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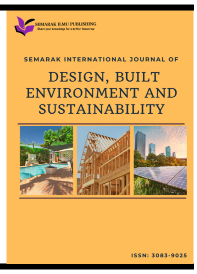

Understanding Natural Phenomenon using Practices against the Original Balance

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ABSTRACT

Human ecology relates with built environments after clearing and modifying landscapes. Terraform is the built evolution that comes with devastating consequences such as ground sinking. A study was carried out by sourcing information through desktop review and 68 reliable references were extracted. From this, Archimedes, centrifugal force, square cube law, Newton's Laws, Bernoulli, Kinetic and Coriolis were assessed using simple mathematical calculations in weight, area and height between vegetation, crustal rise and built environments for defining limits and boundaries. The findings concentrated on penetration points of buildings (focused points), vegetation (multi-point) and slope or hills (continuous). In the 2-dimentional perspective, energy was well distributed with area but concerns arise when built spaces take the 3-dimentional form. Built spaces are disobeying the square-cube law and therefore, crustal materials beneath are tensioned to become compressed which overall, increases the crust thickness differently between pronate and supinate zones. Under Coriolis, all above ground erections have inertia and this motion is directed downward through a vertical spiral. Therefore, the main concern is free energy that was distributed to the crust because same-like materials could absorb it but across layers, a sideward repulsion is created and this could displace sediment severely. It applies to natural events which is recently gaining magnitude and severity especially in distant areas 180° sideward and opposite directions. Gravity is the precursor for centrifugal sinking or rise of crustal materials and modern structures are harmful because faults cause voids across several layers of crustal matter.

1. Introduction

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Parent material in the crust could support an ecosystem by being substrate. However, the lifecycle of a substrate is determined by the process of geo-compression, geo-deposition, and weathering. These circumstances were responsible for geological genesis where parent materials could be converted by either. salinization or desertification into soil; the smaller constituents of crustal materials [11]. Since genesis is a natural event, it could promote crustal repercussions in small scales that later become known as faults, sinks and depressions. Considering that bedrock and weathered soils vary by region, its predominates or karst rocks such as limestone, dolomite, anhydrite, gypsum, or salt could appear in similar structure and constituting composition [15]. Karst rocks could easily erode after contact with carbon-dioxide enriched waters located within a karst aquifer. Then, fractures and bedding partings become apparent and this could be responsible for events leading to ground sinking.

In built environments, rapid and myriad decisions were used to manage risks. For instance, sinks and erosion were managed by drilling and rehabilitation procedures that introduce foreign materials into the affected crust layer. In certain circumstances, facilities and infrastructures were introduced to fortify the weakened crustal layers. It appears that human interventions unintentionally worsen the risk by creating a pathway for hydrometeorological and geohazards. Despite grounded by Hyogo Action or Sendai Framework [32], modification that causes terraform could never promote sustainability because the intervention is against natural circumstances and the settlement layers within the crust becomes tampered. Eventually, the ecosystem that already has natural faults become permanently fabricated. This is the concern taking place with land development.

In the era where development could become rampant, rural concepts were reintroduced since it was grounded on ecological-friendliness. This form of resetting has created a mindset called green transformation [16]. These days, calls for development also follow through with green investments; such as landscape protection, ecosystem service mitigation plan and emission reductions [5,19]. Social dimensions and case studies fortify the post-development investment. Inversely, policy shocks by the Federal Reserve and Central Banks spill onto local economical mediators such as basic goods, its accessibility and guarantees [3]. All of these have already placed an unintended development burden on supporters whereby cost of living in newly developed areas come with a price in the form of cost-of-living hikes. Micro-provisions in the form of facilities and supporting infrastructures also become replaced by cheaper alternatives. Setbacks in post-development investments often are neglected and depending on the attention, there is possibility that review was never carried out after the development. Meanwhile, societies endure scarring from crustal repercussions. The resultant chaos (tremors, floods, typhoons, or strong-wind events) could be triggered by obsolete leadership practices that may have previously worked. Unfortunately, every area has carrying capacity and exceeding the safe limits could add layers of risks. Therefore, emergencies in the form of faults or sinks are random yet, temporal events that earth uses to reach stability [36]. In this sense, stability was a resultant stimulation from having risks [13,34]. In fact, premeditated genocide could be ruled out while built environments become devastated by natural triggers.

Land use was encouraged after the second world war to fortify food, human, ecosystem and economic securities and this initiative was encouraged globally [30]. Land use increased the national share of available resources and since the spark of millennium, effects of delimiting resources, particularly biodiversity have become worrying [7]. New policies were needed to spearhead restocking or replenishing of resources. Eventually, more land was secured to support the cause and it continues until today even after 50 years. Now, 0.8^6 km^2 of forests were or remains lost to the 0.9-1.0^6 km^2 spatial size of global agriculture sector [38]. Though blanketed by political reforestation, vegetation restoration and overgrowth (from pasture or rangeland abandonment), land occupied by natural systems alone could never recover 100 %. Despite this, no matter the species multitude or age of succession, ecosystem services are always economical and sustainable because 0 % waste is generated. Comparatively, the collection of single species, *Homo* (*sapiens*) *sapiens* causes maximum colonization of an environment. In this sense, the chaos theory corresponds with ecosystem function and use [33]. Chaos from waste are risks that could be managed and remediated by another man-made solution. Due to differing problem-solving solutions, now, humans occupy every tier of the crust ecosystem pyramid.

The human ecology remains surrounded by technologies, infrastructures, and facilities. In fact, the Johannesburg case study or transit-oriented corridors were reviewed for town planning and the survival of earth for future generations [31]. These days, terraform (or concrete jungles) were constructed using sand, metals, composite materials, and polymers. Terraform size was determined by models integrated with inertia, motion, gravity, vectors, and laws on force. Thus, every built environment is constituted by modified yet, man-made components that are low on environment friendliness [8]. Management in vibration, noise, light, resonance, and heat determines the life span of water feeders, powerlines, and reservoirs. Over time, unwary faults could occur to liquid (water networks), gaseous (atmospheric) and solid states (sedimentary) on the crust environment. Themed by laws of nature, this article aims to use man-made descriptions to interpret actions that have led to chaos (or faults) such as crustal layer movement, faults, and surface layer vibrations (earth quakes) in due course of collisions that occur above the surface and beneath the crust. It is learnt that earth with its gravitational attractions maintains gaseous, liquid, and solid states in an equilibrium while enduring the solar, Coriolis and circumlunar trajectories. Neglect on fundamentals have made modernization overlook the limits of nature and now, we ourselves are suffering from consequences of our own actions.

2. Methodology

2.1 Information Sourcing

Data from published, refurbished or ongoing projects were sourced from Google Patents (patents.google.com), WIPO (patentscope.wipo.int), Google Scholar, Web of Science (for Scientific and Academic Research, IP services – Patent & Trademark, Real World Data and Research Reports). A total of 35,467 materials were retrieved. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol was adopted from data searching until the qualitative analysis. The quantitative analysis was modified from Hamdani *et al*., [12]. First filtering used temporal (recent 20 years), impacts of natural disasters, rapid decisions, and short-term solutions. This reduced materials to 797 sources comprising of 36 patents, 142 governmental decisions, 53 reviews, 201 social and ecology concerns and 365 research findings.

2.2 Developing the Library

The data was screened by articles that contain matrices, numbers, values, or keywords related to direction, decision, and implementations. The inclusion criteria were fitted by 68 reliable research materials. Though weakly associated, another 13 articles were reserved as support. These 81 articles have relevance with human theories grounded by gravitational attraction and equilibrium of matter; built material and composition; land size and clearing methods; cost-effective built; land transformation duration; elevation and structure height; residential offsets; objectives related to economy decisions, and policies; temporal human population size and; carrying capacity. It offered support in the results and discussion sections and complemented the theme of this work which relates to earthquakes, unpredictable weather, and its consequences. These materials provided supporting information on theories, principals and laws which could be tested and evaluated using basic logarithmic manipulations of integers.

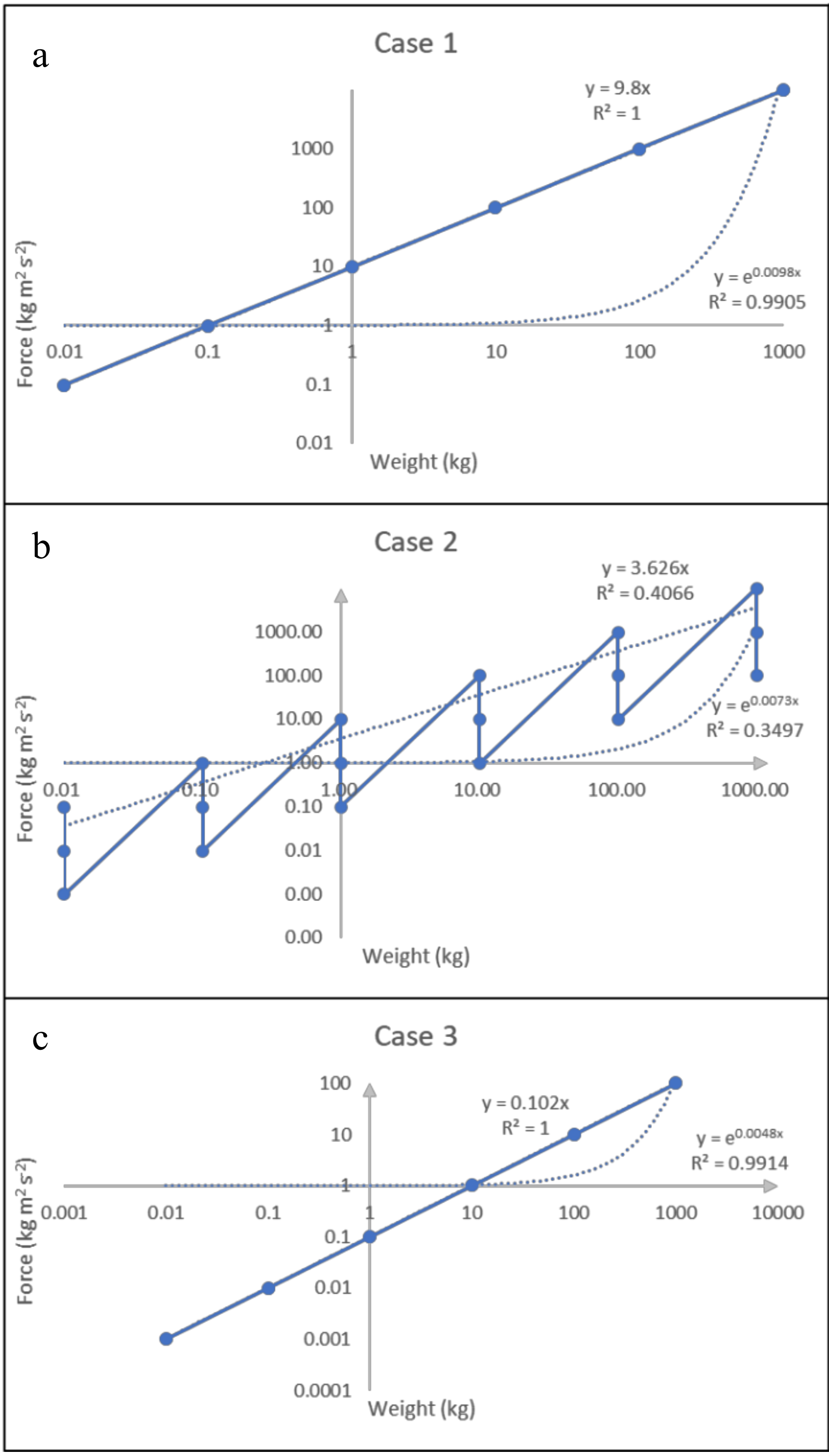
2.3 Mathematical Testing

The testing was carried out in Microsoft Excel using descriptive statistics. While raw data was processed using linear (y = mx+c) and logarithmic equations (log y = m log x + log k), the calibration was carried out using x = time; x = area size and x = capacity. In 2-dimensional equilibriums, the value of y was fitted with factors derived from testing the value of x. In all cases, the regression value of 0.9x considered accepted. In some circumstance (as stated in the results), the linear equation was tempered by changing variables in the factors. Only then the linear equation generated weaker R^2 values and the equation was then challenged by increasing the number of factors. Hence, operators such as weight, height, distance, time, and area had to be maintained (fixed as operational factors) while other variables, pertaining to the sub-topic, become adjusted to produce a simple understanding on risks and chaos after transforming the earth's surface.

3. Results

3.1 Archimedes Principal

This principal applies to concepts of immersion-displacement in the presence of gravity. Meanwhile, gravity is a centralized attraction force that settles any particle (gaseous, liquid, or solid) with a fixed amount of mass. The Archimedes principal recognizes the forces that could cause a displacing effect in a repulsive manner; it acts against gravity until the kinetic energy wears out. Grounded by depth and gravity, *c.a.* equations tested by Mohazzab [24], a sorting behaviour is seen during the immersion-displacement process where a downward force exhibited onto the crust simultaneously triggers an upward and sideward force that pushes crustal materials into that direction. Two attributes, namely size-weight and volume of crustal materials are influenced by weight of the penetrating object and the force used to drive the object to a certain depth during the immersion-penetration process. To visualise the Archimedes principal, weight, size, and shape of crustal material must be consistent; mass of the crust is maintained at 1 kg/s^2 (Figure 1). In the first case, objects with varying weights could penetrate the crust with forces that follow the equation y = 9.8x, or the same amount of force exerted by gravity. But in mixed layers of substrate, displacement could only occur if the weight of the immersed object exceeds 1 kg (Figure 1a). Sediments become displaced following the equation $y = e^{0.0098x}$ even at 10 kg. For the second case, vegetation (plants) penetrates the crust using a single point (radicle or embryonic root) during the germination process and as mass increases, the radicle branches to become multipoint (Figure 1b). By using Log_1 on single decimal values of 1 kg, the immersion-penetration forces should equate to the force expressed by gravity. Therefore, even if the plant reaches 1000 kg, the amount of force is linear and follows y = 3.626x. Every main root branch will exhibit a force equivalent to 98 $kgm^2 s^{-2}$ and the displacement force does not exceed 1 kg m^{-2}. If the exponential equation is considered, a 10 kg plant embryo with single radicle penetration obeys the calculation of $y = e^{0.0073x}$ and only causes a maximum displacement force of 98 $kgm^2 s^{-2}$ to surrounding substrate. In the third case, crustal folding during the formation of hills, range and mountain is always linear (Figure 1c). While earth rotates, the Coriolis force was responsible for 90° displacement while momentum reacts on crust material in 180° angle. These forces act together to maintain mass stability of crustal materials. Therefore, the crustal folding of earth is $R^2 = 1$ or y = 0.102x which means the folded mass is linear to the upward force expressed in a 180° angle. But, if the displacement force is exerted sideways, it obeys a logarithmic exponential increment where $R^2 = 0.9914$ and $y = e^{0.0048x}$.



Weight (kg)	Force (kgm/s²)
0.01	0.098
0.01	0.098
0.01	0.098
0.1	0.98
0.1	0.98
0.1	0.98
1	9.8
1	9.8
1	9.8
10	98
10	98
10	98
100	980
100	980
100	980
1000	9800
1000	9800
1000	9800

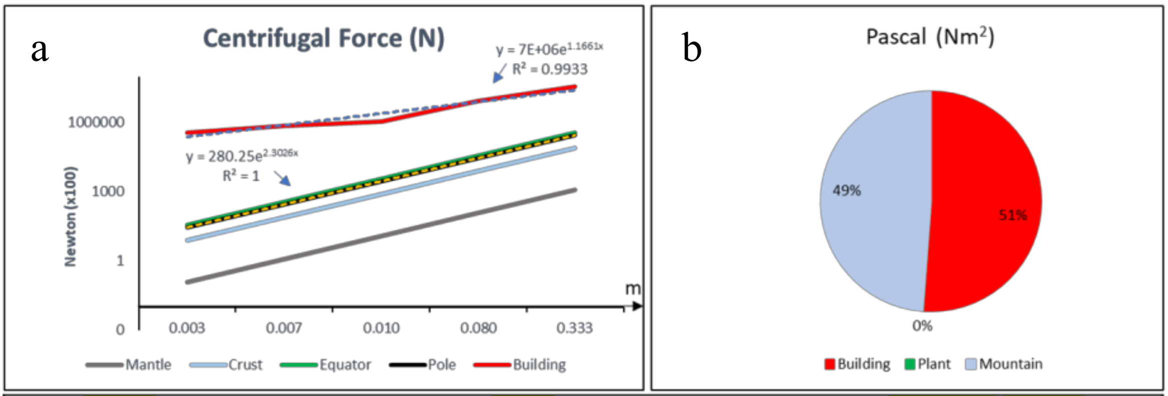
Weight (kg)	Force (kgm/s²)
0.010	0.10
0.010	0.01
0.010	0.00
0.100	0.98
0.100	0.10
0.100	0.01
1.00	9.80
1.00	0.98
1.00	0.10
10.00	98.00
10.00	9.80
10.00	0.98
100	980.0
100	98.00
100	9.80
1000	9800
1000	980
1000	98.00

Weight (kg)	Force (kgm/s²)
0.01	0.00102
0.01	0.00102
0.01	0.00102
0.1	0.0102
0.1	0.0102
0.1	0.0102
1	0.102
1	0.102
1	0.102
10	1.02
10	1.02
10	1.02
100	10.2
100	10.2
100	10.2
1000	102
1000	102
1000	102

Fig. 1. Graph of logarithmic weight increase and displacement force. Note: Cases 1-3 are in the respective order of built spaces (a), vegetation (b) and crustal rise (c).

3.2 Centrifugal Force

All crustal matter experiences an antagonistic vortex acceleration (or inertia) in the presence of Coriolis. This inertia was recognized with a centrifugation effect. Two factors, namely height (away from the core) and weight (mass of matter) react together with gravitational acceleration. Therefore, weight that undergoes acceleration does not only gain downward (in the path of gravity) trajectory but also momentum (kg ms^2). Meanwhile mass gains a fixed velocity. In addition, height determines the magnitude of forces that acts on this mass. Together, a settling acceleration is created at the centre of a spiralling environment and mass within this region was assumed to experience the centrifugal force (Figure 2). When applied, the magnitude of centrifugal force could increase with the distance of objects from the earth's core. This observation could be tested using the equatorial bulge where crust at the pole is 27 km whereas it is 21 km at the equator (Figure 2a). There is exception for matter that originate from the crust because same-like materials could easily distribute the kinetic energy (Figure 2b). Therefore, centrifugal forces that act on the crust could become reduced provided the height of the crust becomes increased or comprise of the similar building blocks as the crust. Yet, there is exception for energy transfer across different states of a given mass (whether solid, liquid or gas) due to interstitial spaces. Pressure behaves differently in liquid (hydrostatic) and solid (compression) environments. For the case of built spaces in this study, compression is assumed to be created from a solid foreign material that has a crustal penetrating base and each compression point is created from mass that is evenly distributed. In a horizontal view, the weight of objects was dissimilar to crustal matter and weight-driven compression to each crustal layer depends on the compaction between the matter particles. Due to crustal layering, the centrifugal forces react proportionally with height and mass of the penetrating object at a single point. This compression is comparable to the pressure exerted by objects, plants and mountains at a given space, which for this study is maintained 1 m^2. For this evaluation, the penetration points of foreign materials were claimed with 2% more pressure than crustal materials (Figure 2b). It should be noted that height and area of foreign materials (in this case buildings) were consistent in the measurement. Therefore, the centrifugal force of buildings obeys the equation $y = 7E{+}06e^{1.1661x}$ ($R^2 = 0.9933$). Comparatively, plants also penetrate the earth's crust but distribute its mass on each root hair point. The composition of soil layers remains unchanged while the roots of plants fill the interstitial spaces through the following equation $y = 280.25e^{2.3026x}$ ($R^2 = 1$). Like folded crusts (the mountain), pressure for 1 m^2 area of plant becomes decreased with its height (Figure 2b). These are the different effects of centrifugal force for mass that penetrate (building), fold (mountain) or fill spaces (plant root hairs) for a given area of crustal matter.

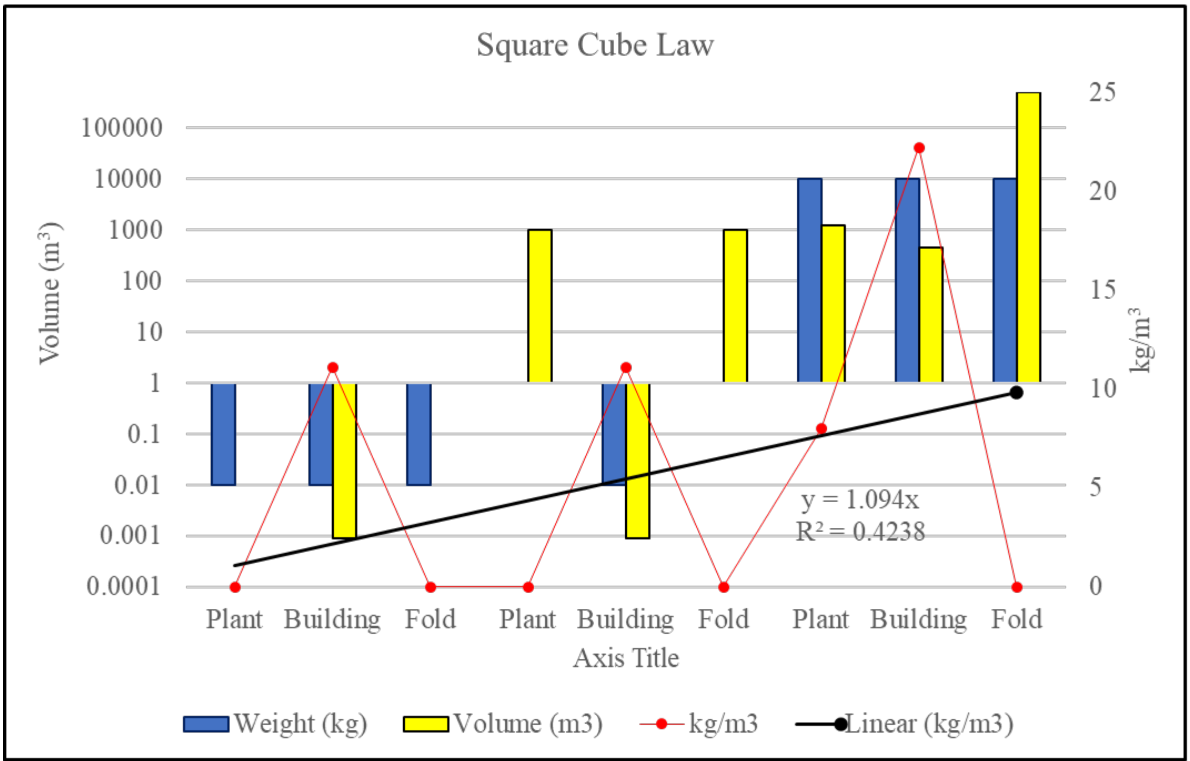


Variables		Newton					Pressure (Nm² or Pascal)		
Height (km)	Weight (kg)	Mantle	Crust	Equator	Pole	Building	Building	Plant	Mountain
0.003	0.1	12	757	3603	2803	36027576	36027575	36031	34394871
0.007	1	119	7567	36033	28026	72041431	72041431	36024	32899442
0.01	10	1186	75669	360327	280255	108046716	108046716	36016	31528632
0.08	100	11864	756687	3603272	2802545	861503416	861503416	35998	30267487
0.333	1000	118640	7566872	36032722	28025451	3547026520	3547026520	35947	27024542

Fig. 2. The amount of centrifugal force on every section of earth including living and non-living components. The comparison of centrifugal force for earth layers (a) and the total pressure from centrifugal force expressed in percentage (b)

3.3 Square Cube Law

Every object has mass but its density become dissimilar because due to bonds and crystallization at the atomic level. Packing or compaction plays a major role in this binding relationship to the extent that every object occupies a certain area and height. It is different with human inventions because various materials could be bounded together using adhesives or by mechanical strength. In the natural environment, staked objects are filled, have minimal interstitial spaces and regardless size, shape or form, it entirely occupies a cubic amount of space. Therefore, it could be asserted that all mass on earth has 2-dimensional area and with height, mass gains a 3-dimensional volume. To develop an understanding, the subunits used in the formation of plant (vegetation) and fold (crustal fold = mountain, hill, slope, or range) are similar which also means, the materials have an endemic origin. It is dissimilar for buildings because bricks (given width and length 0.03 m; Figure 3) are foreign cured subunits that need to be stacked by length, width, and height. Buildings have rooms and it means these bricks do not completely occupy free space. In a collective comparison between plants, crustal folds and buildings, the volume (y) increases by a factor of 1.094 for each kg in weight (Figure 3). Although folded crusts gain height and supposedly possess larger weight than plants and buildings, at 10-tonnes of weight, crustal subunits only create a force of 0.020 kg m^3 compared to vegetation (plant) at 8 kg m^3 and building at 22 kg m^3 for every 1 m^3 of its volume.



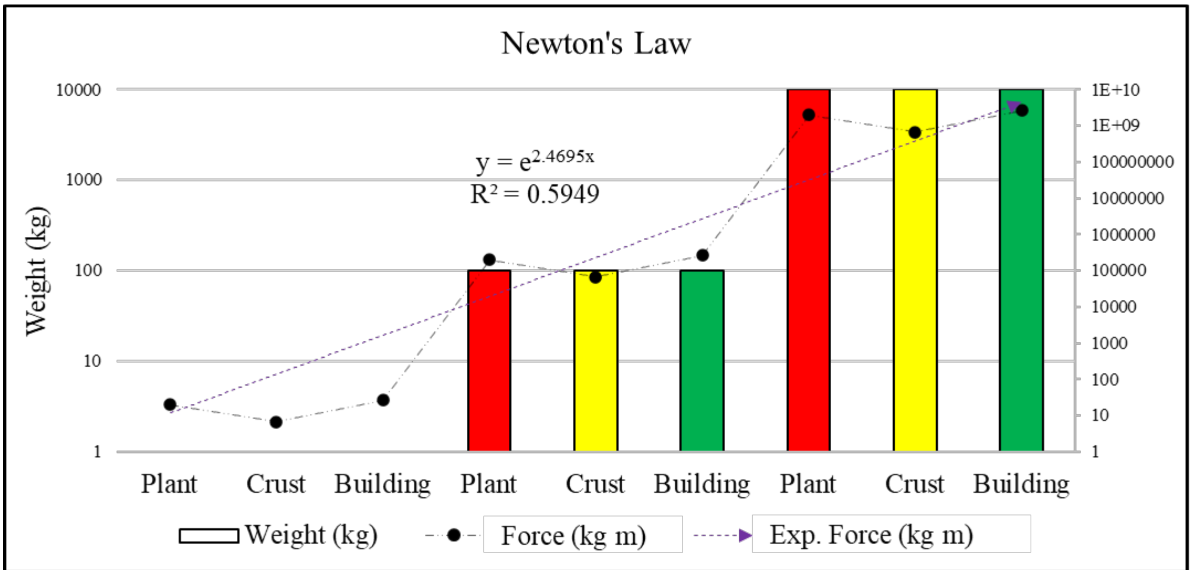
Criteria	Weight (kg)	Height (m)	Length (m)	Width (m)	Area (m^2)	Volume (m^3)	kg/m^3
Plant	0.01	1	1	1	1	1	0.010
Building	0.01	1	0.03	0.03	0.001	0.001	11.111
Fold	0.01	1	1	1	1	1	0.010
Plant	1.00	10	10	10	100	1000	0.001
Building	0.01	1	0.03	0.03	0.09	0.9	0.011
Fold	1.00	10	10	10	100	1000	0.001
Plant	10000	50	5	5	25	1250	8.000
Building	10000	50	3	3	9	450	22.222
Fold	10000	50	100	100	10000	500000	0.020

Fig. 3. Criteria used in the development of square cube equation. Weight over volume is used to develop a ratio for gravitational forces that act on every penetrating point. Note: plant = vegetation; building = built space and; fold = crustal rise

3.4 Newton's Laws

The falling of an object, its impact and converted energy has been the basis for modern applications, particularly for construction. Penetration of foreign objects such as steel or concrete into the crust provides stability. It could offer strength to a building foundation. A given example is habitable sky-rise construction. This was never seen in the early existence of mankind because relics possessed extensive surface foundations, the building blocks were large or a large wall area (of space) provided stability to the entire structure. The boring of piles into the crust was an innovation to save building space while offering stability to above surface structures, the new structure could be erected to greater heights. It also means, buildings could be disproportionally tall if compared to relics. For instance, an object of 1 m height (best initial value obtained from the centrifugal force) may have a base of 1 m or by using modern engineering, core pillars could be placed at the mid points to reinforce the object while allowing the building to maintain its occupied surface space of 1 m. Another object could be placed next to this object and adopts concepts of piling to maintain its stability on the crust.

This form of development is the basis of modern construction worldwide but it is opposite the natural concept where forces become evenly distributed and dissipated to promote stability. Plants have disproportional form but, are stable due to root network. Regardless height of a plant and area the root system, plants obey the 30-60-90 triangle rule for their form stability. It means though penetrating in a 180° angle, the weight of a single plant is distributed within 30° and 90° of its root hair range following the equation a/√3, where a = depth. On the other hand, folded crusts also exhibit the 180° force-to-area gravitational attraction and therefore, the action-reaction force will always be in a factor of 0. However, in this calculation, gravitational acceleration was maintained at 0.98 ~ 1 m/s/s. Comparatively, buildings utilize penetration points to distribute its weight. Therefore, 2-dimensional (area) and 3-dimensional (volume) concepts were introduced. Meanwhile, Newton's second law on force was applied with the universal gravitational principal G = gravity constant (6.6743 × 10-11 $m^3\,kg^{-1}\,s^{-2}$) for a given set of mass over squared unit of height (Figure 4). Conceptualizing the second and third Newton Law, for every increase in weight, the amount of force generated is $y = e^{2.4695x}$ ($R^2 = 0.5949$). The regression score becomes decrease by penetrating points. Plants anchor themselves in the crust differently than buildings. Overall, the amount of force generated by 1 m height for a building, the folding of crust or anchoring by a plant was perceived governed by an action (penetration) force and simultaneously another counter-displacement (reaction) force that reacts together with the increase of weight for an object whose height is higher than the crust (Figure 4).



Criteria	Weight (kg)	Force (kg m)
Plant	1	20.0229
Crust	1	6.6743
Building	1	26.6972
Plant	100	200229
Crust	100	66743
Building	100	266972
Plant	10000	2E+09
Crust	10000	6.67E+08
Building	10000	2.67E+09

Fig. 4. Variations in weight and the force exerted by using the universal gravitational principal together with Newton's second and third law. In this case, force = $G(m_1m_2)/d^2$ where, G = gravitational constant

(6.6743 × 10-11 m^3 kg^{-1} s^{-2}), m = mass and d = height of the object. Note: plant = vegetation; building = built space and; crust = crustal rise

3.5 General Theory, the Effect, and Perceived Principal

Another basis of energy distribution is the kinetic theory where in the third rule, particles of the same construction or type do not exert energy onto each other. In other words, objects driven by original matter flow energy across its materials and exert this energy onto adjacent foreign materials. Therefore, kinetic energy could only be measured for objects made up of various materials; such as human constructions. This energy was predicted to become greater with weight of an object but it could reduce with density especially when the surface of area reduces (Table 1). Since buildings are compartmentalized, the frame adds volume to the spread of structure but with large spaces, the square cube law becomes unapplicable. This contributes to large generation of kinetic energy particularly because the spaces become filled by different types of materials. Therefore, kinetic energy increases with weight of the object and behaves inversely with density (Table 1). Meanwhile, the Coriolis effect is a natural phenomenon that could cause mass to become displaced in the opposite direction of earth's rotation without the presence of action-reaction forces and gravitational acceleration. It also means that Coriolis reacts inversely to surface area in the presence of height. Since objects were constructed by building blocks, the attachment reduces the surface area of exposure to the environment. With the addition of materials, an object could spread horizontally or vertically and have its weight become increased. Perhaps this is the calculated observation for effects of Coriolis towards an object having weight (Table 1).

Considering buildings being stable with the rotation of earth, all materials regardless their state remain in the original position and yet, were forced to settle on the crust due to gravitational attraction. Comparatively, gaseous particles freely circulate the environment without a fixed trajectory unless repelled by denser objects. The direction and speed of gaseous particles becomes altered and the changes in pressure (due to height) creates different circulation paths. For this reason, the Bernoulli's equation was considered valid for this work. The convergence of forces between incompressible fluid could fortify the understanding on action-reaction behaviour in solid-gaseous state of the lithosphere. Although forces from the Bernoulli's equation was observed to increase with weight (refer to Table 1), the actual influence was the amount of force (f = mass x acceleration) originally exerted. An object is considered to accelerate with gravity and then possess action-reaction forces. On 2-domensional layout, the displacement force could be calculated using the Archimedes principal. Objects such as buildings are not grounded naturally but instead become planted. In fact, the foundation (base) experiences a resonance (vibration) made from the collision of air particles and resonance increases with height of the object. For this work, the orchestra of force was calculated using the Bernoulli's equation (Table 1).

In the natural world, all forces integrate with each other to develop a single function. Therefore, in the natural world, Kinetic was generated together with Coriolis and adheres to the area and volume of right-hand triangle. Using basic trigonometry, the effects of Kinetic and Coriolis was minimal on human construction but then again, these structures could add their height at the compensation of surface area. In fact, the volume remains at the frame. It also means that buildings of lower height have less tendencies towards Coriolis and centrifugal forces due to possession of large surface area. However, increasing the area of a structures causes greater displacement because the building block materials are dissimilar to the crust. With this, the effects of Coriolis also become increase (Table 1). Comparatively, with the integration of basic attributes into the new equation that combines Kinetic, Coriolis and Bernoulli, it is learnt that weight contributes to the increase of height and volume of natural objects. But forces that act on natural systems were lower by number and magnitude if compared to construction (Table 1). In a two-dimensional scheme (Table 1a), flat objects with larger base and did not penetrate the crust will have less effects of Kinetic and Bernoulli although their weight increases. However, height will always be a determinant for the magnitude of Kinetic and Bernoulli but it is calculated to be lower provided the 30-60-90 triangle rule becomes applicable. This finding suggests current building practices to adopt a larger base, the base sits on the crust instead of penetrating and every frame (wall) has its weight evenly distributed on each base (Table 1b).

Table 1
The attributes used to develop opinion that contrast Kinetic, Coriolis and Bernoulli to natural and modern environments

Attributes					Present				Natural		2D	3D
Weight (kg)	Area (m^2)	Height (m)	Volume (m^3)	Density (kgm^3)	Force ($kgms^{-2}$)	Kinetic (kgm^2s^{-2})	Coriolis ($kgms^{-2}$)	Bernoulli ($kgm^{-3}s^{-2}$)	C-K	C-K-B	a	b
0.01	0.1	0.1	0.01	0.1	0.1	42915	-2	44371311	-0.007	0.6	0.59678	0.2
0.01	1	1	0.01	0.01	0.1	42915	-1	4437131	-0.004	0.2	0.59678	1.1
0.01	10	10	0.01	0.001	0.1	42915	0	443714	-0.001	1.1	0.59678	12.1
0.1	0.1	0.1	0.1	1	1.0	429150	-17	443713114	-0.068	5.5	0.05968	2.2
0.1	1	1	0.1	0.1	1.0	429150	-10	44371313	-0.038	2.2	0.05968	11.4
0.1	10	10	0.1	0.01	1.0	429150	-2	4437142	-0.007	10.8	0.05968	121.2
1	0.1	0.1	1	10	9.8	4291504	-175	4437131141	-0.682	55.3	0.00597	22.2
1	1	1	1	1	9.8	4291504	-96	443713133	-0.375	22.1	0.00597	114.2
1	10	10	1	0.1	9.8	4291504	-17	44371419	-0.068	107.8	0.00597	1211.9
10	0.1	0.1	10	100	98.0	42915042	-1746	44371311412	-6.818	553.3	0.00060	222.4
10	1	1	10	10	98.0	42915042	-960	4437131326	-3.750	220.5	0.00060	1142.1
10	10	10	10	1	98.0	42915042	-175	443714191	-0.682	1078.4	0.00060	12119.4
100	0.1	0.1	100	1000	980.0	429150418	-17462	443713114123	-68.182	5532.5	0.00006	2224.0
100	1	1	100	100	980.0	429150418	-9604	44371313265	-37.500	2205.0	0.00006	11421.4
100	10	10	100	10	980.0	429150418	-1746	4437141910	-6.818	10784.5	0.00006	121193.5
1000	0.1	0.1	1000	10000	9800.0	4291504182	-174618	4437131141230	-681.818	55325.5	0.00001	22239.7
1000	1	1	1000	1000	9800.0	4291504182	-96040	443713132645	-375.000	22050.0	0.00001	114214.3
1000	10	10	1000	100	9800.0	4291504182	-17462	44371419105	-68.182	107844.5	0.00001	1211935.1

Note: C-K = The integration of Coriolis and Kinetic to develop the equation (1.5/-2) x (mass x angular x tangential). C-K-B = additional integration with Bernoulli to develop the equation (force x area) + (0.5 x force x area / (area x height) x angular x tangential) + (force x area / (area x height)) + (force x area / (area x height) x 9.8m s^{-2} x height). The attributes were adopted from fundamentals of prior sections in this article. The information in 2D only considers x and y (area) for a given object and height is integrated into the 3D scheme.

4. Discussion

The Archimedes principal uses natural circumstances and the form liquid appears when shifted between spaces. This conceptualizes fluid dynamics of earth's crust and upper mantle when achieving the isostatic equilibrium. In this understanding, high terrain is naturally balanced by deficit mass that settle beneath in layers [37]. This mass has no other direction but to remain grounded in the trajectory of gravity. Presumably, earth is an encased object that is filled with crustal materials. Materials in the crust could only move along fixed paths set by boundaries (or thickness) of each settling layer. Each layer comprises of materials of similar constituents. Upper 100-200 km of earth thickens proportionally because asthenospheric materials remain in a molten state (or magmatic) and could be considered with viscosity unlike the solid-state behaviour of surfaced lithospheric materials. Lithospheric materials that have become unearthed were provided with much time to cool down into a solid state. The cooling process occurs over a geologic period and at the same time, weathering also takes place. Since molten conditions revolve with free space and weakened bonds between same-like materials, a direct influence of temperature and decreasing pressure. This creates concentration factors (or compaction) that make sedimentary materials appear viscous in the mantle but solid on the crust. This concept could be visualized in the casting industry where additives could develop a matrix with few porous spaces. Porous spaces occur from the rapid cooling process [20]. The square-cube law could be applied because smaller objects with larger surface areas lose heat rapidly compared to larger objects with reduced surface area of exposure. In fact, all earthly materials have their volume increase with the cube of linear dimensions and inversely lose on specific surface area [6]. While pinched crust layers with high terrain have previously experienced atmospheric pressure and cooling, the cooling process is phasic and gradual. In addition, layers beneath the pinch must support the weight of above layers. These layers are forcefully compressed and tensioned to develop strongly bounded matrices that is completely free from loose pockets. Therefore, through retrogression partitioning and the stability of crustal roots [4], the base of pinched crusts could become thicker (~ up to 50% thicker than adjacent crust) if compared to the usual 35-40 km thickness in flatlands.

While the mean surface elevation of a crust is proportional to the horizontal compression and thickening, the crust folding processes displaces crustal materials into every direction possible (observing a 3-dimensional multi-planar distribution) to cancel-out free energy. In fact, crustal materials were being displaced by the same amount of energy or stress as evaluated by Tang *et al.*, [35]. This normal force was sufficient to move inner (or beneath) layers outward but, the crustal materials remain intact (without magmatic spills or mixing) within their settled layers although being gradually pushed upward towards the crust surface in the opposite direction of gravity. The shift from inertia to motion continues to abide the square-cube law especially for space filling. Space filling could be conceptualized using particle packing in the theory of layers that uses aggregates for void filling [9]. Crustal layer always remain in equilibrium and the driving energy could freely transfer between same-like materials at a constant rate. Void filling caused by an upward push creates compression in adjacent layers and by losing thickness, lowlands or basins could develop despite simultaneously undergoing pressure from hydrospheric environments [25]. In fact, the entire natural process of crustal folding could last for aeons. In events related to crustal folding, the pinching process does not pour out (or unearth) crustal materials but rather every individual layers were allowed to grow in a listric manner and take a certain shape that promotes stability. If crustal folding was assumed with conical form, the right triangle rule could be used for space (or void) filling [10]. However, curves of right triangles should avoid isosceles applications. Otherwise, the entire concept will be deluded by quintic irrelevancies (such as reptiling and gentiling).

Interestingly, crustal materials remain grounded in the same layers it was previously settled while the force that pushes the crust upward dissipates its free energy within the new formation. With stretching, thinning and hyperextensions observed in Nemčok *et al.*, [27], it was discovered that any absence of (listric or normal) faults allows nucleation of crustal layers to maintain. This observation disregards conditions where every layer of the affected crust was gradually becoming compressed, twinned, tensioned, or extended in the opposite, yet upward projection. Perhaps, this is the basis of twining that involves karstic limestone, heterogenous interbedded sediments or hard granite upward-convex developments. The crustal materials become solidly-compacted through hierarchical hexagonal close-packing [39]. The downward force that reacts with gravity, for this study applied as centrifugal force, creates a downward suction among crustal layers. Some of the layers were forced upwards against gravity to support the vertical crust expansion. Beneath this formation, the supinate section of the base is becoming compressed and compacted. Free energy is projected in a downward direction with gravity and this energy moves along bottom layers beneath the crustal pinch. Areas affected will become tightly squeezed, thinned, or converge to become thickened but retain themselves within the original layer that contains same-material matrices. It could be the role of centrifugal forces that counter acts on Newtonian influences from the crust surface until the energy dissipates with depth between each crustal layer involved for a given volume of rise. However, the circumstance, crust materials which occur as magmatic, fluvial, or solid do not spill out unless the crust surface tears. Generally, volume increases with height and area of the base in a 3-dimensional overview that conserves the square-cube law application.

In modern construction, the average project span rarely exceeds prolonged periods; completion is hugely anticipated as rapid as possible depending on the technology employed. In addition, the weight of planted materials varies by its type, space allocation and total height of the new structure. Then, placement of structure on intact or jointed rocks will be influenced by the tri- and uni-axial compressing strength, weathering, and genesis of the rocks [18,21]. This has relation to rock mass strength under the effects of time. Impacts such as rock splits, shears, slides, or rotates were commonly predicted using models after boreholes were carried out. Often, random sampling and perceived influenced by predicted factors (such as seepage pressure, confining stress, and effective stress) inspires the results of *in situ* stress [29]. Usually, the perception of stability is strongly grounded by the fortification of a base constructed on the surface layer of the crust. Since the constructed base is built from materials that differ from the crust layer, there will be free energy generated at every embedding point; this energy was derived in this study but it could have always been overlooked. Attention could be drawn towards the stability of the built space. Comparatively, a given plant distributes its weight using root hairs and regardless the weight increase, vegetative penetrations is not necessarily downwards. Rather, it could be sidewards so that is also simultaneously promoting stability. Unlike the plant, every embedding point of built space will transfer this free energy towards the crust layer. In this process, a downward squeeze occurs alongside the trajectory of gravity.

Comparatively, plant roots penetrate in a pronate manner [22], adjacent sediments are pushed by supinate positions of the root but; these sediments remain intact between layers of same matrix. On occasion such as rainfall where alluvium becomes redistributed among root hairs, the tendency of sediment to become fluvial (or runoff) reduces (r^2 = 0.99) with the extent of root cover [28]. (Basically, the sediments remain intact and bounded to the plant root as well as its hairs while water seeps freely to fills voids present in porous terrain. This is indicative that vegetation also settles naturally in between crustal materials. Despite taking up volume between layers, the roots fill empty spaces and remain intact. The layers of the crust itself remains settled within its own layer. Conversely, vegetative growth and colonization does not disrupt settled sediments.

However, modern built spaces were reinforced by concrete, a chemically modified crust matrix that has been altered by its shape, texture, particle size and composition [1]. Above ground builds transfer kinetic energy towards the base where embedding points are located. Since embedding points are adhered after concrete cures, they could only vibrate. But sediment surrounding the embedding points comprise of loose aggregates. Hence, kinetic energy at embedding (pronate) points will be converted into vibrational energy that becomes transferred to the supinate position of these points. Crustal material (or sediment particles) were forcefully vibrated (pushed) away from the embedding point. Eventually, a tension and compressing force equivalent to pressure is being created below the embedding point. This pressure forces loose aggregates to fill spaces. Crust thickening occurs below the embed because the weight of the built space is projected laterally within the path of gravity. Meanwhile, another displacing force is continuously being triggered circa 30-60° away from the 90° 2-dimensional area of embeds. This circumstance could be evaluated using the triangle rule. Now, a resultant force was recognized for its ability to push crust materials of the same composition into free-flowing directions that also permit compression. Yet, only materials of the same matrix were affected. In this perspective, crust layers were assumed with fluid behaviour and the action-reaction equilibrium reacts on each layer in a pneumatic fashion. Presumably, the weight of built spaces is focused on the base. Crust materials overlap layer boundaries to develop a single layer which appears thicker in lateral cross-sections or positions but away from this point, adjacent layers become thinned from the uneven distribution of energy expressed as pressure (cum weight). Therefore, built spaces are disruptive towards the natural balance or rather, against the equilibrium that could be naturally achieved through the Newtonian Laws.

The direction of crust thickening varies in a horizontal direction and magnified by the spatial span of construction that penetrates the crust. As a result, crustal materials tend to spread (as perceived with the Archimedes Principal) and create disproportional [2] crust thickness. Perhaps, an isostatic equilibrium was attempted by the crust to cancel out the compression created by the weight of the new structure. However, in this process, weaker layers will be forced to compress and this causes the filling of vertical and horizonal interstitial spaces in the crust. Yet, in built environments, the crust layers were becoming filled by materials of different physical state and boiling points. Hence, to reach an equilibrium, co-existing materials of these states (liquid vs solid) collide [17] to cancel out the original displacement force (through pneumatic). Eventually, other structures adjacent to the repelling force have their stability challenged and it results to sinking or tilts in the surface layers of the crust. At this point, some of the layers become thinned, tightly compressed or force to spread disproportionally. The crust thickening and the depth driven by the force generated on the crust surface nullifies the severity of this force in a 180° direction but it only occurs in weak layers where excess energy is available for space filling. There is no weight to hold the layers together. Following an expansive soil experiment, vertical force could measure between 40 kPa and 970 kPa but stability is challenged by density (fixed at 1.2-1.5 ton/m^3 but in nature variable), time, moisture (29-47 %) and unloading expansion [26]. Vibrations that develop due to air particle collision with grounded objects become converted into kinetic energy that appears to be absorbed by the base. However, constant vibration challenges the stability of surrounding ground layers and with weathering, weak crustal layers especially those with rocks continue to have voids. Energy is insufficient to break rocks into smaller deposits. Therefore, rocks remain settled with voids and therefore could never have its layers thickened despite experiencing compression. With time, these layers have risk of becoming viscous. At that time, rocks could move into directions that offer isostatic equilibrium. The outcome of this process and of course with adversity is ground sinking. Ground sinking is a result of natural yet temporal event. Rapid movement of large compressed crusts, known as tectonics triggers quakes that also result in the formation of visible sinkholes or faults. The case study that involves shear splitting by 600 km deep earthquake in 235 teleseismic events between Mediterranean and Northwestern Africa is a given example where rocks destabilize in their own layers and led to physical changes of the surface crust layer [23].

While earth is governed by the square cube law, and surficial or deep-crustal voids will become filled or extended during the process of reaching an equilibrium. In this case, the crust surface itself which involves lithosphere and hydrosphere endures a shape-shifting process (derived as lattice, 3-dimensional or 40° multi-planar tilt encodes [14]. Crustal materials gradually move, collide, and slide to take new positions that offer isostatic equilibriums. Although this process is gradual, it could be responsible for unexplainable natural catastrophism which were often guessed rather than resolved. In certain governance, such catastrophism was not based on myriad decisions but rather circumstances due to faults or modifications that take place in the opposite land mass. It is blamed on natural circumstance of earth. Considering Newtonian principals to reach a balance, if crust materials were planted with dense materials, there is possibility that crustal layer shifts or transfers energy in a mosaic movement. Of course, the energy transfer is between same-like materials or become dispersed after collision with non-origin materials (i.e. the concrete piles). In the opposite end, there is a 180° crust displacement that either pushes (causes a bulge) or allows crustal layers to sink so that equilibrium could be reached. This mosaic energy displacement could be related to the action-reaction forces that work together with the centrifugal forces and perhaps viewed important to explain sea-level rise or collapse in below ground karsts. Conversely, relics use single material (or composite) as building blocks, whereas modern structures rely on cement as adhesive or as plaster. To save construction cost and space, modern buildings use bricks (small and light building blocks) and walls were reinforced with steel mesh and piling. The walls were coated with plaster so that it could be painted. Comparatively, relics made from large building blocks do not use adhesive or foreign materials. These relics have survived weathering and retained minimal carbon footprints as well as pollution. Comparatively, modern construction that use a combination of materials and composites require servicing or maintenance so that operations sustain. In other words, modern structures possess high kinetic energy and this energy is distributed in the form of electron transfers, the fundamental energy that circulates within surface-to-above ground structures and permits redox processes to occur. Therefore, presumably, modern technology was compromised by cost, logic, and efficiency. It is not environmentally friendly and perhaps responsible as trigger for unwary natural events that harm modern societies.

5. Conclusions

By using desktop review, a total of five experimental designs supported by Archimedes, centrifugal force, square cube law, Newton's Laws, Bernoulli, Kinetic and Coriolis was proposed to understand disruptive natural events such as faults, rise, sinks and quakes. Incidence of these events have escalated in recent years. Findings suggest modern infrastructures have shifted against the natural balance, in which the triangle rule and square-cube law could be nullified. Disproportional distribution in weight alongside 3-dimentional increase in height creates unwanted vibrations that converts into free energy at the base of structures. This energy reacts with gravity to disrupt the crust stability and in this process, voids become filled and fluvial matter redistribute to promote isostatic equilibriums in the crust. In some cases, crustal weathering also occurs. Comparatively, natural above ground erections created by land pinching and vegetation maintains conservativity in weight-and energy distribution. However, the geologic timescale, these biosphere elements remain intact because they comprise of similar matrices, their building blocks are continuous and importantly, all structures have a weight increase that is proportional to their height. For as long humans continue to develop structures that defy the natural order, unintended circumstances will continue to stake human lives and their properties. Overall, the 2-dimentional form on x and y lattices allows an object to increase in weight by increasing its area. Comparatively, is built spaces were erected with a given height, the amount of free energy generated at the pinnacle to its base equates to the amount of force that could be exerted on the crust. This force causes materials within each layer to become displaced within a geologic time scale. Vertical events regulated by gravity is the reason for interior-to-exterior release of energy from the mantle to crust and the circumstances are evident through risks that gradually develop into litho- and hydro-sphere scars. These scars cause chaos to lives and properties.

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Competing Interest

The authors have no competing interests to declare that are relevant to the content of this article.

Author's Contribution Statements

SS: Formal analysis & Resource, AAJ: Data curation & Resource, HIS: Visualization, CJL: Data curation, LM: Investigation, JVK: Resource, KS: Writing – Review & Editing, HCRK: Investigation, RGAM: Writing – Original Draft, BRN: Writing – Original Draft & Supervision.

Data Availability Statement

Data sharing not applicable to this article because our work proceeds within a theoretical and mathematical approach where no datasets have been generated or analysed.

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