the victim contributed to the harm"

Besides, it is a recognized principle in French jurisprudence that when a complainant or any person for whom is responsible, is found to have contributed to the damage caused, the courts are free to decide the extent to which each party is liable for the damage. ***Vide, Bull.civ. 1980 III no. 206 Case SCI Lacouture v. Entreprises Caceres.*** Indeed, in any action for damages that is founded upon the fault or negligence of the defendant, if such fault or negligence is found on the part of the plaintiff or third party that contributed to the damages,

the court shall apportion the damages in proportion to the degree of fault or negligence found against the parties respectively. **See,** ***Lanworks Inc. v. Thiara, 2007 CanLII 16449 (Ontario S.C.)***

Having regard to all the circumstances surrounding the **"primary cause"** and the degree of ***"contributory negligence"*** on the part of the plaintiff's contractors or architects or the structural engineers who constructed the plaintiffs building, in my considered view, they are jointly or severally 35% responsible for the mishap in respect of the ***"secondary causes"*** contributed by them. Hence, the consequential damages payable by the defendants should be reduced by 35% on the actual loss and damage sustained by the plaintiff in this matter. Obviously, for the said 35% of the contribution of the ***"secondary causes"*** the defendants are not responsible and hence I hold them liable only to the extent of 65% for the actual damage. Having scrutinised the entire claim made by the plaintiff under different heads for loss and damage, I find the plaintiff's claim of Rs300, 000/- for moral damages is excessive, unreasonable and exaggerated. In my meticulous assessment, it should be reduced by Rs200,000/- Having said that, in the absence of any pleadings in the defence *a fortiori* in the absence of any evidence on record to the contrary, I hold that the plaintiff did suffer actual loss and damage only in the total sum of **Rs 1,432,500/-.** That is, Rs1, 632,500 less Rs200, 000/- And, therefore 65% of the said actual damages payable by the defendants amounts to ***Rs 931,125/ -***

On the strength of the reasons discussed hereinbefore, I will now proceed to answer the fundamental questions in the same numerical order in which they stand formulated supra.

1. *Yes, the 1st defendant as owner of Parcel V3247 did commit a fault under Article 1382 by abusing its right of ownership in causing damage beyond the measure of the ordinary obligations of neighbourhood.*

2. *Yes, the 2nd defendant "Laxmanbhai" did commit a "fault" in terms of article 1382 of the Civil Code in the course of the construction of the building "Oliaji Trade Centre" and in*

that, it did cause damage to the plaintiff's building SVB.

3. *Yes, the 1st defendant is vicariously liable for the damage caused to the plaintiff's building by the fault of the 2nd defendant.*

4. *Yes, the damage to the plaintiff's building was caused by the use of the property - land V3247, of which the 1st defendant had custody as its proprietor.*

Yes, the 1st defendant is liable for the damage caused to the plaintiff by that property held in his custody in terms of article 1384 (1) of the Civil Code.

5. *That damage was caused not solely due to the fault of the defendants. There had been contributory negligence on the part of the plaintiff's builders/engineers/architects too, who constructed the Sound and Vision Building.*

6. The extent or degree of such contributory negligence in my assessment reduces the defendants' tortuous liability by 35%

7. *The legal impact of such contributory negligence accordingly, would reduce the claim or quantum of damages awardable to the plaintiff by 35%*

8. *The plaintiff is hence, entitled to damages in the sum of **Rs 931,125** /-payable by both defendants jointly and severally. This sum obviously, constitutes 65% of the actual loss and damage, the plaintiff suffered and the same is awarded against both defendants in this matter.*

Before I conclude, I should state that the plaintiff in its plaint has claimed interest on the said sum at the commercial rate. In the absence of any agreement between the parties as to rate of interest, and having regard to all the circumstances of the case, I find that the plaintiff is entitled only to legal rate of interest on the sum awarded hereinbefore.

In the final analysis, I therefore, enter judgment for the plaintiff in the sum of ***Rs 931,125*** /- and against both defendants jointly and severally, with interest on the said sum at 4% per annum - the legal rate - as from the date of the plaint and with costs of this action.

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D. Karunakaran

Judge

Dated this 5th day of May 2008