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Organization and Management of Business and Work
Systems

**GREEN BUSINESS – A BUSINESS OF
SUSTAINABILITY**

**ZELENO PODJETJE – PODJETJE
TRAJNOSTI**

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ABSTRACT

Sustainability practices and sustainable development have been in close relation with human beings for a long time. This thesis aims to present historical aspects of sustainable development throughout the time, along with numerous green business ideas and green organizations presentations. From hunter-gatherers to ancient civilizations to fossil fuel era, historical review consists of connections between people from different times and places. Whilst moving from history to the present, the thesis offers insight in terms of green and sustainability-related definitions that help in understanding the idea behind terms such as green businesses, sustainable development, eco-innovations, green products, green consumer, green marketing, greenwashing, green certification, and carbon offsets and carbon credits. For better understanding of the related theoretical approaches, the thesis also offers a wide range of green business ideas such as green building and urban planning, sustainable agriculture, renewable energy sourcing, sustainable forestry, green transportation, green hair salon, green gym, green wedding planning, green cleaning services, recycling and waste management, and sustainable brewing. The benefits, issues and risks that green businesses are dealing with are also described. Green practices nowadays are represented by many individuals and organizations, of which some are also included in the research part of this thesis. 32 organizations have been interviewed and provided valuable data that was used in creating a brand new sustainability model, called 'Path to sustainability', which aims to connect vital sustainability fragments together in a wholesome system, along with connections between related fragments. Besides the model, the thesis also provides an overview of issues and restrictions that oppose sustainable development.

KEYWORDS:

- sustainability
- sustainable development
- green business
- green building
- renewable energy

POVZETEK

Trajnostni razvoj in prakse, ki jih ta razvoj zajema, so v tesni povezavi z ljudmi že dolgo časa. Poleg predstavitve številnih zeleno-trajnostnih idej in organizacij je namen tega diplomskega dela predstavitev zgodovinskih vidikov trajnostnega razvoja skozi čas. Zgodovinski pregled sestoji iz povezav med ljudmi iz različnih okolij in časov. Le-ti zajemajo obdobja iz časov lovcev-nabiralcev, dobe starodavnih civilizacij, pa vse do dandanašnje ere fosilnih goriv. Skupaj z rastjo možganskih sposobnosti, se je v ljudeh prebudila zmožnost ustvarjanja inovativnih idej, ki so jim omogočale prilagajanje in preživetje v naravnem okolju. Razvoj je potekal počasi in neenakomerno. Večji koraki tehničnega napredka, v primerjavi s predhodnjim razvojem, so se pojavili pred približno 40000 leti. Pojav kmetijstva, med leti 10000 in 8000 pred našim štetjem, je predstavljal ključni dejavnik eksplozivne rasti števila prebivalstva našega planeta. Pred približno 8000 leti je človeška populacija dosegla 10 milijonov. Poleg starih lovskih in nabiralskih navad so ljudje začeli vzgajati rastline in udomačevati živali, kar jih je vodilo k ustalitvi na eno samo mesto. Manjše naselbine so se sčasoma razvile v mesta, katera so postala kompleksne hierarhične družbe. Kmetijstvo je postalo osnova za ustvarjanje stalnih naselbin. Veliko se je moč naučiti od starodavnih civilizacij, ki so z lastnimi idejami poskušale doseči trajnostni razvoj in pripomogle k uresničenju mnogih idej, ki so še dandanes prisotne v vsakdanjem življenju. Prav tako je pomembno zavedanje, da starodavne civilizacije niso uspeli ohranjati trajnostnega razvoja, zato se je moč učiti tudi na njihovih napakah. Ekološki dejavniki predstavljajo enega od ključnih dejavnikov vzpona in propada starodavnih civilizacij. Starodavne civilizacije, katerih predstavitve so vključene v to diplomsko delo, vključujejo starorimsko, grško, egipčansko, majevsko, mezopotamsko, azteško, inkovsko, kitajsko, indijsko in perzijsko civilizacijo.

Stari Rimljani so bili blizu naravi, katere dobrine so videli kot darilo narave. To je vključevalo les in obilne pridelke. Po drugi strani, so Rimljani prav tako v veliki meri naravo izkoriščali. Naravne površine so nadomestili z mesti in potmi, kar je predstavljalo zmago in prevlado nad naravo. Živali so izkoriščali na številne načine, med drugim tudi za krvave boje, ki so jim služili za lastno zabavo in so nekatere živalske vrste privedle do lokalnega izumrtja. Kmetijstvo je bilo v antičnem Rimu zelo raznoliko in dobro načrtovano. Ideja o uporabi živalskih iztrebkov, pepela in komposta kot gnojilo je omogočila, da so bile obdelovalne površine še pogosteje uporabljene. Pomembno vejo starorimskega kmetijstva je predstavljala hortikultura, ki je Rimljanom služila kot komponenta samopreskrbnosti. Vrtovi so preskrbeli ljudi s številnimi osnovnimi dobrinami kot so olive, olivno olje, vino, fige, itd. Velike količine lesa v Starem Rimu so bile uporabljene v procesih taljenja rud, med drugimi tudi svinčeno-srebrnih zlitin, iz katerih se je pridobivalo srebro, ki je služilo v obliki kovancev kot denarna valuta. Svinec v ceveh je nadomeščal dražje glinene cevi in pripomogel k onesnaževanju pitne vode. Rimski akvadukti predstavljajo eno največjih arhitekturnih dosežkov Starih Rimljanov, saj so omogočali oskrbo mest in vojske z vodo. Hkrati predstavljajo tudi nemalokrat nevidno pomanjkljivost gradnje, saj so akvadukti vsebovali svinčene cevi, ki so zastrupljeno vodo prenašale do nevednih ljudi in vodile do zastrupitve s svincem. Stari Rim je sčasoma zrastel v

milijonsko mesto, ki je pridobilo številne nastanitvene prostore. Poleg tega pa so mesto prizadele tudi številne težave kot so ogromne količine odpadkov, hrup, onesnaženost in gneča.

Podobno kot v Starem Rimu, so osnovno hrano v Stari Grčiji predstavljale olive, žita, grozdje, jabolka, fige, itd. Grki so se oprijemali ideje, da dolgoročno kmetijstvo vodi k neuspehu. Ta ideja je bila potrjena, ko je z leti množičnega izrabljanja zemlje le-ta postala manj rodovitna. Odnos Grkov do narave je bil dvoličen, saj so na eni strani naravo predstavljali kot varno zavetje, ki nudi pomoč ljudem, po drugi strani pa so jo predstavljali kot polno nevarnosti, kot so divje reke, nevihtna morja in temni gozdovi. Živali so po eni strani spoštovali, medtem ko so jih na drugi strani videli kot nevarnost, ki jo je treba premagati. Tako Rimljani kot tudi Grki so izsekali velike količine gozdov v namen taljenja rud in gradnje ladij. Za oskrbo z vodo je bilo v Stari Grčiji dobro poskrbljeno, kjer so pitno vodo pridobili iz vodnjakov in izvirov, ki so bili oskrbljeni s podtalnico. Večja mesta so vodo preko cevi speljala v cisterne, kjer so vodo lahko shranjevali. Na drugi strani, pa je taljenje rud, pri čemer so se sproščali svinčeni hlapi, pripomoglo k onesnaževanju vode in zraka ter fizični obrabljenosti ljudi.

Egipčanska civilizacija se je tvorila s politično povezavo Zgornjega in Spodnjega Egipta. Egipčani so ustanovili okoljevarstvene zakone že 3000 let pred našim štetjem. Letno poplavljanje reke Nil je omogočalo hitrejše obnavljanje zemlje in posledično Egipčane obdarilo z rodovitno zemljo. Zadostne količine hrane so Egipčanom omogočale osredotočanje na napredek v drugih smereh, kot so na primer tehnologija, umetnost in kultura. Kljub temu, da so egipčanski dosežki izjemni, so se problemi s trajnostnim razvojem vseeno pojavljali. Prenaseljenost je v manj rodovitnih letih lahko pomenila lakoto, zato so Egipčani skušali uravnesiti ponudbo in povpraševanje. Presežek hrane rodovitnih let so shranili in ga uporabili v manj rodovitnih časih. Egipčanska civilizacija je deloma trajala toliko časa tudi zaradi inovativnosti v tehnologiji. Izjemna sposobnost upravljanja z vodo in planirano poplavljanje sta omogočila, da je egipčanska civilizacija trajala dalj časa kot katerakoli druga starodavna civilizacija, medtem ko je ohranjala relativno trajnosten in stabilen ekonomski vzorec.

Majevska civilizacija izvira izpred 2600 let pred našim štetjem. Nahajala se je v Mezoameriki in je bila znana po arhitekturi, ki je obsegala gradnjo templjev, palač in observatorijev brez uporabe kovinskih orodij. Maji so bili prav tako izkušeni kmetovalci, tkalci in lončarji. Starodavno majevsko mesto Tikal, ki se nahaja v Gvatemali, predstavlja majevsko ozaveščenost o pomembnosti vode in ravnanju z vodo. Mesto je bilo prepleteno z vodnimi kanali, preko katerih so zbirali in premeščali vodo ter jo shranjevali v zbirne sisteme. Glavni zbirni kanali so bili sčasoma onesnaženi zaradi obratovanja bližnje kraljeve kuhinje. Kljub temu, da se dandanes še vedno govori številne jezike, ki so povezane z majveskim jezikom, se kultura Majev uničuje zaradi ilegalnih kopačev in tatov.

Mezopotamska civilizacija je znana tudi kot zibelka civilizacije. V severni Mezopotamiji so se prve oblike kmetijstva ter vzgajanja rastlin in živali pričele med

leti 10000 in 6000 pred našim štetjem. Zadostne padavine so omogočale bujno rast rastlinja in pridelkov, v primeru suše, pa so polja umetno namakali. Vodni kanali so zrasli v ogromne vodovodne sisteme, ki so spremenili pokrajino in povezovali mesta med seboj. Obilni pridelki so pomenili obilne zasluge za vladarje, ki so naravno danost izkoristili v svoj prid. Vse več ljudi se je zasužnjilo, da se jih je lahko izrabilo za delo na poljih. Vsi presežki pridelave kmetov so bili zavzeti s strani višjega in srednjega razreda, kar je pomenilo izkoriščanje ljudi in naravnih danosti. Zemlja je sčasoma postala manj rodovitna, ljudje pa so morali delati še več, da so dosegli zelene norme. To je pomenilo začetek propada agrarnega sistema v Mezopotamiji.

Okoli leta 1200 se je skupina nomadskih lovcev, Aztekov, naselila na območju jezera Texcoco. V naslednjih desetletjih so napadli bližnja plemena, kar jim je omogočalo izgradnjo močnega imperija. Azteki so bili znani kot izjemni arhitekti in inženirji, ki so zgradili številne parke, palače in mesta. Prav tako so bili zelo napredni tudi v kmetijstvu, saj so namakalne sisteme uporabljali prej kot Evropejci. Vsak kmet je prispeval delež svojega pridelka, ki je bil shranjen za čase pomanjkanja. Tenochtitlan, glavno mesto azteškega imperija, je bilo zgrajeno na jezeru Texcoco. Azteki so zgradili številne kanale in poti, ki so otoke povezovale skupaj z zemljo. Mesto je imelo več kot 200000 prebivalcev, čistoča in red v mestu pa sta bila na visoki ravni, nad čimer so bili Španci izjemno navdušeni. Mesto Tenochtitlan je samo pridelalo 2/3 porabljene hrane, ki so jo pridelali na obdelovalnih površinah zgrajenih na vodi znotraj mesta. Zadostna količina vode je zemljo obogatila in omogočila, da so se letno na eni ploščadi pridelali tudi do štirje različni pridelki. Azteki so poskrbeli tudi za zadostno gnojenje zemlje, kar so dosegli z uporabo človeških iztrebkov in organskih odpadkov na obdelovalnih ploščadih. Človeški urin je bil prav tako uporabljan kot sredstvo za barvanje oblačil. Azteki so imeli občudovanja vredno sposobnost ravnanja z odpadki in recikliranja, saj so za skoraj vse odpadke iznašli praktično ponovno uporabo. Okoljevarstveni zakoni, ki so jih Azteki jemali zelo resno, so nemalokrat ljudi obsodili na smrt. Onesnaževanje je bilo strogo prepovedano, še posebej pri višjem sloju, saj naj bi le-ta služil kot zgled ostalim. Španci, ki so v deželo Aztekov prišli v želji po zlatu, so kljub mnogim darilom vladarja Montezuma II, azteška mesta uničili ali pa jih pretvorili v španske kolonije.

Inkovska civilizacija je obsegala območja današnjih držav Čile, Ekvador in Peru. Kmetijstvo je predstavljalo glavno dejavnost Inkov, ki jim je omogočala preživetje in razvoj. Ker so se nahajali v gorskih pokrajinah, je bilo kmetijstvo tam bolj zahtevno kot pri ostalih civilizacijah. Inki so težavo rešili z gradnjo teras, ki so spominjale na velike stopnice. Teraso so preprečile erozijo in kmetom lajšale delo. Inkovska civilizacija je prav tako odgovorna za iznajdbo vodovodnega sistema, ki jim je pomagal vodo prenesti v višje regije. Glavna inkovska mesta Machu Picchu in Cuzco sta bila prav tako zgrajena na umetnih terasah. Ko je vladar Inca umrl, ga je nadomestil Atahualpa, v času katerega je inkovska vladavina postala šibkejša. Španski osvajalci so inkovski imperij osvojili, Machu Picchu pa je ostal neodkrit vse do leta 1911.

Starodavna Kitajska se je nahajala med rekama Huang in Yangtze, kjer so ljudje ostajali zaradi zadostne količine vode in posledično rodovitne zemlje. Vasi so bile do leta 2000 pred našim štetjem že organizirane. Reke so uporabljali za transport in povezavo mest med seboj. Dinastija Sui je med leti 610 in 607 pred našim štetjem povezala reki Huai in Huang Ho, kar dandanes predstavlja najdaljši človeško zgrajeni kanal na svetu, imenovan tudi veliki kitajski prekop. Kanal je Kitajcem omogočal transport surovin od juga do severa in obratno. Prav tako je kanal omogočal hitrejše potovanje vojske v obe smeri. Znanost in tehnologija sta močno obogatili kmetijstvo na Kitajskem. Zgodnje taljenje železove rude jim je omogočalo izdelavo orodij, ki so jih potrebovali za delo. Poleg številnih tehnoloških iznajdb so Kitajci načrtovali t.i. Svilno Cesto, ki je bila sestavljena iz omrežja poti in je trgovcem omogočala trgovanje v različnih koncih sveta.

Približno 7000 let pred našim štetjem so se ljudje, ki so živeli na območju Indije, začeli ukvarjati z vzrejanjem rastlin in udomačevanjem živali. Vasi in mesta so rastla in dandanes predstavljajo rojstvo prve urbane civilizacije v Južni Aziji. Znana je tudi kot prva civilizacija, ki je v namen zajetja podtalnice zgradila vodnjake. Le-ti so se nahajali tako v vaseh kot tudi v višjih regijah, kjer so jih uporabljali za namakanje polj. Indska civilizacija je bila napredna v številnih smereh, kot je na primer tudi vzpostavljanje in ravnanje s stanovanjskimi vodovodi, saj je večina hiš že imela lastna stranišča in kopeli. Indska civilizacija, včasih imenovana tudi Harapska civilizacija, zaradi glavnega mesta Harapa, je okoli leta 2000 pred našim štetjem skrivnostno izumrla. Znanstveniki si glede tega skrivnostnega pojava nasprotujejo, saj obstajajo številne teorije glede izumrtja te civilizacije.

Prvi pojavi Perzijcev segajo v 9. stoletje pred našim štetjem. Znani so bili po okoljevarstvenih aktivnostih, kot je na primer sajenje dreves. Na praznik sajenja dreves je sajenje potekalo po celotnem območju civilizacije. Perzijski vrtovi so strmeli k ohranjanju in obnavljanju številnih rastlinskih vrst ter so bili zgrajeni v skladu s trajnostno gradnjo, ki je povezovala ljudi, okolje in naravo. Perzijci so razvili številne metode ohranjanja in skladiščenja vode za nujne primere, ki so nastopili v sušnih obdobjih. Ena od teh metod je predstavljala tako imenovani qanat, vodni sistem, ki je v uporabi še dandanes. Ta sistem je omogočal prenos vode z gorovij v nižje regije, ki so zaradi zadostne količine vode lahko postale naseljive. Vodni sistemi so bili pogosto uporabljeni skupaj z vetrni stolpi, kar je omogočalo naravno hlajenje prostorov. Perzijci so prav tako postali mojstri v skladiščenju ledu v času poletij in veljajo tudi za iznajditelje mlinov na veter.

Po pregledu starodavnih civilizacij ter njihovih dosežkov in neuspehov na področju trajnostnega razvoja sledi pregled moderne zgodovine. Dejavniki kot so omejeni resursi, obsežne količine odpadkov, prenaseljenost, omejene količine vode, klimatske spremembe, poškodovanje ekosistemov in problemi z energijsko oskrbo, so bili in so še ključnega pomena za spremembe na globalni ravni. Največja rast svetovnega gospodarstva je potekala v 19. stoletju, po nadaljnji širitvi kmetijstva in začetku uporabe fosilnih goriv, ki so povečali razvojno sposobnost industrializacije. Okoljevarstvo je prvič v moderni zgodovini začelo pridobivati posluš okrog leta 1960 in je cvetelo po letu 1990. Do leta 1980 je bilo okoljevarstvo v nasprotju s

prepričanem mnogih, saj je za njih predstavljalo izgubo denarja in konkurenčne prednosti podjetij. Rojstvo trajnostnega razvoja sega v leto 1972, ko se je odvila konferenca Združenih narodov o človekovem okolju. Leta 1987 je bilo izdano brundtlandsko poročilo imenovano 'naša skupna prihodnost'. Od takrat dalje so bile imenovane številne inovativne pobude, ki se na lokalni in globalni ravni srečujejo z ekološkimi izzivi.

Poleg zgodovinskega pregleda, delo nudi vpogled tudi v definicije, ki so povezane s trajnostjo in trajnostnim razvojem ter omogočajo lažje razumevanje izrazov, kot so zeleni produkti, zelene organizacije, eko-inovacije, zeleni potrošniki, zeleni marketing, 'greenwashing', zeleno certificiranje in ogljikovi krediti. Zelena barva označuje podjetja in organizacije, ki se poslužujejo postopkov tako za izboljševanje okolja kot tudi družbenih in ekonomskih vidikov. Zelena dandanes predstavlja tudi trajnost in ohranjanje naravnih virov. Izzivi planeta so postali hkrati tudi del podjetij. Močno se je povečala potreba po trajnostnih praksah znotraj organizacijskih procesov na vseh ravneh obratovanja organizacij. Čeprav mnoge organizacije postanejo bolj zelene v namen izboljšanja učinka na Zemljo, kmalu ugotovijo, da so njihovi rezultati vidni tudi na področju obsega prihodka, zmanjšanih proizvodnih stroškov, izboljšane podobe organizacije, zadovoljstva zaposlenih, itd. Trajnostni razvoj je širok pojem, ki zajema številne različne definicije, ki se navezujejo na isto stvar. Najbolj znana definicija izhaja iz brundtlandskega poročila iz leta 1987, in pravi: "Trajnostni razvoj je takšen način razvoja, ki zadošča današnjim potrebam, ne da bi pri tem ogrožal zmožnosti prihodnjih generacij, da zadostijo svojim lastnim potrebam."

Za boljše razumevanje teoretičnih pristopov delo prav tako nudi širok spekter zelenih poslovnih idej, ki zajemajo zeleno gradnjo, trajnostno kmetijstvo, pridobivanje energije iz obnovljivih virov, trajnostno gospodarjenje z gozdovi, zeleni transport, zelene frizerske salone, zelene telovadnice, zelena poročna načrtovanja, zelene čistilne storitve, trajnostno varjenje piva, recikliranje in upravljanje z odpadki. Opisane so tudi koristi, problemi in tveganja, s katerimi se srečujejo zelene organizacije. Ena od najbolj pogostih težav s katerimi se podjetja srečujejo nastopi, ko je čas za odločitev ali se bo podjetje certificiralo ali ne. Certifikacija nudi dokazilo o organizacijski zavezi k okoljevarstvu in poveča ugled organizacije v družbi, hkrati pa predstavlja tudi obilen finančni zalogaj za podjetje. Mnoga podjetja so še vedno mnenja, da jih bo trajnostni razvoj stal ogromno denarja, kar ne bodo mogli prenesti, čeprav temu ni nujno tako. Biti okolju prijazna organizacija ne stane veliko denarja in sčasoma pripomore k varčevanju denarja in pridobivanju večjih dohodkov. Skupne koristi zelenih organizacij zajemajo zdravstvene koristi, znižano odvisnost na tuja goriva, zmanjšan okoljski učinek, podporo za gospodarsko rast, itd. Z vključevanjem zelenih pobud v organizacijske procese, organizacije ohranjajo naravne vire in zmanjšajo svoj prispevek h globalnem segrevanju.

Zelene prakse so dandanes odražene s strani številnih organizacij, izmed katerih je 32 vključenih v raziskovalni del tega diplomskega dela. Vključene organizacije so v nadaljevanju poimenovane v abecednem vrstnem redu: All Women Recycling, Atlas Kasbah, Baltix Sustainable Furniture, Blue Planet Life, Campi Ya Kanzi & Maasai

Wilderness Conservation Trust, Carbon Training International, Cascade Peak Spirits, Crafted Herbals, Earthlife Africa, Ecoteach & Ecoteach Foundation, Environmental Protection Agency, Fairtrade International, Gold Star Honeybees, Greenstream Network, Hockerton Housing Project, Kanon Organic Vodka, Lunapads International, MIT Solar Electric Vehicle Team, MuLondon, Mumm's Sprouting Seeds, Natural Body, Old Wives Tail, Plant A Tree Today Foundation, Plastic Free Seas, Rancho Sotol, Renewable Choice Energy, Rose City Mortgage, Singapore Green Building Council, Skanska AB, The Green Microgym, Wood Joiners, Zeme Organics.

Z vsemi vključenimi organizacijami je bil opravljen intervju, s pomočjo katerega so bili pridobljeni dragoceni podatki in informacije, na podlagi katerih je bil razvit popolnoma nov trajnostni model, poimenovan 'Pot do trajnosti'. Cilj tega trajnostnega modela je povezati ključne fragmente trajnosti v celovit sistem. Poleg modela je podan tudi pregled težav in omejitev, ki nasprotujejo trajnostnemu razvoju.

KLJUČNE BESEDE:

- trajnost
- trajnostni razvoj
- zeleno podjetje
- zelena gradnja
- obnovljivi viri energije

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1. INTRODUCTION

The far-reaching history of our planet offered numerous eras in which belonging systems were developing and led to the present arrangement of the planet - and will lead the future alterations of the planet. As explained by Weybrecht (2013) in her book 'The sustainable MBA: A business guide to sustainability', sustainable development and sustainability approaches have been present in human history for a long time. Throughout the time, societies learned that sustainability specters need to be balanced in order to achieve prosperity and continue it in times to come. Therefore, the first chapter of this thesis is dedicated to the historical aspects of sustainability and sustainable development. The main goal of this chapter is to present human relationship with sustainability over a long period of time and to put the long-term preservation interest in every reader's minds. From hunter-gatherers to ancient civilizations to fossil fuel era, the related chapter connects people with different time periods, regions and resources. As Pitelis, Keenan, and Pryce (2011), Meadows, Meadows, and Randers (1992), Pennington and Cech (2009) and Ponting (2007) explain, evolution of human knowledge led to major changes which made the hunter-gatherers adjust to a certain place where they began to cultivate plants and domesticate animals, which led to development of agriculture. As the small tribes grew, complex hierarchical societies were formed. Furthermore, in accordance with Mebratu (1998), ecological aspects were one of the main factors in agricultural and industrial alterations as well as in the rise and fall of ancient civilizations. Hence, the first chapter includes description of Roman, Greek, Egyptian, Maya, Mesopotamian, Aztec, Inca, China, Indus Valley, and Persian civilization sustainability attempts and their failure in maintaining sustainable development. As Edwards (2005) explains, social change has five main aspects which can lead to successful sustainability attainment when put all together. Whilst moving forward with history, preindustrial era is described by Theis and Tomkin (2012), who state that by 1500, the forests were cleared momentarily by the Europeans who were the first engineers of global growth. Furthermore, during the preindustrial time, between 1500 and 1800, the economic advancement formed new trading borders, which added up to internationalization and global growth. The fastest growth of global economy was seen in the 19th century after the continued expansion of agriculture and beginning of use of fossil fuel and extraction of minerals that increased the development capability of industrialization. In accordance with Wilson and Bryant (1997), the problems such as deforestation and global warming were recognized in the 20th century, and these problems can possibly exaggerate in the twenty-first century. The issue is further attended by Bhargava and Welford (1996), who claims that the environmental revolution has been in motion since 1960, and has flourished in 1990s. The birth of the Sustainability Revolution itself, as described by Biloslavo (2008), was in 1972 due to the UN Conference on the Human Environment that was held in Stockholm and led to Brundtland report named Our Common Future, which was issued in 1987. The clarification of sustainable development in the report refers to 'development that meets the needs of the present without compromising the ability of future generation to meet their own needs.' In order to fully achieve green development, as clarified by "Green Growth and Development" (2012), efforts of all countries are required.

Following the history of sustainability section is the chapter that focuses on defining green business and sustainable development as well as explaining other related terms. As elucidated by Mintzer (2009), green has become a catchphrase for sustainability and conservation of natural resources. That idea is furthermore described by Karagülle (2012), who explains that green businesses can be characterized as business activities which are applying concern for the environment. Green businesses, according to "Going Green: A Guide to Greening Your Business" (2015), can be either small or big, owned by people of any race, religion or gender. The sustainable development itself, as Mebratu (1998) explains, is a concept that consists of a wide variety of definitions and interpretations. Other terms described in this chapter include definitions of eco-innovations, green products, green consumer, green marketing, greenwashing, green certification, and carbon offsets and carbon credits.

Last chapter of the theory presents, as referred to in its title, green business in practice. The aim of this chapter is to introduce requirements and steps of starting a new green business or remodelling already existing systems. As clarified by Harrington (2010), all organizations should consider going truly green, besides committing to certain green practices. Majority of organizations can be adjusted to a business model that is environmentally friendly. Swallow (2009) confirms that transforming a business to a sustainable organizational model is a matter that requires a major change of perspectives. According to "Going Green: A Guide to Greening Your Business" (2015), most companies deal with sustainability as an option which they can disregard on purpose without any consequences. The market and the government though, place greater importance on sustainability and therefore becoming green will become a necessity for the survival of companies. In addition to that, some relevant green business ideas are also presented in the last chapter. Those ideas include green building and urban planning, sustainable agriculture, renewable energy sourcing, sustainable forestry, green transportation, green hair salon, green gym, green wedding planning, green cleaning services, recycling and waste management, and sustainable brewing. Finally, the benefits, issues and risks that green businesses are dealing with are also included in this chapter. Common benefits of green businesses, according to Cordero (2010a), include health benefits, reduced dependency on foreign oil, reduced environmental impact, support for the economic growth, and simply doing the right thing. Olson (2009) explains that new business strategies that capture the interest of consumers can be simple, whilst on the other hand it is also important to know that both risks and potential returns are higher when companies take on large research and development investments.

Besides the theoretical part, the thesis also includes a research in which 32 organizations were included by being interviewed. Research results in an extensive sustainability model, called 'Path to Sustainability', which aims to connect essential sustainability fragments together in a wholesome system, together with connections between related fragments. Opposing the role-model, there is also an overview of issues and restrictions that sustainable development has to face.

2. HISTORY OF SUSTAINABILITY AND GREEN BUSINESS DEVELOPMENT

2.1 SUSTAINABILITY FAR BACK IN TIME

According to Mebratu (1998) the natural cycle consists of self-managing mechanisms, which are connected together through an extensive web of positive and negative feedback systems. Those systems are responsible for operations within the sense of the carrying, regeneration, and assimilation capacity of the belonging systems.

“Mobility of plants and animals, as an essential element of self-regulation of the biotic system, has played a major role in the evolution of the planet Earth. As an integral part of the animal kingdom, mobility governed by ecological factors has patterned the dominant lifestyle of mankind for millions of years.” (Mebratu, 1998, 494)

The idea of sustainability and sustainable development has been around for a long time. Societies and civilizations over time have learned that economic, social and environmental spectres have to be balanced in order to achieve prosperity and continue that stage for many generations. (Weybrecht, 2013)

Human impact over the last 40,000 years has been slowly and later on rapidly increasing on our planet. Hunter-gatherers (Picture 1) have adjusted to the uncomfortable environment and ecosystems easily, during the cold and warm times of the Pleistocene. Changing conditions made people migrate as necessity to stay alive. Between 10,000 and 8,000 years ago everything was changed due to farming. Possibly that is also a reason for the change in the climate and halted return to colder eras, by releasing more emissions of methane and carbon dioxide into the atmosphere. With a massive increase in population also arose towns and eventually cities. Once small and simple tribes grew into complex hierarchical societies (Pitelis et al., 2011).

Boyden (2004) classifies humankind's time on the planet into four different ecological forms. First phase is represented by hunter-gatherers, which is the longest of the four phases and is still alive in some places. Second is the early farming phase, followed by the early urban phase and the high-consumption phase. Those four phases don't exclude each other and can mutually coexist with one another, but not without influence, especially the influence of high-consumption phase on other phases.

Accordingly to Ponting (2007), around 10,000 years ago, human beings had spread from original area of southern and eastern Africa to other continents. Human

settlement was expanding slowly and had taken about two million years. It depended on a number of linked progresses. With brain size growth, came increased capacity for abstract speech and thought and an ability to produce increasingly sophisticated solutions that affected cultural and technological ability to withstand the challenges posed by difficult and hostile environments. These changes happened in many different areas, starting with the creation of stone tools and new weapons such as bow and arrows. Changes also included the use of fire for warmth and cooking, use of furs and skins for outfit, construction of shelters made of variety of different materials and the acceptance of more complex techniques for food processing such as cooking in pit fireplaces rather than on open fire and grinding seeds and nuts. The speed of development was very slow and also irregular. The pace of technological changes started increasing rapidly in comparison with previous periods no sooner than around 40,000 years ago.



Picture 1: Rock painting in Namibia, showing antelopes and human figures and presents graphic evidence of early hunter-gatherer life. (source: <http://hraf.yale.edu/resources/faculty/explaining-human-culture/hunter-gatherers-foragers-2/>)

Author (Ponting, 2007) continues that above mentioned developments were of key importance for the rest of human history and future of the planet. Though their impact was small an insignificant at the time, the humans had become the only species to dominate and use every terrestrial ecosystem. At this stage the population was widely spread and technology limited but they managed to bring many animal species to extinction anyhow. The environment was also changing because of the human impact but the hunters and gatherers remained highly stable for a long time. For hundreds of thousands of years this was the sole way in which humans were able to use the environment for the needs of their survival. Positioning on the top of the

food chain was constraining the number of people that could survive in a certain area. Plentiful resources such as they were in the rare example of the Pacific coast of North America, allowed the settled populations to develop in large villages. Around 12,000 years ago, humans have changed the methods that they used in obtaining the food for their survival all over the world. Changes were still happening irregularly but faster than they were in the past. Their penalties became more radical and brought around the most important alteration in human history, which made all the following developments in human society possible.

“We do not inherit the earth from our ancestors, we borrow it from our children.”

Native American Proverb

Approximately 8,000 years ago the human population reached the size of around 10 million. Besides the old hunting and gathering habits people also began to cultivate plants and domesticate animals, which led them to settling in one place. That was a new idea that changed the future of the planet by people simply remaining placed (Meadows et al., 1992).

Ponting (2007) explains that drastic intensification and merge of known ways of obtaining food were something new in the early forms of agriculture. New animals and plants were constantly being domesticated (Picture 2), while others have been forgotten. ‘Secondary products revolution’ that involves the use of goats, sheep and cattle for providing milk and dairy products occurred several thousand years after domestication. This process still carries on with the development of fresh varieties of domesticated plants and is being taken further through the use of genetically modified crops. After domestication, domesticated animals and crops were transported around the globe and grown on continents far away from the original locations of their domestication.



Picture 2: One of many paintings from Laas Gaal caves complex in Somalia which shows domesticated cows and dogs. (source: <http://www.touropia.com/prehistoric-cave-paintings/>)

The idea of agriculture is further described by Pennington and Cech (2009) as a progress of human knowledge, which occurred during the Neolithic around 9000 BCE, when humans made their attempts to master food and water. A massive change in the perspective gave humans the ability to start growing crops near their dwellings or caves in order to reduce the need for them to wander around and search for food. Over thousands of years humans learned that crop yields improved if they planted the seeds away from rocks. Developing in these manners, agriculture became the basis for establishing permanent communities that have in time developed in cities and empires of ancient civilizations.

Farming itself developed between 8000 BCE and 6000 BCE in the Middle East. Humans learned that the seeds they scattered around the fields were often eaten or blown away by the wind. Due to the limited supplies of seeds, they started planting them under ground to prevent them from being taken away and to enhance their growth chances. Around 3000 BCE, and that was used for breaking through soil to make space for seeds advanced into a tool pulled by humans and later animals such as oxen. Invention of the plow presented major technological advancement that led to erosion of the hillsides, loss of vegetation and environmental damage (Pennington and Cech, 2009).

There is much to learn regarding sustainability from ancient civilizations for their sustainability practices and also for their failure in maintaining sustainable development. As Mebratu (1998) explains, the ecological specters were one of the

main factors in industrial and agricultural transformations and in the rise and collapse of ancient civilizations.

2.2 SUSTAINABILITY IN ANCIENT CIVILIZATIONS

2.2.1 ANCIENT ROMAN CIVILIZATION

The Romans were close to nature as they saw the surroundings that they had as gifts that they received from nature. That included woods and abundant crops; however, they too abused the environment. The nature was then replaced by building cities and roads. This phenomenon was celebrated as a triumph against the nature. The poets Propertius and Vergil adored the greater power of the Roman Empire for its improved environment (Thommen, 2012).

Thommen (2012) claims that Romans used animals not only for economic purposes but also for amusement. Animal enclosures and parks were maintained since the second century BC. Wild boars, deer, sheep and goats were captured for shows and theatre purposes and also for food. The event of animal spectacles and hunting creatures extended throughout Rome and its empire.

Thommen (2012) continues that animals were used as an entertainment in circus and contests, and were displayed in cages. Shows were held with exotic and wild animals such as tigers, leopards, giraffes, crocodiles, lions, elephants, hippopotamuses and so on. Animal battles reduced the lives of hundreds of different animals and species, and brought certain species to local extinction.

According to Thommen (2012), agriculture in Roman Empire was diverse. One year the fields were used for the cultivation which was followed by a year when fields were uncultivated and instead used for cattle pasture. The idea of use of animal dung, ash and compost as a fertilizer made it possible for fields to be more often cultivated.

Redman (1999) confirms that manuring, terracing steep slopes and fallow periods were also well known to Romans. The Holy Land reached its peak population through investments in these methods during the Roman period all the way until second half of the 20th century. Healy (1978) adds that large amounts of wood were needed in the process of smelting ores. There was an estimate that 5,400 hectares of forest was chopped every year during the Roman Empire.

By around 2000 BCE, the Romans and the Greeks were already producing massive amounts of lead, which were estimated to be around 80,000 metric tons per year. Around 5% of the melted lead entered the atmosphere as pollution. They were smelting lead-silver alloys, and then in order to get to the pure silver, they had to remove the silver from the compound. The desire for silver enlarged intensely during those times, even though the technique was already known approximately 3000 BCE, because of the use of silver in coinage (Redman, 1999).

Lead in metal pipes (Picture 3), which contaminated drinking water, was one more danger to people. The issue was not addressed immediately even when the harmful

effects were distinguished. Lead pipes presented a cheaper alternative to clay pipes (Drasch, 1982).



Picture 3: Lead water pipe that was found in pieces during 1899 and 1900. Latin inscription proves that the pipe is from the time of reign of Vespasian. (source: https://en.wikipedia.org/wiki/Roman_lead_pipe_inscription#/media/File:Grosvenor_Museums_-_Wasserr%C3%B6hren.jpg)

Nriagu (1983) describes that the Roman aqueducts (Picture 4) were used as water distribution system and were made of lead pipes. Large quantities of lead were also used in coinage production, pottery, weights and even as a sweetener for wines. Production of lead which went on for over 400 years led to poisoning that particularly affected the patrician class of society and resulted in miscarriages, infant mortality, sterility and stillbirths. This has led many people to believe that the fall of Rome is linked to lead poisoning.

The concentration of lead throughout the Roman and Greek times was about 15% of the stage that has occurred in the last 60 years due to the usage of lead additives in fuel. The concentration of lead was four times over the natural level. More so, the lead pollution at that time was limited to Mediterranean and Europe only, meaning that the regional pollution levels were much higher, possibly approaching or exceeding those that we have today (Redman, 1999).

In Pompeii the kerbstones made of block of stones were draining flood and garbage away, and the excess water was used to clean the roads. Underground sewers were provided in urban areas to wash-down filth but they did not exist in other cities so a lot of waste remained in streets (Thüry, 2001).



Picture 4: The Pont du Gard is an ancient aqueduct in the South of France built by the Roman Empire. It was initially part of a 50 kilometres long canal, supplying fresh water to the Roman city of Nimes. (source: <http://www.touropia.com/ancient-aqueducts/>)

Rome grew into a city of a million occupants in the end of the republican era. Romans did not only gain settlement places but they also experienced difficulties in the city due to noise pollution, traffic, mountain of waste and heat. These difficulties also spread out to other places of the realm. The Romans slowly established interaction with faraway places after the construction of the Via Appia in 312 BC. This road had 80,000 to 100,000km of length that ran throughout their land (Thommen, 2012).

As Kolb (2001) states in her book *Transport und Nachrichtentransfer im Römischen Reich*, the roads were used for gaining more supplies, for the troop activities of army, benefited merchants to trade goods, and for faster reports of messengers. A transport system was created by Augustus at that time. It was a state courier that served as transportation that included authorized trips at expense of public.

Economic aspects were also a cause in Roman Empire's expansion, which took over the whole region of Mediterranean after the third century BC. Rome benefited from the taxes of the countryside, and conquered lands by first parceling and surveying, then construction of buildings. They were supplied with wine and oil by Spain, cereals and olives by North Africa, cereals by Egypt and Sicily. 150,000 tons of cereals were transported to Rome under Augustus every year. Shortages were still possible in the capital even with these amounts of import (France, 1999).

According to Thommen (2012) one important branch of agriculture was Horticulture, which also served as a component for self-sufficiency. Gardens supplemented significant involvement in nourishment, and provided the cultivation of fields growing the basic foods. Cereals, olive oil and wine were produced in gardens, particularly in cities. Figs were also planted and cultivated in many different ways. Therefore different kinds of vegetables were planted and cultivated in gardens.

Many places in the south of Rome were ruined throughout the Second Punic War (218-201BC). The takeover of Romans during the second century BC also increased the hardships of the citizens and farmers who had to be away from farmlands due to wars across the sea. Low-cost bran from neighboring provinces came into the marketplace. The production of olive, wine, and pasturing also had to be oriented again, which all required great expenses and efforts (Jongman, 2003).



Picture 5: Map of the Roman Empire at its greatest extent in 117 AD. (source: http://cdn3.vox-cdn.com/assets/4822044/RomanEmpire_117.svg.png)

Pekáry (1976) explains that by the end of third century AD (Picture 5), the number of fields increased again in the Roman Empire. Enormous estates were handled by renting out to farmers (coloni). Permanent hereditary leasehold was gradually converted from the colonate. These ensure the occupants economic security. The coloni were usually more beneficial than servants, who have decreased in number.

“Virtue is a habit of the mind, consistent with nature and moderation and reason.”
 Marcus Tullius Cicero

The enormous alteration of the land by Roman agricultural methods diminished with the collapse of its Empire and political fragmentation on the Mediterranean and Europe. In numerous regions total settled population reduced as the scale of agriculture weakened and efforts at key land transforming plans became nearly nonexistent (Redman, 1999).

2.2.2 ANCIENT GREEK CIVILIZATION

Ancient Greece covered the Peloponnese, the several islands of Aegean Sea, and the southern region of the Balkan Peninsula. During the early times, cities were built near the shore of Anatolian peninsula, also called Asia Minor. Greek settlements occurred throughout the Mediterranean in the period of colonization in eighth century BC that led to widespread construction of buildings and change of landscape (Thommen, 2012).

The essential foods during the early Greece were cereals, olives, grapes, peas and fruits like apples and figs. Fishing and hunting of wild boar, deer, and more, were practiced as well as stockbreeding, mainly of sheep and goats. Sunny summer and misty winter was also an advantage for the production of many kinds of crops. During summer, fruits and field crops were reaped. During crop-free year, fields were enriched with fertilizer (Thommen, 2012).

Furthermore, Thommen (2012) clarifies that cereals were not enough in Attica but they had plenty of olive trees. Barley was the basic crop because the soil was not thick. During shortages they made imports from the Black Sea area. In classical times importing and exporting of goods were being done. Supplies such as oil and honey were being exported or traded for food in demand, like salted fish for example.

The Greeks and the Romans later on, had a strong grip on the idea that long-term farming leads to impoverishment. This idea was supported by evidence that was gained with time, as the lands were very fruitful when the intense agriculture started occurring, and then diminished with generations that followed. Conserving the soil fertility and increasing agricultural production was managed through sophisticated methods. Like Romans, the Greeks were also respectable in manuring, fallow periods and terracing steep slopes (Redman, 1999).

According to Panessa (1991) different opinions and interrogations arose regarding the environmental behavior during the ancient times. The relationship of Greeks with nature was dissimilar. Some of the opinions were that the environment was safe, helpful like springs and meadow. Some conclude that there was danger in nature like raging rivers, stormy seas, dark woods, wild animals and believed that there were demons that had to be soothed by ceremonies. Rituals were prepared every time cities were built or any agriculture method started, as those meant harm to

environment and needed to be amended. To guarantee good harvests, offerings were made to different climatic elements.

Plato creatively contrasts the primeval Athens because of the modern situation, and discusses the occurrence of soil corrosion and cutting or burning of trees in his dialogue Critias. He adds that the earth has eroded because of the involvement of human; the habitats of animals were destroyed and damaged the water level for new landscape. But there was no historical scrutiny, and the appreciation for the beauty of the Attic countryside went on. It never displayed any ecological problems even if the report showed that it has to be observed with caution (Thommen, 2012).

“Nature does nothing in vain.”

Aristotle

As Thommen (2012) explains, The Greeks seem to also have had different approaches towards their relationship with animals. One was that, animals were respected as an incarnation of natural surroundings, and other is that animals were seen as danger that should be overcome. Animals were considered interpreter of gods and companions in life, and they were also used as sacrifices on the altars.

From the fifth century BC, wood was in demand not just for fuel and construction purposes but also for mining and construction of ships. There was increase of the demand of wood when the population of Athens rose. Because of wood scarcity, it had to be imported from nearby areas and even far away regions such as in Eleusis, Samos and Piraeus (Meiggs, 1982).

According to Thommen (2012) ancient Greek civilization also had high demand for rock and clay which they used for construction, and metals which they used for trading and artwork. Those metals were mined in different regions, usually in underground mines. Since the materials were scarce and production costs high, many of the products were being reused multiple times.

From the time of Mycenaean, lead and silver were mined in Laureion which was the mining region in southern Attica. Underground mining started at the start of fifth century BC with lateral passageways up to 40m long and over 2,000 channels up to 50m deep (Schneider, 1992).

Regarding the mining, Healy (1978) adds up that the construction of smelting furnaces and washeries (Picture 6) contaminated the water and air immediately. Lead vapours and sulphur dioxide were in the air which led to broad weakening of physical form and resulted in nerve diseases, infertility, anemia and damage in genetics.



Picture 6: Ancient washery seen from Velatouri Hill, located in Thorikos. (source: <http://rolfgross.dreamhosters.com/The-Stones-of-Greece/2012StonesofGreeceEnglish/Attika/Attika/Attika.html>)

On the other hand, Ancient Greece is recognized for the successful accomplishments in the supply of water. Drinking water was acquired from wells (krenai) and springs, which were supplied by groundwater and artificially brought-in water. In cities, containers were vital. Water from pipes and rainwater were stocked in cisterns (Thommen, 2012).

Redman (1999) explains that during Hellenistic and Classical periods of Greek history, concepts of the lost golden age were being written down. Those ideas refer to the time when people were less intrusive and more orderly, when earth was more giving and the soils of Greece more fruitful. Life then is described as a better world, controlled by people who planted the fields and cut the forests. Another Greek concept, according to Redman (1999), resulted from interest in the cycles of humans and nature, and the nature in which everything has its appropriate place. The interest was adopted by Greek philosophy as a dominant theme representing the control of man over other things.

2.2.3 ANCIENT EGYPTIAN CIVILIZATION

During the period of the first pharaoh around 3150 BC, Egyptian civilization merged with the political union of Upper and Lower Egypt. The Egyptians were able to establish their own policies concerning the environment and were in control of their own government before 3000BC to 1000BC. Although many historians of Egypt comment on the stability of Egyptian culture in a negative way because of uncreative thought and lack of change to traditionalism, the stability of Egyptian civilization was the outcome of the sustainability of Egypt's environmental relationships (Hughes, 1992).



Picture 7: Cattle, sheep, goats and other kinds of domesticated animals in Ancient Egypt were raised as companions to humans and they provided meat, milk, fat, horns, skin, eggs, wool and leather. (source: <http://www.crystalinks.com/egyptagriculture.html>)

According to Hughes (1992) the yearly overflow of the Nile River which contains minerals that brought rich fertile soil to Egypt and advantageous geographical landscapes lead to the success of ancient Egyptian culture. Plenty of food was able to be produced, which gave them opportunity to dedicate more time to technology, arts, and culture (Picture 7). Taxes were calculated based on the size of land a person had. Egyptians distinguished three seasons from the cycle of the Nile River: Akhet (flooding), Peret (planting), and Shemu (harvesting).

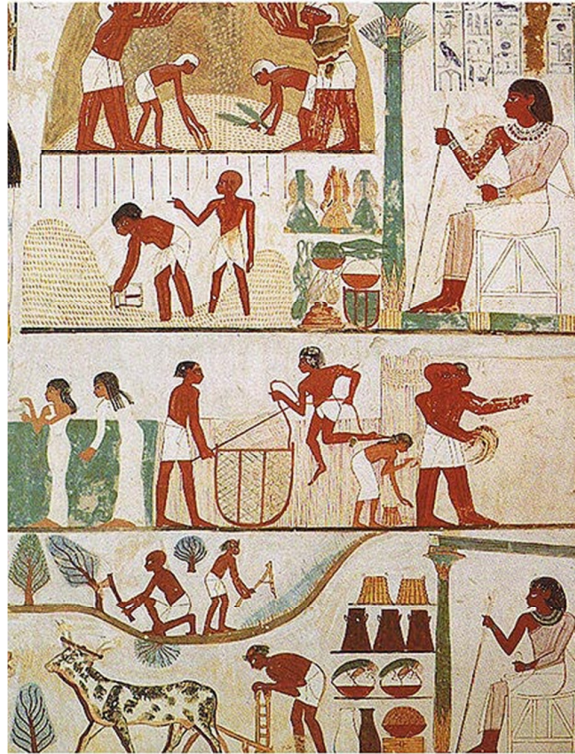
The legacy of Egypt carries on. Its contribution for arts and architecture were imitated widely, and its relics were passed to different places in the world. Antiquities and relics found in the early modern period led to more discoveries and investigation about the Egyptian civilization. Problems in environment still occurred even though the accomplishment of Egypt was outstanding. One problem will be over-population. A good harvest could support everyone but when the time comes that there would be low production, it wouldn't be able to support all people which would lead to scarcity. The government tried to balance the supply and demand. They store productions during productive years and distribute it during low production years. In spite of this, Egypt still continued to be the main supplier of wheat and barley in the ancient times (Hughes, 1992).

Hughes (2009) explains that ancient Egyptian civilization lasted partly due the use of their sophisticated technology. Water management and planned flooding are one of the reasons why this civilization lasted longer than any other ancient civilization while sustaining reasonably stable economic pattern (Picture 8 & 9). Hughes (2009) adds that the Egyptian agriculture was able to continue because of the yearly overflow of the Nile and abundant sedimentary soil which contains phosphorus and

more minerals were carried down from the mountains. This is why Herodotus, the Greek historian who witnessed the goodness the Nile brings, called Egypt “gift of the Nile”. The Nile sustains all the people with food and nutrition. Another reason for the sustainability of Egyptian culture is that it had unchanging climate. The river provided water even when there was not enough rain.



Picture 8: A worker plowing his fields with oxen. (source: <http://www.crystalinks.com/egyptagriculture.html>)



Picture 9: Egyptian workers harvesting crops, threshing and storing the grain, and chopping trees. (source: <http://www.crystalinks.com/egyptagriculture.html>)

2.2.4 ANCIENT MAYA CIVILIZATION

The Maya civilization was located in Mesoamerica, Yucatán Peninsula. Originating around 2600 BC, they rose to fame around year 250. The Maya are well-known for decorated ceremonial architecture, including palaces, temples and observatories, all built without metal tools. They were also capable farmers and skilled weavers and potters. They cleared ways through swamps and jungles in order to foster extensive trade networks with distant peoples (Hughes, 2009).

Structures in ancient Maya are often defined as magnificent achievements of engineering. One of the best examples of the above mentioned achievements is the ancient city of Tikal which is located in Guatemala. When University of Pennsylvania Museum started excavating at Tikal between 1955 and 1969, they stumbled upon a discovery of tombs, temples and palaces. By 1970s, they realized that this remarkable civilization also has other achievements besides architectural ones. Mayan people were aware of the importance of bringing water in cities, moving it around wherever needed and storing it for their times in need (Harrison, 2012).

According to Harrison (2012), Tikal's water management system represents the peak of Mayan architectural achievements. The water was gathered, stored, guarded and

distributed when needed. Nevertheless, over time, water collection system in Tikal (Picture 10) went through changes that reduced its efficiency. The canal that was leading clean water into the temple during the Early Classic Period was enclosed because of construction of a temple building in the Late Classic Period. Another problem followed with the construction of royal kitchen which contributed to accumulation of garbage and contamination of water sources. Mayan people did not seem to realize the problems that are caused by contaminated water.



Picture 10: Temple in Tikal, one of the Maya city states, which was used as water storage. (source: https://en.wikipedia.org/wiki/Tikal#/media/File:Tikal_Temple1_2006_08_11.JPG)

Settlement at Tikal started around 300 BC with first clearings in the jungle. The city's prosperity was built upon exploitation of natural resources such as dye from brazil wood, cedar wood, flint, copal resin, and cultivation of corn in cleared parts of rainforest and abundant swamp regions (Cartwright, 2014).

“Only when the last tree has died and the last river been poisoned and the last fish been caught will we realise we cannot eat money.”

Cree Indian Proverb

Nowadays, according to Sharer (2009), several Mayan-related languages are still being spoken. Nevertheless, the Mayan heritage is fading away and getting

destroyed. Multiple ruins and heritage sites have been looted for artefacts by illegal diggers who are digging for lost jade stones, pottery and sculptures.

2.2.5 ANCIENT MESOPOTAMIAN CIVILIZATION

Mesopotamia is well-known as the foundation of civilization. It has attained a reputation as the origin of numerous of the hallmarks of Western civilization. Mesopotamia is famed for the regulation codes of kings, home of Abraham, home of earliest cities in the world. Its name was derived from a Greek term that means “land between the rivers” – the plains of Tigris and Euphrates, including the big areas of the current nations Syria and Iraq. The early inhabitants of this area kept relationship with people living outside the borders, those from plains of south-western Iran and bottom hills of the Taurus Range (Pollock, 1999).

In northern Mesopotamia, the development of agriculture and domestication of plants and animals occurred between 10,000 - 6000 BC. Sufficient rainfall allowed crops to grow, and the area was also home to barley, wheat, cattle, sheep, pigs and goats, plants and animals that were eventually domesticated. By 5800 BC, people were settled in the southern plains of the Tigris and Euphrates Rivers. The land in this region was extremely abundant, but the rainfall was insufficient to grow crops. The rivers were unpredictable, drying up in intense heat of the summer. Irrigation was the answer to these problems. In time, ditches laced the fields near the rivers, making the land a maze of artificial waterways ("The First Farmers").

Algaze (2009) explains that the resources available to societies living in southern Mesopotamia gave the people important advantages over rivals located in other parts of Asia.

According to Redman (1999) the rulers of societies in Mesopotamia had an advantage from the continuous growth of the local agricultural productions, increase number of traded merchandises from the border, and more captive people that could farm in fields and work in manufacturing buildings. The excess productions of the farmers were taken by the upper and middle class rulers. The productiveness of the land was diminished from the rise in production, and laborers had to work harder to meet the required volume of productions needed. This reduced the fertility of soil and subsequent destruction to agricultural system.

Developments in Mesopotamia occurred over the period of nearly three millennia, from 5000 to 2100 B.C. In this period Mesopotamia developed a large population and most of the settlements were agricultural villages. Most of them were staying in large capitals and were practicing specialized professions. Architecture also became viral. Numbers of raw materials were imported for the manufacture of goods and necessities (Pollock, 1999).

Around 6000 BC, people of the Mesopotamian region began excavating simple canals for watering small parts of land. By 3000 BC, canals had grown into huge

water system which transformed the landscape and connected the cities together (Picture 11). Burdened with the enormous responsibility of their upkeep, neighbouring kings even worked together to preserve this water conserving infrastructure. There was also a disadvantage to the abundant water resources. Increase in the number of people surpassed the productiveness of the land; water that was stagnant brought diseases, inconsistency of weather and landscape. These phenomena are still experienced today. More than 3.4 million death every year was estimated by the world Health Organization due to water-related illnesses (Howley, 2013).



Picture 11: Enki - the god of drinkable water and humanity's great friend, seen in an ancient Sumerian relief. (source: <http://voices.nationalgeographic.com/files/2013/04/enki.jpg>)

2.2.6 ANCIENT AZTEC CIVILIZATION

In the early 1200's, the Aztecs, a group of nomadic hunters, reached the Lake Texcoco and lived there. They invaded the nearby countries to build a strong empire after twenty decades. The Aztecs constructed cities, country park, palaces and markets, as they were recognized as magnificent architects and engineers. Their civilization continued from 1325 to 1521. The Aztec Empire comprised central and southern Mexico when the Spaniards arrived in 1500's (Bellotto, Kubesh, and McNeil, 2009).

The Aztecs were progressive in agriculture and established irrigation system even before Europeans did. Every farmer had to give small portion of their crops to the 'Great Speaker' which was saved until people experienced lack of food during scarcity. Basic crops planted were beans, sweet potatoes, tomatoes, corn and tomatoes (Bellotto et al., 2009).

The city of Tenochtitlan (Picture 12) was the capital of Aztec Empire. Tenochtitlan was constructed in Lake Texcoco and considered a floating city. The Aztecs built canals and paths between the land and the islands. In present, as lands were used for new buildings in Mexico, Aztec relics and artefacts have been discovered (Bellotto et al., 2009).



Picture 12: Model of the temple district of Tenochtitlan city at the National Museum of Anthropology. (source: <https://en.wikipedia.org/wiki/Tenochtitlan#/media/File:TenochtitlanModel.JPG>)

The city of Tenochtitlan had a population of over 200,000 by the time when Spaniards arrived. They were impressed by its orderliness, cleanliness and size, as it was the largest city in the Americas, and one of the biggest in the world. Due to plenty of water and sunlight availability, as well as a moderate climate, the *chinampas* (Picture 13) were very fruitful, producing up to four crops a year and around two-thirds of food consumed in the city. An additional vital factor in preserving high productivity was the intensive recycling of nutrients. The Aztecs disposed of all types of organic wastes, such as agricultural remains and food leftovers, in the *chinampas*, for fertilizing purposes. More so, the most valuable fertilizer used on *chinampas* was human excrement (Medina, 2014).



Picture 13: Aztec farmers working on chinampas. (source: <http://lossaboresdemexico.com/la-milpa-mas-que-maiz-un-modo-de-vida/>)

Human urine was considered a resource because it was used in the dyeing of fabrics. Almost every home had ceramic containers in which they stored urine in order to sell it. In Aztec era, the people obtained necessary animal proteins from ducks, deer, turkeys, fish and other wild animals, as they did not have cattle, sheep, goats or chickens yet, which were later introduced by Europeans. They also raised a breed of dog for human consumption (Medina, 2014).

The Aztecs strictly implemented recycling. They found usages for all wastes but after being conquered by Spaniards, the waste management was disrupted. Organic waste such as urine and excrement can cause water, land or air pollution if released in the environment. By recovering and recycling this kind of waste, Aztecs prevented pollution in the nearby lakes. Any materials such as textiles that can be burned were recovered and scorched at night in order to lighten public areas (Medina, 2014).



Picture 14: Codex Mendoza extracts showing Aztec punishments. (source: <http://ourworld.unu.edu/en/the-aztecs-of-mexico-a-zero-waste-society>)

Under the rule of Moctezuma II (1502 to 1520), rules concerning wastes and littering in places were strict and could lead to death penalty if broken (Picture 14). Someone could receive death penalty from cutting a tree without any authorization. Wastefulness was not forgiven even amongst the elite class citizens because they should be the ones to set an example for other people. Children of noble men were sentenced to death due to being wasteful. Tenochtitlan city had officers in charge of keeping orderliness and cleanliness in the city. Scavengers, who were called *pepenilia*, were tasked of mending recyclable materials (Medina, 2014).

Montezuma II, the emperor of Aztec, gave gold and more gifts to the Spanish governor, Hernan Cortes, when the Spaniards travelled to Tenochtitlan seeking for gold. The Spanish, unfortunately, were impolite and discourteous. They took Montezuma II as prisoner and invaded the city with their cannons, guns and horses. During 1519-1521 after many battles, Spaniards won. They ruined the Aztec city of Tenochtitlan and constructed their own city which is called Mexico. The Spaniards then took down more other cities of Aztecs and took them as slaves. Millions of Aztecs were murdered by soldiers and passed away from European syndromes that Spaniards carried with them (Bellotto et al., 2009).

Isendahl and Smith (2013) add that the Spanish inquisition resulted in desertion and demolition of multiple cities. Mostly, the cities were converted into Spanish colonies and are still present today.

2.2.7 ANCIENT INCA CIVILIZATION

Incan agriculture consisted of many crops that are still widely in use nowadays. The most important food for the Incas were potatoes, which they called 'papa'. In the

present, we know of 40 types of potatoes that were cultivated by the Incas. Potato was the ideal food for them because they could plant it in the mountains where nothing else grew and it also resisted frosts. The Incas were also the first to know freeze-dried technique. They left potatoes on the cold to freeze and then stomped on them to squeeze the water out. Potatoes were then ready for the drying under the sunlight. After they were dry, potatoes were either crushed or preserved whole, and then they were ready to be stored for a long period of time. Other foods that they cultivated were also tomatoes, corn, avocado, strawberries, peppers, squash, beans, cashews, peanuts, cacao and more (Kramme, 2012).

Since there were mountains all around, the Incan farmers had to find a solution in dealing with those. They made terraces that look like steps in order to make plantation easier and to prevent soil erosion. Plantation required a group effort which started by men breaking the earth and women planting the seeds, while kids were running around to scare the animals away, so that they couldn't get the seeds. The Incas also invented a water system that helped them transport the water to higher areas, by digging canals and building raised aqueducts (Kramme, 2012).

The Inca Empire controlled a huge area of what are now Chile, Ecuador and Peru. It was established at the same time as the Aztec Empire when a tribe of Inca settled into the valley of Cuzco during 1100 A.D. The Inca Empire expanded about 3,000 miles along the shore of South America and became the biggest realm of its time. In the late 15th century, there were about six million people settled in the Empire (Bellotto et al., 2009).

Farming and herding were the main way of living of the Incas. Since they were located around the Andes Mountains, they were experts in farming. They were also very good in irrigation and they knew how to construct tunnels, canals and aqueducts to water dry places. Terraces were also built along the hillsides and supplied water with streams from mountains to grow crops. Their main crops were tomatoes, potatoes, cassava, beans, squash, peanuts and chili peppers. Animals that were raised include llama and alpaca for transportation and wool (Bellotto et al., 2009).

Incan cities were Machu Picchu and Cuzco. Machu Picchu (Picture 15) was built on a sequence of terraces into the side of the mountain that was 7,500 feet above sea level. The fortress was 13 square km big and 80 km from Cuzco. Machu Picchu was never discovered by the Spanish and kept hidden until 1911. The city was destroyed when it was rediscovered by Hiram Bingham, a lecturer from Yale University. Cuzco is the capital of Inca Empire and was located about 11,000 feet above sea levels. It was the place for government, palaces, schools, buildings and houses (Bellotto et al., 2009).

When emperor Inca died, Atahualpa became the emperor. Government became weaker under his period. Wars began in the empire. During this time, Francisco Pizarro and other Spanish soldiers conquered Inca Empire (Bellotto et al., 2009).



Picture 15: Machu Picchu, the ancient Incan citadel located in Peru. (source: <http://www.world-archaeology.com/world/south-america/peru/machu-picchu-2.htm>)

2.2.8 ANCIENT CHINA CIVILIZATION

Ancient China was located between two rivers, the Huang River and Yangtze River. People stayed because the rivers for good farming. Villages were organized by the 2000s BCE. During 2205 BCE, sequences of dynasties began. It was believed that the first dynasty was Xia dynasty although archeologists have no evidence to prove it. Many dynasties succeeded after Xia dynasty. Emperors of China were focusing on bringing the many Chinese cultures together, instead of expanding China's territory. Mongol conquerors defeated the Song dynasty in 1276 AD which ended 1,400 years of successive Chinese rule (Atkins, 2015).

The overall number of archaeological spots in China that were noted and studied is vast. The archeological spot of greatest importance was discovered in 1953 and is located at Pan-p'o. Radiocarbon assessments show that the early built houses are from around 5000 BC. Houses that were built later are normally larger, with deeper hearth pits, and a half of the floor lower than other. There is a huge foundation at the south-west side of excavated zone which suggests that in the early periods of settlement there lived around 600 people scattered over 200 houses. They understood the importance of cultivation as well as storing of goods; that is why they built 300 storage pits which were spread among the houses. The pits were getting larger as the population was rising, with a base up to eight feet wide (Hay, Nairac, and Brand, 1974).

“If you think in terms of a year, plant a seed; if in terms of ten years, plant trees; if in terms of 100 years, teach the people.”

Confucius

The Huang and the Yangtze were the two big rivers in China which were used for transportation and connected Chinese to distant areas of the empire. Farmers planted wheat in the north and rice was grown in the south. There were canals that served as a way for the Chinese to exchange goods between the two areas. The military power was also increased because the canals served as water transportation system (Atkins, 2015).

Furthermore, Conklin (2006) explains that Sui dynasty connected Huai and Huang Ho rivers from 607 to 610 BC, which is now the Grand Canal (Picture 16). It linked sequences of watercourses and is the longest canal in the world made by people. The early canal systems were used for transporting goods from southern to northern areas. It also allowed troops to travel from north to south.

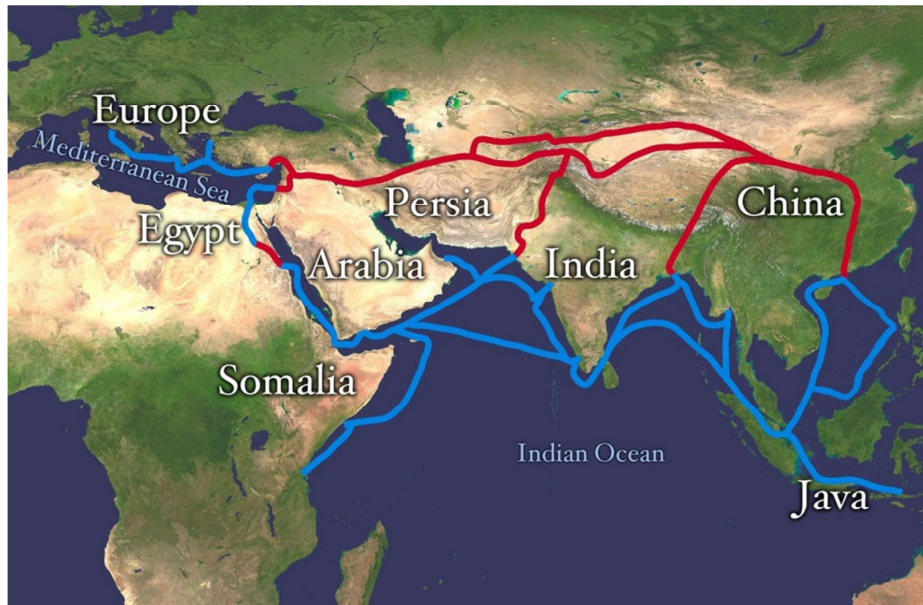


Picture 16: Depiction of the modern course of the Grand Canal of China. (source: [https://en.wikipedia.org/wiki/Grand_Canal_\(China\)#/media/File:Modern_Course_of_Grand_Canal_of_China.png](https://en.wikipedia.org/wiki/Grand_Canal_(China)#/media/File:Modern_Course_of_Grand_Canal_of_China.png))

Science and technology also improved the agriculture in China. Cast iron was used in China by 300s BCE. This allowed the people to make tools by means of iron ore. Plows, knives, hoes, saws and axes were made from smelting iron. They also molded statues and cooking utensils from it. Agriculture was a significant factor of development in different areas of China. One of the main crops in China was millet, which is a type of grain. Rice grew along the Huang River and was yielded since 8000 BCE. Canals were used to irrigate their crops by 200 BCE. Farming was the main focused in rural areas. Men cultivated the fields, fished and hunted while women cooked, weaved, produced silk and made wine. The farmers got the necessary help in moving their products by oxen that pulled a two-wheeled cart. Ko Yu, a Chinese man who invented the wheelbarrow was credited for devising such useful and practical tool. It was used for transporting bulky items and supplies. It was also used to move equipment and food during warfare (Atkins, 2015).

Silk Road (Picture 17) was a network of roads that enabled merchants with goods and products to travel along the road across different areas of the world: through central Asia, China and Japan, south India, and west across the Middle East to the Roman Empire and Mediterranean Sea. One of the items traded in that road is silk. Chinese also exchanged different items such as gems, glass, lacquer, tea, cotton, paper, silver, spices and more, for goods like wine, gold coins, amber and wool. The Silk Road enhanced the economy of China (Atkins, 2015).

Atkins (2015) elaborates that the production of silk started in early China around 2000 BCE. This work was kept hidden from the rest of the world for more than 2,000 years. Making silk fabric was more than knitting silk threads; it was very complicated. Silkworms produced fibers where the silk come from. The temperature had to be maintained for the silkworms to live. The silkworms will then create cocoons which were made of silk threads. These threads were unrolled after boiling the silkworms to get the silk strands.



Picture 17: Red routes representing the Silk Road and blue routes representing the connecting water routes. (source: https://en.wikipedia.org/wiki/Silk_Road#/media/File:Silk_route.jpg)

2.2.9 ANCIENT INDUS VALLEY CIVILIZATION

Around 7000 BC, humans who lived in India learned to grow crops and tame animals. They lived in villages which is now the modern province of Balochistan located in Pakistan. Potters, jewelers, weavers and craftsmen followed the farmers and herdsmen. Toolmakers were the most important craftsmen who started to use copper in work after 4300 BC. A barter system was also developed when villagers traded their goods with one another. Bronze, which is firmer than copper, was used by the craftsmen during 2600 and 2500 BCE. People also knew how to write by then. Cities began to be populated with herdsmen and farmers. Their civilization marked as the birth of the first urban civilization in South Asia. Today they are known as Harappans, because Harappa was the name of their main city. The Harappan urban civilization lasted from 2500 to around 2000 BC, and then it started mysteriously disappearing. Scholars do not agree on the theories of what happened to this civilization, but some of the suggested explanations include: foreign invasion, epidemics and salt overload in soil consistency (McLeod, 2015).

Indus Valley civilization is the first civilization recognized in building wells in order to secure underground water. The wells were built in villages as well as higher grounds. A theory suggests that wells built at higher grounds were used for irrigating fields below. In addition to a well-managed water system; a great development in agriculture was represented by the variety of crops being cultivated. Crops were categorized depending on when they were growing. 'Rabi' represented winter-grown crops such as wheat, barley, pulses, linseed and mustard; while 'kharif' represented summer-grown crops such as millets, sesame and cotton (Habib, 2002).

Walsh (2006) elaborates that Harappan civilization was developed primarily in the Indus River Valley. The area's dry climate and alluvial rich soil was an advantage for the people to cultivate their lands and farms. These agricultural activities spread widely in other regions during the fourth millennium BCE. The scholars believed that Harappan civilization reached its "mature phase" between 2600-1900 BCE (Picture 18). During this period, according to archeological facts, there was harmony in the pottery styles, large amount of bronze and copper were considerably used, there were carved soapstone with animal figures, symbolic scripts, bead-making strategies and comprehensive drainage systems which were often hidden underneath the streets.

Habib (2002) also explains the importance of animals for the inhabitants of Indus Valley. Peasants kept many of domesticated animals at their homes and differences in numbers of those animals were possibly leading to inequalities in society. Hunting was also important, as seen on depictions of Indus seals. The water buffalos were hunted for meat and elephants for their ivory.



Picture 18: map of the Indus Valley civilization. (source: <http://www.timemaps.com/history/south-asia-2500bc>)

Indus Valley civilization was progressive in many ways, such as residential plumbing. Most of the houses already had bathrooms that had baths and toilets. Houses also had their own supply of water from the wells, and excess water from houses was not a problem since they had a drainage system located underneath the roads (Picture 19). This plumbing method maintained good health of the people (Conklin, 2006).

Possehl (2002) further describes their drainage and water system as an inspiring feature of Indus Valley cities. Drainage was provided for all inhabitants; as many of the households contained bathing spaces with inclined surfaces which allowed water outflow through drains in the walls.



Picture 19: Indus Valley civilization drainage system.(source: <http://www.harappa.com/lothal/9.html>)

The Indus Valley civilization was thriving by 2500BC and ended around 1700BC. The location of Indus Valley was now the present nations India, Pakistan, and Afghanistan. Many villages and cities were developed, including Harappa, Lothal and MohenjoDaro. The Himalayas, Deccan Plateau, and the Indo-Gangetic Plain were the main geographical areas of India. Indus, Brahmaputra and Ganges rivers irrigated the Indo-Gangetic Plain because it is the biggest alluvial plain in the world (Conklin, 2006).

2.2.10 ANCIENT PERSIAN CIVILIZATION

The written records from the 9th century BCE show the first appearance of Persians, during the reign of Shalmaneser III, Assyrian King (858-824BCE). Shalmaneser III and the rulers after him repeatedly attacked territories in western Zagros Mountains northwest of the present Mahidasht (Waters, 2014).

Badiozamani and Badiozamani (2005) make clear that Persians have had high respect for nature and environment. They supported tree planting activities. There was a special tree planting day called Derakht Kari when thousands of trees were planted around the country. Some ancient trees still exist in Iran such as the 4000 year old cedar in Yazd. There was also evidence of the importance of trees in their culture as numbers of cypress trees and flowers were found in the ruins of Persepolis, in a palace that was 2500 year old.

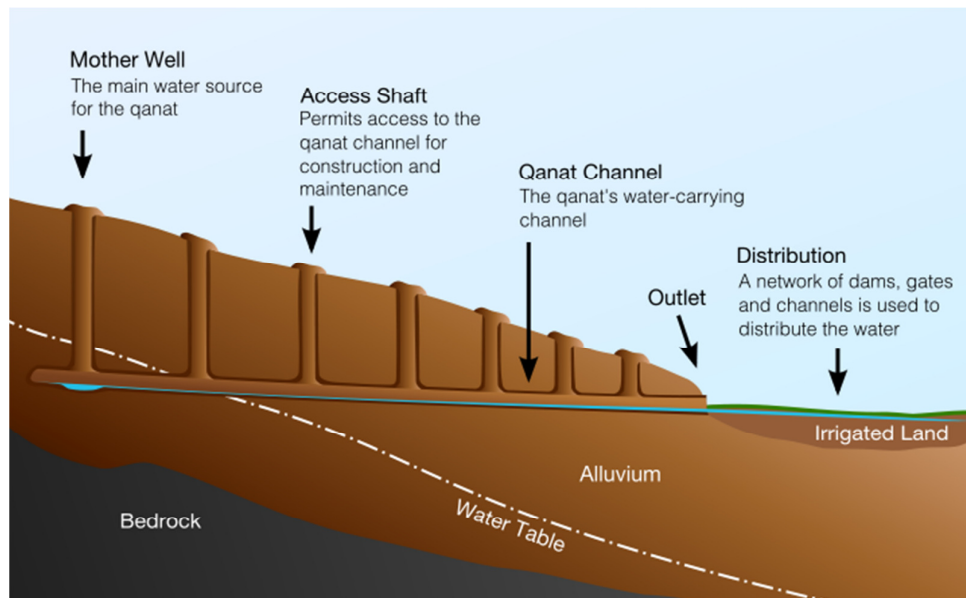
Furthermore, according to Pour, Rad, and Pische (2012), the Persian gardens aimed to support the living process, make comprehensive decisions for continues preservation, regeneration and conservation. The gardens were constructed as an outlet of ‘karez’. This garden design and new supplies of water had many benefits for the fields.

The four pavilions, Chehelsotoun, Jahannama, Fin, and Dolatabad were analyzed carefully and according to study, they showed many similarities in style but because of different temperature of each location, there are few dissimilarities that existed. The climate was the basis of the design in these pavilions. The natural elements like

wind, sun and water played an important role in the layouts. The similarity of these pavilions is that design and layouts depended on the climate of the area. The Persian garden's pavilions were based on sustainability development model, consisting of relationship between humans, built environment and nature. They were built using sustainable materials which have great resistance and thermal capacity in order to survive in the arid region (Fadaie and Mofidi, 2011).

Around 2,500 years ago, Persians developed different methods in order to conserve water and store underground water because of the dry climate. One of the systems that were developed for water management is the qanat (Picture 20), which is still in use today. Qanat is an underground channel that was used to transport water from mountains and hills. This system enabled the people to transform dry area to into a livable one (Perrier and Salkini, 1991).

Schneier-Madanes and Courel (2010) continue with an explanation that qanat system was used throughout the whole empire when the Achaemenid Persian dynasty extended rule from the Indus to Nile during 550 to 331 BC. In December 2003, an earthquake uncovered an ancient city and exposed qanat system in Bam, Iran, that was more than 2,000 years old.

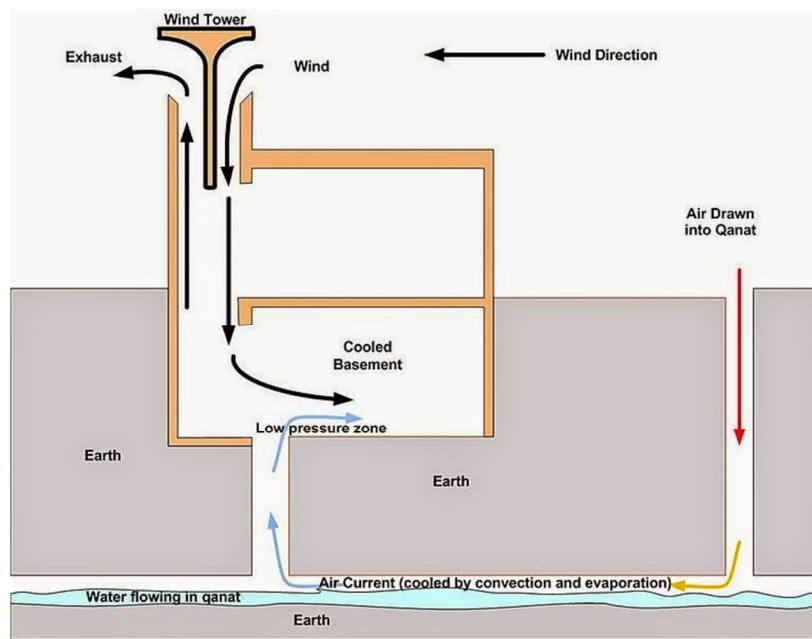


Picture 20: 'karez' or 'qanat' – ancient Persian invention serving as water distribution system. (source:

https://en.wikipedia.org/wiki/Qanat#/media/File:Qanat_cross_section.svg)

Qanats were often used together with wind towers (Picture 21) in order to provide cooling and water supplies. Wind towers were placed above the buildings and have been used for more than 1000 years in desert climates. One of the four openings of the chimney is placed opposite of the wind flow, as it serves as an outflow for the hot air in house. The other opening is placed on the other side of the chimney, allowing

the wind to enter the house and create low pressure, which results in the cool air being drawn up in the house from the qanats below. The cool air is being cooled by contact with the water and walls of qanat, as well as by the transfer of latent heat from evaporation when water evaporates in air stream. The result can be a reduction of temperature inside the house of more than 15°C (Bahadori, 1978).



Picture 21: Persian qanat used together with a wind tower for cooling purposes.
(source: <http://www.knowledgestew.com/2014/12/the-worlds-first-air-conditioning-or.html>)

The Persians became experts in storing ice during summer by 400BC. The ice was collected from the mountains during winter, but they also had a more innovative way of obtaining it. A wall was built in the east-west, near an ice pit, which was called yakhchal (Picture 22). The qanat then transferred water to the northern side of the wall, which lays a shade that freezes water quicker. The ice was gathered and stored in yakhchals. A system of wind towers or wind catchers was made to shift the wind from qanat to keep the temperature inside the underground space, which was connected to qanat, at low levels. During summer, the ice was melting gradually and was still available for the whole year (Rael, 2009).



Picture 22: The ice pit - Yakhchal in Yazd province. (source: <http://www.eartharchitecture.org/index.php/?archives/1045-Yakhchal-Ancient-Refrigerators.html>)

Persians developed windmills as early as the 7th century AD. These windmills (Picture 23), which were supported by a vertical shaft, were used for grinding grains and irrigation purposes. Even though those devices were low efficient, the use of windmills spread to China and around the Middle East (Bridgman, 2014).



Picture 23: Ancient Persian windmill. (source: <https://thingsunclejohnsends.wordpress.com/2014/07/26/the-ancient-windmills-of-nashtifan-iran/>)

Badiozamani and Badiozamani (2005) confirm that according to the most experts of technological history, windmills are invented by Persians. They were used in eastern areas of Iran where the winds blow for up to 120 days during summer.

It is also believed by the scholars that the sewage system that was found in the palace of Persepolis was the first sewage system created in the world, and after 2,500 years, it is still functioning (Badiozamani and Badiozamani, 2005).

In 539 B.C., during the first king of ancient Persia, the army of Cyrus the Great conquered the city of Babylon. Cyrus freed the slaves after capturing the city, established racial equality and stated that all people have the right to pick their own religion. These declarations were noted on a baked-clay cylinder, called Cyrus cylinder (Picture 24), in Akkadian language. The cylinder has often been defined as the 'first charter of human rights' ("Cyrus Cylinder", 2013).



Picture 24: Cyrus cylinder. (source: https://en.wikipedia.org/wiki/Cyrus_Cylinder#/media/File:Cyrus_Cylinder_front.jpg)

2.3 THE MODERN HISTORY

Social change has five main aspects that when put altogether, successful sustainability can be attained. First is the contribution of ideas and mutual intentions of groups that promote the environmental protection and life. Second is the involvement of large business sectors with the same goals. Third is the value that these businesses possess in order to develop sustainability revolution. Fourth is the wide spread of sustainability movement, which means that organizations and individuals all over the world can contribute to its development. Last is the aspect that is often opposed and is regarding to the way how organizations conduct their businesses and furthermore, how world is organized (Edwards, 2005).

In addition, Pitelis et al. (2011) describe the six main causes that have driven the alteration of our planet on a global scale. People are mostly aware of the issues

regarding the limited land resources and waste problems. On the other hand, population issues are often ignored due to the mixture of religion ideologies and ideology of development. Next are fresh and salt water issues, which have had a lot of publicity because they are affecting people globally. Climate change is also understood together with its implications for atmospheric chemistry. Damage to the ecosystems and diversity of life are often being ignored, even though our species depends on the stability of the environment. How we are going to produce energy while thinking long-term has finally been taken under a serious consideration, due to diminishing fossil fuels supplies.

Furthermore, Pitelis et al. (2011) explain that there is also seventh cause recent in human experience that arose because of the introduction of new technologies. Such is the irreversible damage of the ozone layer, which is protecting ecosystems from destructive ultraviolet radiation from Sun.

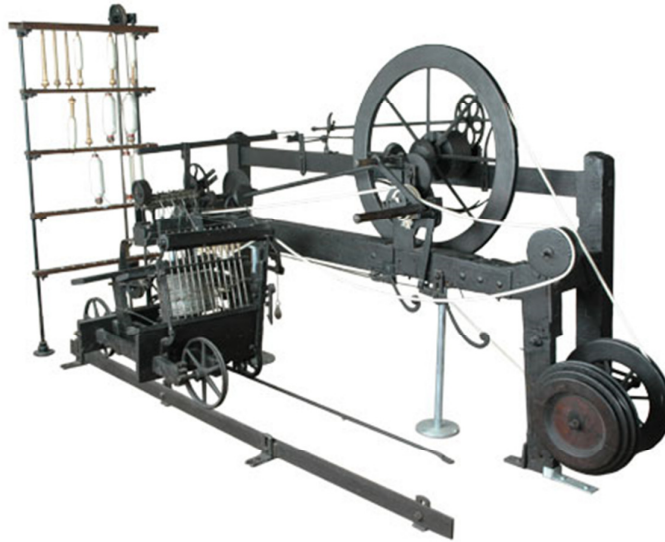
Accordingly to Withgott and Brennan (2010), the increase in population is absolutely one of the main reasons for environmental problems, and increase of consumption comes after it. The industry provides the people's demands by increasing the amount of natural resources used.

Significant development in the history of humans has been an issue due to insufficiency of resources. By 1500, the forests were cleared momentarily by the Europeans, first engineers in global growth, who established agricultural farms and dealt with their borders. Even with massive internal improvement, Europe strived hard to sustain itself, comparing from the leading empires such as the Mughal States that expanded from the Spice Islands of Southeast Asia to Eastern Mediterranean. Because of shortages, European countries started to support explorations in foreign lands in search of more resources such as silver, gold and other valuable metals to sustain their depository. The Europeans then recognized the opportunities from agricultural production as a source of income (Theis and Tomkin, 2012).

Theis and Tomkin (2012) continue with explanation that the new borders of European economic advancement in the pre-industrial time, between 1500 – 1800, were comprised with tropical areas for large farming of crops, like tobacco, cotton, sugar, rice, opium, indigo and grains for planting and exportation. The overseas traders of France, Spain, Britain, Netherlands and Portugal went for timber and pepper in islands of the East Indies, built harbors in India for silk, indigo and cotton business, traded silver for Chinese products such as porcelain and tea, exchanged rice, sugar, tobacco and furs in America; cruised to West Africa for gold and servants. The trading of slaves and plantation economies of the Americas benefited the industry from Asia to Atlantic. All these profitable improvements had made serious changes in the environment around the world, landslides and deforestation for example.

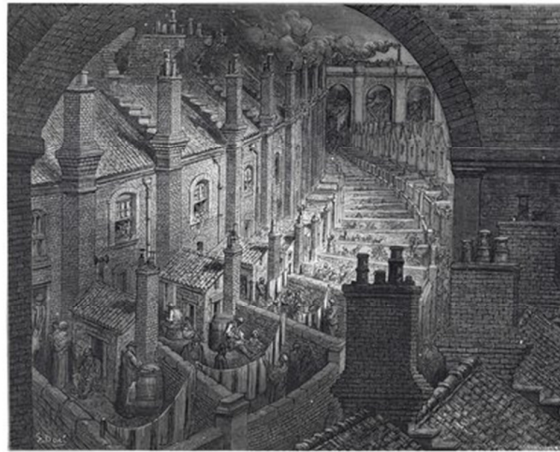
The fastest growth of global economy was seen in the 19th century after the continued expansion of agriculture and beginning of use of fossil fuel and extraction of minerals that increased the development capability of industrialization (Picture

25). The state's wealth later depended on different global resources and from the industrialization of basic products such as minerals, cotton textiles and timber, which was the first time since the human progression to agriculture 10,000 years earlier. In this period, international relationships began to occur in the northern countries, taking advantage of the natural resources of undeveloped countries for wealth (Theis and Tomkin, 2012).

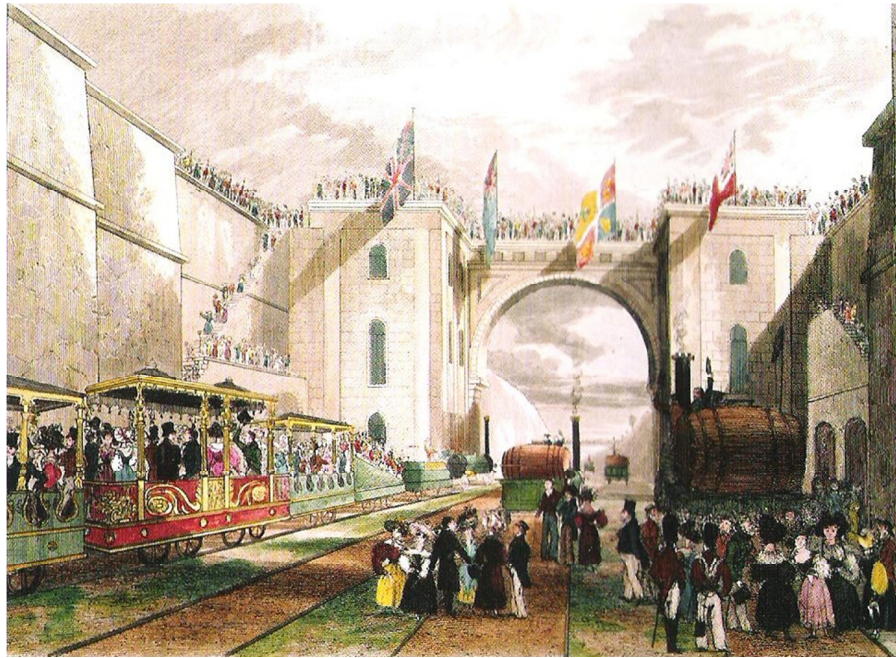


Picture 25: The only 'Mule Jenny', made by the inventor Samuel Crompton in 1779, which is still in existence; representing one of key advances in the industrialization of weaving that occurred during the early Industrial Revolution. (source: https://en.wikipedia.org/wiki/File:Spinning_jenny.jpg#/media/File:Spinning_jenny.jpg)

Simmons (1993) confirms that one of the important modifications that affected the environment is the extent of industrialization across the globe. There was a need for natural resources in order to manufacture the demands of human essentials, and the processing of by-products is the cause of pollutants (Picture 26 & 27).



Picture 26: View of the London slums by Gustave Doré from 'Londre a Pilgrimage', first published in 1872, showing the densely populated, poor and polluted environment of the slums of London in Victorian times. (source: <http://www.museumoflondonprints.com/image/68274/gustave-dore-over-london-by-rail-1872>)



Picture 27: Reproduction of a painting showing the opening of Liverpool – Manchester railway in 1830, the first inter-city railway in the world, which caused 'Railway mania' due to its success. (source: https://en.wikipedia.org/wiki/Opening_of_the_Liverpool_and_Manchester_Railway#/media/File:Opening_of_the_Liverpool_and_Manchester_Railway.jpg)

Environmental crisis such as depletion of ozone layer, global warming, deforestation are now getting attention as the problems arise. Along with the awareness of the problem is the realization of how the societies misuse the environment. From the beginning of human civilization, the environment was already disrupted. The problems were recognized in the 20th century, and these problems can possibly exaggerate in the twenty-first century. As the ecological problems increase, people must have equivalent reaction for the betterment of the environment (Wilson and Bryant, 1997).

Theis and Tomkin (2012) add that from 20th century, the forests from tropical countries and non-human inhabitants were the biggest losers in the growth of economy. Almost one third of the forests in Asia, Africa and America have been used for human use in attaining economic development. This deforestation affected not just the tropical rainforests but also the animals living in it and had greater rate of animal extinction. Lands cleared were mostly used for agriculture and the number of irrigated soils elevated over the period. 40% of the globe's biological output is transformed for human management. We are now coming to the beam of expanding land for productions, and continuous clearances of forests can damage the land with toxic chemicals that have now impaired soils across the earth.

Pollution in the air by manufacturers is now a lesser problem than it was in previous century. This is from united efforts by clean air associations that arose internationally in 1940s and acquired political influence with the development of the environmental protection in the 1970s. The effect of the environmental movement in 1970s, concerning the condition of water and air, was the model that we are following now in overcoming environmental issues that the world can possibly face in the next century (Theis and Tomkin, 2012).

On the other hand, Theis and Tomkin (2012) add that air pollution is still a huge problem in big cities. Carbon contamination in the atmosphere rose to 40% which had increased the cases of climate change. These changes will be described as higher sea levels, outrageous weather phenomena, scarcity across the world. J.R. McNeil, an environmental historian, projects that 40 million died from air contamination in the 20th century. The number of death for 21st century is hard to predict, but because of the given changes in the weather, it is probably going to be higher.

The revolution for the environment has been in motion since 1960, and has flourished in 1990s. Including the environment in decision making has become vital in order to attain success and competitiveness. By commencing modification in the organization and producing environment-friendly products and services, competitive benefits can be attained (Welford, 1996).

From 1960, North America and Europe has grown interest in environment, particularly in the damaged done to it. The system of European assimilation and the development of international trade have led to worldwide environmental problems. Global warming and holes in the ozone layer are the outcome of countries' and

companies' actions. Policies are now set for the individuals as well as businesses to remedy this condition (Welford, 1996).

Theis and Tomkin (2012) explain that ever since the conversion to agriculture 10,000 years ago, human societies had hard time coping with the nutrient deficiency in soil due to regular plowing and yielding. The dying of crops and poor soil was avoided in 1970's by 'Green Revolution' which had projects for enormous usage of petroleum-based fertilizer to supply nitrogen in soil and increase the production of crops. The number of people suffering from malnutrition declined for the last twenty years. The expectations of gaining more revenue in the next century were also threatened by the attainment of its operation itself. The increase of the number of crops levelled off the declining of water resources and soil erosion. Population also grew at the same time in developing nations which had increased the usage of land to build houses for people. Most chemical fertilizers used on soil failed to cultivate the crops and penetrated the hydrological structure, contaminating the streams, water level and ocean which affected the aquatic resources. The effect of fertilizers decreases which needed more quantities of it to maintain crops.

Until 1980s, the protection of environment was opposed by many, argued that it was costly and should be refrained, and can lose a business' competitive edge (Callenbach, 1993).

Furthermore, Callenbach (1993) from Elmwood Institute affirm that in the early 1980s, people became aware that the environmental damages can be diminished by eco-friendly business practices which spread quickly in Europe, especially in Western Germany, which flourished in implementing and promoting 'eco-friendly' in their products and services. "Green Growth and Developing Countries" (2012) add that the approach to green development transforms the traditional growth model and evaluates decision makings in meeting water, agriculture, energy, and resource demands of growth in trade and industry.

In the 1980s the increase of conservational activism was seen extending from Earth First! to far-reaching groups looking for severe state ecological regulation. Environmentally partitioned asset accounted \$625 billion in 1991 (Callenbach, 1993). On the other hand, during 1980s, Americas had seen the legal approval of industrial contaminators and the decline of support for environmental protection. National tax appraisal was cancelled for the development of alternative energies such as solar and water. Germany and Japan replaced the leadership of U.S. in developing solar energy by investments (Piasecki and Asmus, 1990).

The birth of the Sustainability Revolution was in 1972 due to the UN Conference on the Human Environment that was held in Stockholm and led to Brundtland report named Our Common Future, which was issued in 1987. These publications promoted activities that can save Mother Earth. The explanation of sustainable development in the report refers to 'development that meets the needs of the present without compromising the ability of future generation to meet their own needs.' This issue challenges everyone to apply sustainability as a major theme in businesses, schools

and even at home. This way the students can also prepare for the success of the world's future. Only humans can make changes good enough to slow down and prevent global crisis (Biloslavo, 2008).

Since then, as Mebratu (1998) states, numerous creative initiatives have been appointed at local, national and worldwide stages to acknowledge different factors of the ecological challenges. A lot of favourable local results have followed from these movements. But the effect in modifying the 'common future' in accordance with sustainability is low when compared against the depravity of the global challenges. The level of dissatisfaction increased even amongst the groups who promote the image of sustainability. Swallow (2009) also agrees that ecological challenges have been acknowledged, as phrases like global warming and carbon neutral are becoming common terms nowadays. Media is convincing consumers to be involved in 'green', in all the aspects of their lives, by adapting green techniques in everyday life. These different kinds of media influence can help people live in a better way that can also bring advantages to the environment. Numerous organizations started "going green" for the past few years, but the progress is still not high enough. It is believed that the Green Revolution can prevent the negative changes shaped by Industrial and Information Revolution. Adopting the new green business model principles requires new strategies and perspectives in order to reach the goals.

According to "Environment and Development" (2015), the European Union bears accountability to be involved with the developing world. Over 100 progressing countries worldwide receive assistance from EU (Official Development Assistance) amounting to more than €50 billion yearly, which makes the European Union the biggest donor in the world. The European Commission is accountable for management of €11 billion of aid each year. Furthermore, "Environment and Development" (2015) explains that environment, advancement and poverty are closely associated. The poorest countries usually depend on natural resources for their everyday lives and are consequently more exposed to environmental risks. Considering this, European Commission made sustainable and security management of natural resources as top priority in decreasing the level of poverty.

In March 2012, BLS (Bureau of Labor Statistics) conducted a comprehensive survey of green economy that includes green jobs, recognizes the organizations creating green goods and services, and estimates the quantity of jobs involved. These data provide introduction for assessing green economy. According to their data, the findings include that greener industries develop quicker than the general economy countries. Countries with more green implementations have usually managed better in the existing economic recession. Green employments are available to workers without a college degree. Manufacturing is significant in developing green economy and represents 20.4% of green jobs. Also, green jobs go past the renewable energy industry; as for example, nearly 50% of jobs in water industry are green jobs (Pollack, 2012).

Pollack (2012) continues with a statement that major point of green jobs concept claims that the changeover to a green economy from fossil fuel orientated economy

demands no net jobs loss. There will be fewer jobs in drilling oil and refining coals, but there will be a compensating gain in green jobs as the economy accustoms to more sustainable development. BLS (Bureau of Labor Statistics) data about green jobs also suggest that greener is also defined as faster growth. "Green Growth and Development" (2012) also explains that the problem in developing countries is that they are usually reliant on natural resources and this makes them prone to resource loss and environmental risks. They also have to deal with challenges regarding technical incapability and lack of financial capacity to cover these problems. These situations depend from country to country, energy, agriculture and forestry; however, green opportunities can be sought wherever the chances are.

Finally, "Green Growth and Development" (2012) concludes that efforts of all countries are necessary in order to achieve green growth. However, developing countries deal with harder and different obstacles than developed countries in making action plans. Achieving the vision of global green growth will only be successful when the implementing strategies also contribute to reducing poverty and create new job opportunities that can develop the economy.

3. GREEN BUSINESS DEFINITION AND RELATED TERMS

3.1 GREEN BUSINESS

Green represents the color of nature such as trees, plants, grass, and many vegetables. Green is now also the term that characterizes those organizations or businesses that are taking steps towards the betterment of the environment. Green is now the catchphrase for sustainability and conservation of natural resources. It is the word that describes knowledge about greenhouse effect, global warming, and the situation of our planet along with its occupants (Mintzer, 2009).

Weybrecht (2013) explains that Earth's challenges also became part of businesses. There has been a drastic increase in including sustainability practices in organization's processes at all stages, because the economic, environmental and social issues not only impact business itself, but also employees, customers and the communities in which they work. Even though numerous organizations go green so that they can leave a positive impact on Earth, they soon find out that the results are major in terms of actual business welfares, such as better quality of the outcome, reduced manufacturing costs, improved image of organization and greater customer satisfaction.

“Act as if what you do makes a difference. It does.”

William James

Karagülle (2012) furthermore explains that green businesses can be characterized as business activities which are applying concern for the environment. These activities may comprise of: the use of natural and organic materials in constructing facilities, including the environment when having decision making, environmentally responsible obtaining of supplies. Green business is to upgrade the quality of live while the environment is being safeguarded. The use of renewable energy sources, recycling, preventing the use of toxic materials are all eco-friendly activities.

Green businesses, according to "Going Green: A Guide to Greening Your Business" (2015), can be either small or big, owned by people of any race, religion or gender. They are often local businesses and that allows them to support the belonging community, create new local jobs and reduce their carbon emissions by sourcing and supplying goods or services within the community.

One of the significant meanings of green business is the thirst for sustainability. Sustainability is the manner of maintaining lifecycle, meaning that the lifecycle goes from nature and returns to nature. The things that come from the earth must be replaced. The issues concerning today is that the modern industrialization disrupts the environment which prevents the earth's capability to replenish itself. For the

business to be sustainable, continuous efforts have to be done which should not harm the soil, air, water, forests, and agriculture (Mintzer, 2009).

In addition, "Going Green: A Guide to Greening Your Business" (2015) divides the minimum requirements that make a green business truly green into four sectors. Therefore, for a business to be green it should: preserve or improve quality of the environment; provide a vibrant career path; provide proper wages and harmless working conditions; be comprehensive of race, age, gender and geographic variety. "Going Green: A Guide to Greening Your Business" (2015) continues that green businesses might also show commitment to social and environmental justice, by reducing greenhouse emissions, minimizing the waste, creating new employment opportunities, usage of renewable energy sources, preserving natural resources and applying the energy efficiency measures.

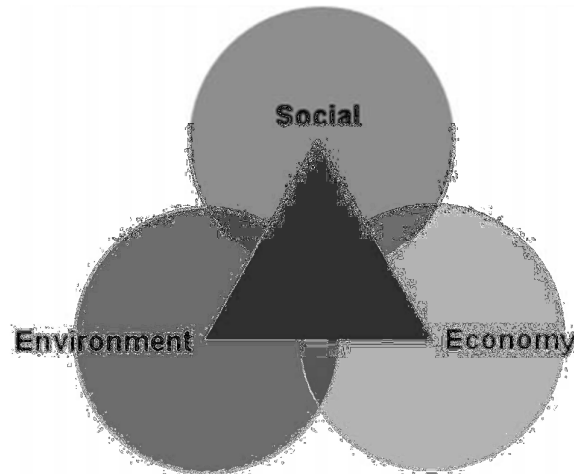
As described before, a business has to meet the requirements of present life without endangering the capability of future generations to do so too. That idea refers to the need for focusing the attention on the world being damaged by unsustainable industrial and agricultural processes, and dependency on non-renewable resources (Welford and Starkey, 1996).

3.2 SUSTAINABLE DEVELOPMENT AND GREEN GROWTH

Whilst referring to the same endpoint, there are many different existing definitions of that matter. Mebratu (1998) explains that in the 1980s, some proclaimed that sustainable development was no more than a catch phrase that eventually would wither out as the concept of appropriate technology of the 1970s did. Contrary to this belief, the influence of the concept has increased significantly in national and international policy development, making it the core element of the policy documents of governments, international agencies, and business organizations. This has led to a widening of the discourse on the concept of sustainable development, resulting in a wide variety of definitions and interpretations.

The most known and used definition is the one from 'Our common future' which dates back in the 1987 and goes as this: "*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.*" (Brundtland, 1987)

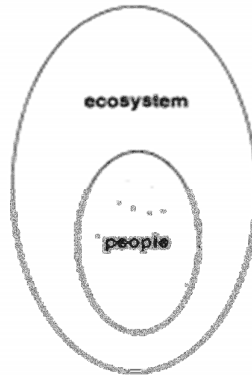
According to Serageldin, Steer, and Hetzner (1994) sustainable development consists of three primary sectors which include society, environment and economy. They are also known as 'three pillars' or 'three dimensions' (Picture 28).



Picture 28: The three-pillar basic sustainability model. (source: Marco Keiner, 2003, RE-EMPHASIZING SUSTAINABLE DEVELOPMENT – THE CONCEPT OF ‘EVOLUTIONABILITY’, http://www.zef.de/uploads/tx_zefnews/a7b9_Keiner_Evolutionabilty.pdf, page 381)

Accordingly to Andreas, Cooperman, and Gifford (2011), most small companies start off with small and inexpensive initiatives towards sustainable development, and then later on after achieving measurable success results, move on to more ambitious steps. Based on their research they were able to confirm that sustainability works also for small business and that it is not strictly about being green, as it also preserves human capital.

IUCN (1997) recognizes two key features when it comes to explaining sustainable development. Accordingly to their model, ecosystem and people are treated equally, where people represent the integral section of the ecosystem (Picture 29). They can live in sustainability only if both the state of ecosystem and human condition are decent or improving.

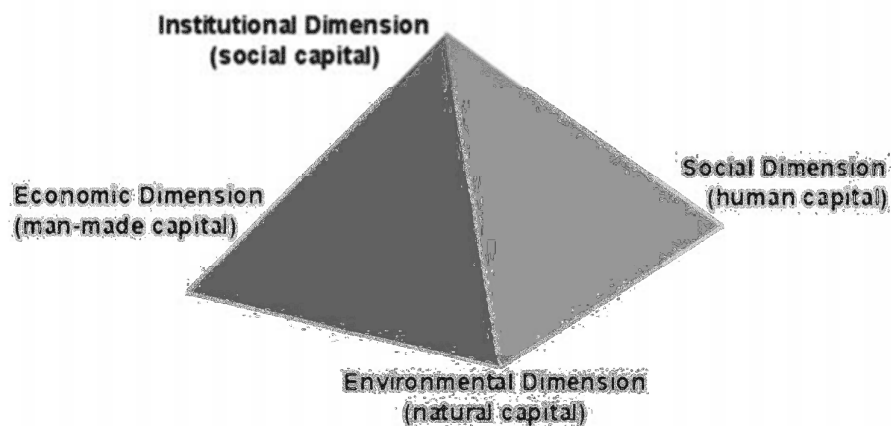


Picture 29: 'Egg of sustainability' by IUCN. (source: IUCN, 1997, <http://idl-bnc.idrc.ca/dspace/bitstream/10625/14030/1/107340.pdf>, page 10)

“I think when sustainability begins to drive business practices instead of greed; we'll evolve as a species.”

Tom Kay

According to Pearce, Markandya, and Barbier (1989), sustainable development consists of economic system planning and social system developing, which safeguards the achievement and continuously improvement of goals. The result of that will show in improving general quality of life, rise of educational standards, increase in global health status, and more. On the other hand, IUCN/UNEP/WWF (1991) present sustainable growth in more environmentally related way, by defining it as the conflict of terms. On one side there is development and growth whilst on the other side it is clear that no physical thing can grow infinitely. Sustainable usage is therefore only pertinent to renewable resources. Finally, sustainable development means improvement of quality of life without compromising the carrying capacity of environment.



Picture 30: The prism of sustainable development. (source: Stenberg, J. (2001): *Bridging gaps—Sustainable Development and local democracy processes.* Gothenburg. Page 42)

Sustainable development, as Hopwood, Mellor, and O'Brien (2005) describe it, is an often used phrase that can be understood in many different ways (Picture 30). In wide-ranging meaning the idea of sustainable development refers to an endeavor to combine rising concerns regarding social, economic, and environmental issues.

Sustainable development, according to Welford (1996), is closely linked with the three issues. First is the environment, which is the essential part of economic development. Environmental resources have to be secured and this means minimal usage of non-renewable resources and less discharges of contaminants. Second is equity; developing countries would like to quickly attain the same levels as those developed countries, which can cause environmental impairment. The third issue is futurity; in developing sustainability, it necessitates that companies, individuals and societies operate in different period of time. Because of competition in industry, companies are pressured to achieve more, in short time, which compromises the long-term protection of the environment.

Organizations are stimulated to create a 'social responsibility committee', accountable for setting corporate policies regarding sustainable development and for dealing with matters such as environmental protection, safety and health (Deloitte and Touche, 1992).

Holdgate and Synge (1993) refers to respecting the boundaries of use of natural resources when it comes to sustainable development, even though the boundaries can be adjusted by technology.

Green growth is also well-defined by OECD as developing the economy whilst ensuring that natural resources are being well preserved for our continuous well-being ("Green Growth and Developing Countries", 2012).

Sustainable development is disturbed by the development of the society when the costs of development aren't conveyed to upcoming generations or efforts are made to recompense off for such costs (Pearce, 1993).

3.3 ENVIRONMENTAL, SOCIAL AND ECONOMIC SUSTAINABILITY

Mebratu (1998) explains that Thomas Robert Malthus is supposedly the first economist who predicted the limitation in economic development due to natural resources deficiency. By 1798, many negative effects such as poverty, unemployment, and illnesses occurred due to industrialization period. According to Malthus, these negative events occurred due to productivity of human race, which led to Malthus' theory of population. This theory explains that unrestrained population rises geometrically, whilst subsistence rises arithmetically at best. Malthus and David Ricardo, economist who agreed with Malthus's population theory, suggested "environmental limits thinking" which refers to boundaries on the provision of high quality agrarian land and the subsequent fading earnings in

agricultural production. According to Malthus, the fading agricultural returns reduced the per person food supply, because the land available for agricultural purposes was fixed, whilst the population grew. In addition to that, Ricardo suggested a more complex model in which economic growth eventually weakens due to lack of natural resources. Vijayaraghavan (2012) carries on with explanation that natural resources such as water, biodiversity, fossil fuels and air are the components of an outstanding business. The swift exhaustion of these resources can threaten the businesses that absolutely depend on them. Companies must be aware of the restrictions of environmental depletion to be able to withstand. The social obligation of an organization is not simply the limiting feature of its responsibility to social and environmental security, but also towards the preservation of an organization itself. Businesses therefore cannot merely focus on making profit but also have to maintain the interest in building society.

In addition to that, Wilson and Bryant (1997) describe humanity as needy for the use of environment in order to be able to survive but without conservation application, long-term environment deprivation sets in, alarming human existence. This continuing pressure between exploitation and preservation has always remained the core of environmental management; yet, a vital characteristic of human development is environment consumption, which increases the level of uncertainty. Moreover, there are two features to historical development of human-environment relationship that Wilson and Bryant (1997) define. First is that the growth of human population has a great effect on the environment. Second are the changes in lifestyle due to continuous technological advancements and innovations which resulted to greater effect on environment. These historical impacts have major role in how environmental management is done. As the population increased, the number of environmental managers also increased.

Environment is vital for human wellbeing and health, therefore it should be preserved. However, the connections between the health of human beings and the environment are very difficult to evaluate. This marks the usage of the preventative principle particularly convenient. The most known health impacts are linked to air pollution of atmosphere, insufficient sanitation and reduced water quality; whilst less is known regarding health impacts of hazardous chemicals. Noise is also an evolving health and environmental issue. Climate change, damage of biodiversity, reduction of stratospheric ozone and land degradation are also leaving an effect on human health (EEA).

Deloitte and Touche (1992) point out that to certain people, environmental preservation and sustainable development are understood as equals. For some companies, a complete environmental performance is one of the short-term objectives, whilst sustainable development represents a long-term objective, which can lead to confusion. In developing countries, the main focus is on sustainable development, while in already developed countries, they concentrate more on environmental management. According to Swallow (2009), sustainability framework requires four major transformations in the way how organizations operate; revision of production system, shift towards service and flow business model, investments in

natural capital, and use of new technologies in order to increase the level of production. These changes are inter-reliant and are all important in pursuit of achieving sustainable economic development.

Additionally, our planet's carrying capacity is limited and therefore population will have to stabilize. To achieve this, people worldwide must live in harmony and that would be easier if the distributions of resources and wealth would be equal. By giving more importance to the quality of life than the quality of material usage, it will be easier to lessen the distance between the poor and rich. To succeed in this metamorphosis, a revision of how activities are done should be made. Businesses are in the center of this challenge. Employers and employees must be involved in refocusing the corporate mission, objectives and approaches in order to easily cope with the changes and to be able to do it faster. This can also increase the companies' reputation and relationship with customers and clients, and allow them to be more competitive (Welford and Starkey, 1996).

The World Bank identified 2301 special economic zones in 119 countries, which represent about US \$200 billion in gross distributions each year. The present economic crises give opportunities to emphasize new development ideas which aim to achieve environmental and economic sustainability. To attain sustainability in the economic specter, special economic zones have to form a business environment that serves as a foundation of cluster-based economic system and assist the progress of entrepreneurialism, productivity and innovation. To attain environmental sustainability, special economic zones have to abate their own environmental footprint and that of their supply chains (Pitelis et al., 2011).

In direct connection with sustainable development, green economy, as defined by Sukhdev, Stone, and Nuttall (2010), is economy that can enhance human well-being and common social justice whilst decreasing the risks and shortages of natural resources. Green Economy increased investments in economic segments that improve the Earth's natural resources and reduce ecological scarcities and risks. These segments include sustainable agriculture, fisheries, low-carbon transport, energy conservation buildings, renewable energy, and forest management.

According to "GreenGAB", green economy consists of economic divisions which aim to generate prosperity and jobs by manufacturing goods and providing services which assist preservation of environmental quality. It is a worldwide collection of all kinds of organizations; all satisfying the needs of people through responsible exchange and manufacturing of goods and services.

Because of the damages done to the environment, global economy is experiencing pressure to restore all the harms made. This economic engine is also being requested to solve other problems as well. To continue economic and environmental development, these problems must be solved in a sustainable method (Deloitte and Touche, 1992).

Pitelis et al. (2011) confront the myth which claims that economy should be fixed first, before reaching out for sustainability achievement. In order to fix the economy, reduction in fossil fuel dependency is needed. They also make clear that the costs of emissions reduction include manageable investments, which normally result as very profitable. Pitelis et al. (2011) also oppose a saying which states that regulations and markets are in opposition. They can also perform in complementary roles; cap and trade, regulation and tax are all approaches and incentives, which can be employed to structure for achieving success.

Companies obviously have a part to play in the growth of alternatives to non-renewable resources and improvements which lessen waste and manage energy more professionally. One of their many roles is also to process their materials in such way that can bring advantages to the environment. For numerous products like vehicles and washing machines, the main area of environmental impairment happens during usage of the product. Companies often have the chance of dropping this impairment in the design phase and when new productions are settled there is another opportunity for considering equally the use and discarding of the product (Welford and Starkey, 1996).

Pitelis et al. (2011) oppose the saying which claims that lowering the emissions will result in losing jobs and reduced growth. In fact, as they explain, clean energy development will probably encourage growth and jobs creation. Furthermore, in order to solve the problems, developing and developed countries should start working on the problem together. There is no time for waiting. By 2020, abatement of 17 Gt CO₂e is required, whilst only 5 Gt CO₂e abatement can be reached in developed countries by using current technologies.

"Green Growth and Developing Countries" (2012) makes clear that developing countries have enormous opportunities for getting the most out of the interaction between economic and environmental sustainability. Emerging countries can adopt green growth approach and consider environmental issues in their infrastructures and decision making to improve not only their businesses but also the economy and livelihood.

Pitelis et al. (2011) also contradict to the common saying that we have time to wait. They explain that waiting will cause a considerable intensification in costs and risks. According to the researches there is 80% probability of sustaining a less than 2 degrees Celsius growth in temperature if carbon will be limited to 400 parts per million. However, they continue, if carbon is limited to merely 500 parts per million, the probability of sustaining a 2 degree Celsius increase in temperature will drop to 40%. The longer the necessary actions are delayed, the more will have to be done in the future and the bigger the consequences of environmental degradation will be.

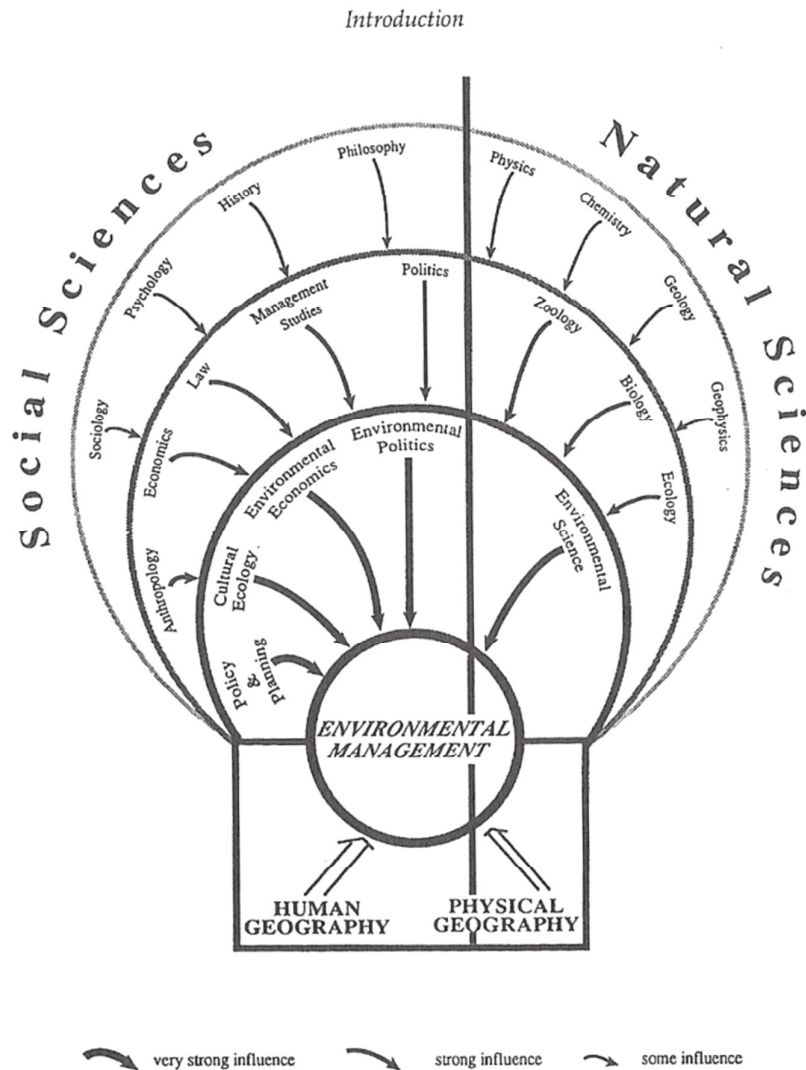
The general agreement grows that we must plan to have zero discharges from fossil fuels in order to have an effect on the course of climate change. Removing the connection between economic development and energy usage is the only way to resolve environmental and economic issues in the near future. New ideas and

technological transformations have an important role in helping the economy become greener, by efficient resources management and low-carbon growth (Cedefop, 2015). Therefore, the aim of environmental companies is to achieve their corporate goals with compliance with the regulations of sustainability. The continuous development of businesses can cause pollution in the atmosphere and environment, so the sustainable development implies the difference between economic progress and environmental excellence. Businesses are coping with the challenges of taking the environmental issues into consideration in their marketing strategies and production. Environmental legislation increased the penalties for companies that hide their pollution (Welford, 1996).

Welford (1996) explains that 'ROAST', which is a scale method, was established to measure environmental performance. The five points of 'ROAST' scale represent: R - resistance, for total resistance to environmental values and regulations; O - Observe and comply, a business that observes and complies with the laws of environment; A - accommodate, a business that adapts to environmental change; S - seize and preempt, when a business voluntarily seizes and preempts its activities that connect it with environmental issues; T - transcend, when business' values and attitude fully support the environment.

Environmental policies and laws serve the objective of lessening the amount of pollution in the surroundings that is being done by humans due to development of industry and other economic undertakings. Each policy is specific to different segments of the environment such as air and water. This regulatory of the government helps the industry to limit its pollution, which benefits human and environmental health (Theis and Tomkin, 2012).

As Wilson and Bryant (1997) explain, it is vital to separate two dissimilar methods in which environmental management is practiced. First, environmental management can be a multi-layered procedure in which many kinds of environmental managers collaborate with the environment and with one another to pursue a living. Crucial here is how environmental managers search for probability in their environmental management performance in uncertain society and environment. Second, environmental management can be a field of study distinguished by a set of ideas and methods that interconnect in a different way. The second stresses the necessity for integrative understanding of human-environment relationship. Wilson and Bryant (1997) continue with an idea of a more difficult set of disciplinary influences entering the connection between social sciences and environmental management (Picture 31). This follows rationally from considering environmental management as a multi-layered method. Particular disciplines are more significant than others; such as policies, economics and anthropology, while philosophy, history and psychology are secondary influence on environmental management.



Picture 31: Disciplinary impacts on environmental management. (source: Geoff A. Wilson, Raymond L. Bryant, 1997, *Environmental Management: New Directions for the Twenty-first Century*, Page 16)

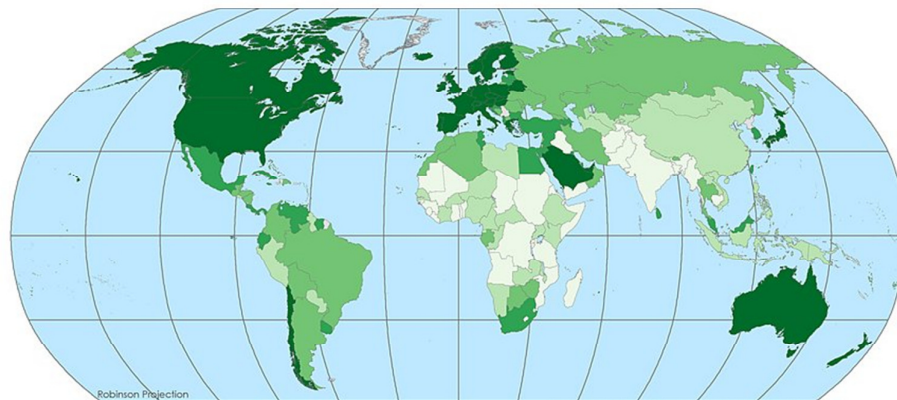
An environmental management system is a structure that supports a company in reaching its environmental objectives through continuous regulatory of its operations. The notion is that this improved control will increase the environmental performance of the business. An environmental management system also assists an organization in addressing its regulatory demands in a methodical and profitable manner. This positive approach can help by diminishing the risk of non-compliance and improve health and security performances for employees and the community. The basic elements of an environmental management system are reviewing the business' goals for the environment, examining environmental effects and legal

requirements, setting environmental goals to lessen environmental effects and therefore to comply with the requirements, launching programs to meet the set objectives, monitoring the progress, ensuring employee's awareness and competence, and reviewing the progress of environmental management system and creating improvements (EPA, 2015c).

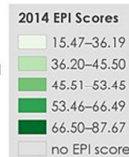
Additionally, EPA (2015c) clarifies that the benefits of an environmental management system are improved environmental performance (Picture 32), improved compliance, prevention of pollution, conservation of resources, new consumers and enhanced image in public. The potential cost are the time that is required for training of managers and other employees, potential consulting assistance and outside training personnel.

2014 EPI

Environmental Performance Index (EPI)



The 2014 EPI ranks 178 countries on 20 performance indicators in the following 9 policy categories: health impacts, air quality, water and sanitation, water resources, agriculture, forests, fisheries, biodiversity and habitat, and climate and energy. These categories track performance and progress on two broad policy objectives, environmental health and ecosystem vitality. Each indicator has an associated environmental public health or ecosystem sustainability target. The full report including a complete description of the EPI, underlying data sets, and methodology is available online at the NASA Socioeconomic Data and Applications Center (SEDAC).



Picture 32: Environmental Performance Index from 2014; by Yale University & Columbia University; ranking countries according to points acquired. (source: <http://sedac.ciesin.columbia.edu/data/collection/epi/maps/gallery/search>)

Environmental management system inspires businesses to improve their environmental practices. This system must be continuous in order to attain its goals. The business first obliges to policies regarding the environment, then establishes plans depending on the policies and sets objectives for the improvement of environmental practices. Next is implementation, followed by the evaluation of its performance to check if the objectives are being met. If not, it needs to take corrective actions. The top management is responsible for reviewing the results to know if environmental management system is effective. Environmental policies can be checked by the management and make new objectives and revision of plans. The

business can then implement the new plan. Therefore the cycle repeats and improvements follow continuously. ISO 14001 standard's framework, which is also the international standard for environmental management system, is the most commonly used guideline for an environmental management system (EPA, 2015c).

Sadly, as Pitelis et al. (2011) conclude, the past of economic development parallels the past of environmental degeneration. Normally, Economic growth happened in incredibly straight proportion to increased production waste, energy consumption, carbon emissions and many further activities dangerous to the environment. Fast economic development, in countries such as India, Brazil, China and Russia, caused environmental degradation. On the other hand, countries on the front of environmental sustainability such as Finland, Sweden and Norway, have built strong economies and are now capable of affording environmentally sustainable progress efforts, even though environmental harm has occurred at an earlier phase of their industrialization development. As climate change turns out to be a crucial problem in 21st century, the idea of environment and economic mutual exclusivity is getting tested. New strategies are recognizing that growing inefficiencies result in environmental degeneration and also reduce economic competitiveness. Demand for environmentally sustainability can only be achieved by moving to a more environmentally sustainable economy. Hence, environmental sustainability grows into an essential fragment of economic sustainability.

3.4 GREEN PRODUCTS

There are extensive discussions over what exactly makes a product “green”. If a product itself and its design, production, packaging and source materials have lower impact on the environment than conventional products of its kind, then the product could be reflected as a green product. For instance, non-toxic cleaning supplies in comparison with conventional ones represent a green product. ("GreenGAB")

According to Ottman and Books (1998) green products represent products that are made out of recycled materials, use minimum packaging, and are non-toxic and usually durable. It is important to know that all products require resources and energy for their creation, and also create a chain of activities, such as manufacturing process, transportation, disposal, storage, which will all leave certain impact on the environment. Therefore green is a relative term, which refers to products that make less impact on environment than their alternative products.

Green products are designed to diminish its impact on the environment, or even benefit the environment, during their whole life-cycle. Normally that applies when toxic substances are avoided, renewable resources implemented, and the use of nonrenewable resources is minimized (Albino, Balice, and Dangelico, 2009).

Finally, Pickett-Baker and Ozaki (2008) explain that environmentally sustainable products are hard to define due to the complexity of the term. Generally speaking, all

the products that we buy and use will leave negative impact on the environment at some point of their life-cycle, therefore there are no truly green products.

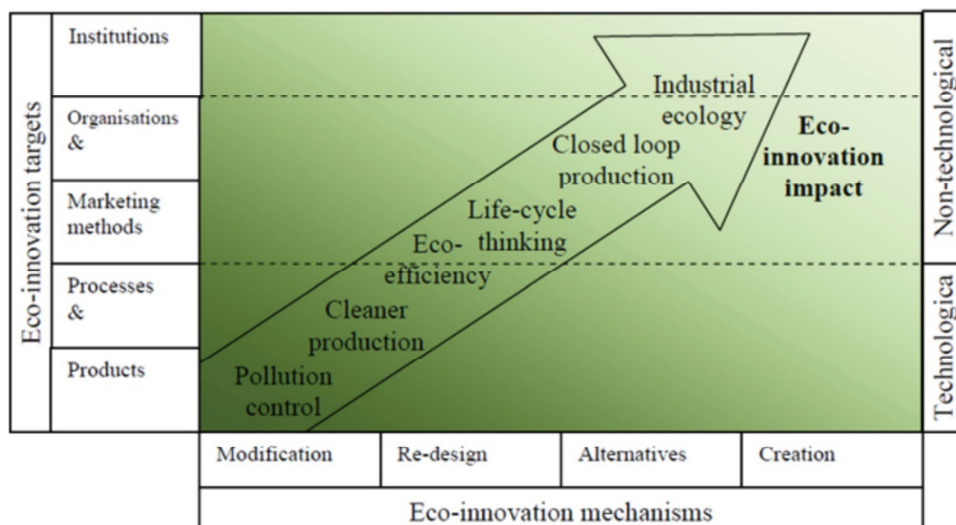
3.5 ECO-INNOVATIONS

Sezen and Çankaya (2013) suggest that eco-innovation became one of key tactical tools to gain sustainable growth in manufacturing activities because of growing ecological pressure. Before that, majority of organizations saw investments in environmental activities as unnecessary. Strict regulations regarding environmental preservation have caused a change of perspectives and competitive rules for organizations.

Cheng and Shiu (2012) classify eco-innovation in three primary classes, which include innovation of eco-products, eco-processes, and green management.

Kemp and Pearson (2007) describe eco-innovation as the creation, adjustment or exploitation of a production process, business model or product itself. The result shows in reduced pollution and ecological risks, as well as reduced negative impacts of resources usage, in comparison to related alternative methods.

The main aim of eco-innovation focuses on systematic alignment of sustainability initiatives in organization's strategy plan (Picture 33). This strategy should then be implemented throughout the whole life-cycle of the product, from its creation and supplied materials to its consumption (Jones, Clarke-Hill, Comfort, and Hillier, 2008).



Picture 33: Theoretical relations between eco-innovation and sustainable manufacturing. (source: Machiba, T. (2010): *Eco-Innovation for enabling resource efficiency and green growth: development of an analytical framework and preliminary analysis of industry and policy practices. International Economics & Economic Policy, Vol. 7, Issue 2/3, pp.357-370*)

3.6 GREEN CONSUMER AND GREEN MARKETING

Swallow (2009) categorizes green consumers into three major sectors, which include 'Pine Greens', 'Jungle Greens' and 'Moss Greens'. 'Pine Greens' represent highly informed consumers that are up-to-date with modern market niches like organic whole foods, ecotourism, etc. After stagnating for a long time, the number of people belonging to this category is finally increasing. The second category are 'Jungle Greens'; consumers who are eco-friendly and trendy, due to the mass green media. Those consumers are normally educated, with disposable earnings, and are growing in numbers. Last category consists of 'Moss Greens'; consumers that are either not willing to change their habits and spend money on green products or not concerned with environmental and social issues. They usually move in the green market in order to look for saving methods, such as energy savings.

"Green Growth and Developing Countries" (2012) confirms that consumers also leave an impact on green growth. Buying products that are environmentally friendly, such as energy efficient products or recyclable products, makes a significant impact on green growth development.

On one hand, the demand for eco-production lines, eco-services, and green business processes is growing due to a rising amount of green consumers. On the other hand, organizations have to adapt long-term green thinking over short-term profit based thinking in order to avoid continuing abuse of natural resources and global inequity growth, which are causing irreversible damage to our population and the planet (Swallow, 2009).

"GreenGAB" refers to green marketing as a marketing strategy which promotes social and environmental benefits of green services and products. The main goal of green marketing is to present positive things that a certain organization does to preserve environment or/and to present negative impacts of conventional alternatives.

According to Swallow (2009) there is plenty of research regarding green market at our disposal. Green consumers are found all over the world and they include people of all races, religions and countries. However, she continues, there are some interesting similarities between people to be found within the green market. Some of those report that the total willingness to pay extra for green products is rising; that people decide to buy green products mostly because of a wish to make a difference; and that women more often respond to environmentally driven marketing campaigns.

3.7 GREENWASHING

Whilst many efforts can be reflected as positive for the environment, numerous organizations are guilty of greenwashing, which refers to an organization marketing

itself as environmentally friendly whilst it is merely going through some small green gestures when more important factors are hidden behind those gestures. For instance, some organizations advertise the products as organic whilst they don't mention the pollution or energy inefficiency that is caused by their factories. Before buying products or investing in organization, it is better to be sure that organizations practice what they preach, as there are numerous environmental standards and regulations serving as guidelines, to help find out if certain products or organizations are truly fitting in green industry (FranchiseHelp, 2015).

Kahle and Gurel-Atay (2013) refer to greenwashing as a form of public relations in which green advertising is dishonestly used to advertise the awareness that an organization's products and policies are environmentally friendly.

Proof that certain organization is using the method of greenwashing usually comes from indicating the expenses for the time spent in advertising in comparison to the time spent for the actual benefits achieved by environmentally sound practices (Greenpeace, 2015).

3.8 GREEN CERTIFICATION

Since 1990s the sectors which include agriculture, forestry, tourism and fisheries started implementing numerous certification schemes. The worldwide demand for certified products has been rising swiftly, mainly due to consumers who want to avoid buying products that damage the environment. Certification schemes normally consist of the following components: set of standards, auditing process, tracing process and labelling of the product. Green products that are certified can grow their value in the market and share for contributing producers, therefore contributing to economic development whilst improving environmental performs and ensuring long-term resources sustainability ("Green Growth and Development", 2012).

"GreenEnergyEfficiency" explains that green certification is an accreditation that distinguishes that a business has followed the standards established by a certifying body which concentrates on endorsing eco-friendly activities and sustainability approaches. Many customers currently want products or services that are eco-friendly, that's why many people seek out green businesses before buying certain products. It is an advantage for the business to grow the number of their consumers, therefore also to be green, since consumers want to determine which businesses comply with certification programs.

In order to distinguish that certain product or service is truly environmentally friendly, certification from an organization should be secured. Becoming certified implies that eco-labels can be included in products' label and promoting supplies. These eco-labels are appealing to consumers which can increase the value of the brand (SBA).

Some of the main ecolabeling certifications, according to Swallow (2009), include:

- Certified organic (COG) by USDA – United States Department of Agriculture, which assures that products originate at certified organic farms/facilities;
- MSC Certified by Marine Stewardship Council, which assures that product was captured in the wild using sustainable fisheries practices;
- FSC certification by Forest Stewardship Council, which provides three kinds of certification relating to forestry management practices and forest-related products;
- Various Fairtrade certifications by Fairtrade International organizations, which assure that strict economic, social, and environmental criteria were met in production and trade;
- Leadership in Energy & Environmental Design (LEED) by World Green Building Council member organizations, which includes point-based rating system for green building. Four levels of certification are available: platinum, gold, silver, and certified;
- Energy Star by EPA - Environmental Protection Agency, by which homes are rated on a Home Energy Rating System (HERS), and appliances/electronics are given ratings based on attaining high energy-efficiency levels;
- Green Seal Certification Mark by Green Seal, which assures that certified products have been scientifically evaluated for their environmental impact, based on Guiding Principles and Procedures for Type I Environmental Labeling adopted by the International Organization for Standardization (ISO);
- Cruelty-free standards by Coalition for Consumer Information on Cosmetics, which assure that no animal testing is done in any phase of product development by the company or its supply chain.

The ISO 14000 group of standards by International Organization for Standardization, offer useful tools for organizations of all types that wish to manage their environmental duties. ISO 14001:2004 and its associated standards such as ISO 14006:2011 focus on environmental systems in order to realize this. Other standards in ISO 14000 group focus on particular approaches such as labelling, audits, life cycle analysis, communications, and also on climate change and other environmental challenges. However, it is important to know that ISO does not offer and is not included in certification. That is done by external certification bodies. At ISO, International Standards such as ISO 14001 are merely being developed (ISO, 2015).

3.9 CARBON OFFSET AND CARBON CREDITS

A carbon credit, in accordance with Carbonfund.org (2012), is a term for tradable certificate representing a right to own one tonne of carbon dioxide. If a business is under a cap-and-trade arrangement, they normally have an allowance of credits which they may use toward their cap. If the purchased credit isn't fully used, meaning that fewer emission were released than those allocated in the credit, the owners can do whatever they like with the credit – trade it, hold it or sell it. Likewise, if an organization exceeded the allocated emission releases, they need to

buy enough credit to be in compliance. Therefore, a credit is tradable, like an offset. When credits are sold, the allowances go to the new owner.

A carbon or greenhouse gas offset, on the other hand, is a unit of CO₂e, carbon dioxide-equivalent, which is prevented, diminished, or compensated for emissions that occurred somewhere else. These offsets are measured in tons, and are substitutes to direct reductions to meet greenhouse gas objectives in a cap-and-trade method. The expenses of meeting the greenhouse gas reduction aims of a cap-and-trade plan can be reduced by purchasing offsets in circumstances where decreasing greenhouse gas emissions at uncapped sectors or facilities is cheaper than at capped sources. Numerous organizations presently purchase greenhouse gas offsets to assist voluntary commitments to lessen greenhouse gas emissions (Goodward and Kelly, 2010).

Cap-and-trade system refers to trading emissions that can reduce pollution and at the same time, provide economic incentives. Government or other authority limits the amount of emissions, and businesses are allowed to issue permits provided that they must have sufficient number of credits. Businesses purchase credits from other companies with less pollution; therefore credits are being traded on carbon exchanges (Andreas et al., 2011).

Carbonfund.org (2012) elaborates that creation of carbon credits is the result of carbon offsets, which reduce the emission releases of carbon dioxide in a form of a real project with clear boundaries, project documents and plans. Some common carbon offset projects include wind farms building, tree planting, forest restoration, and truck stop electrification projects. A carbon offsets come from a third-party certified projects that generate carbon credit. Carbon dioxide has global effect, meaning it does not affect us through acid rain or smog. Both carbon credits and offsets have the same reduction in discharges of carbon dioxide and benefits to the planet. Goodward and Kelly (2010) confirm that offset holders need to be able to claim the right to greenhouse gas emission reductions of a project, typically through contractual means. Majority of offsets bought and sold nowadays are certified by a third party entity, which delivers a 'seal of approval' that clarifies that the offset is providing the assured emission decrease benefit.

Furthermore, the offset project must meet the vital criteria for a carbon credit to be legal. Project of a good quality must also focus on matters around permanence and leakage; meaning that it will deliver stated reductions and ensure that emission abatement in a certain area does not cause a rise in emissions in another area (CarbonNeutral, 2015a).

Goodward and Kelly (2010) describe five criteria that an offset credit must meet to get assurance of its integrity towards the environment. First criterion stands for 'real'. Greenhouse gases offsets should signify one ton of CO₂e greenhouse gas discharges reduced. Second criterion represents 'permanent'. Reductions in discharges are permanent if not reversible. Third criterion signifies 'additional'. Regulatory approaches try to guarantee that additional projects are capable of

acquiring credits. Fourth criterion represents ‘verifiable’. Reduction in emissions must be monitored and verified regularly by a qualified and independent third party. Last criterion stands for ‘enforceable’. It has to be possible to enforce ownership and use of the credit to prevent double counting.

The trading of carbon credits began in 1989 when a global power company AES, invested \$2 million for a reforestation project in Guatemala. This company made its investment for the belief that it can solve the problems towards the carbon emissions by enactment of laws that this procedure can give way to companies to reduce their carbon emissions and increase the number of purchasing credits. The money raised for carbon credit programs is to be used for promoting environmentally friendly activities such as tree planting and reforestation. Around \$100 million, according to World Bank, is offered in behalf of consumers yearly for these devotions (Scott, 2013).

On the other hand, (Scott, 2013) explains that unfortunately some of the money raised for carbon credit programs does not reach its projected purpose. Numerous tree planting projects do not even exist in reality, whilst other solar energy projects turned out to be a scam.

Carbon offsets have a chance to diminish climate change percentage, more than if every organization will reduce their own discharges internally. Carbon offsets enable businesses to diminish discharges in the most effective way. They support international development, transfer of technology, jobs, and trading of the countries (Carbonfund.org, 2012).

Additionally, Goodward and Kelly (2010) explain that buying and retiring high quality offsets are useful factors of a whole corporate emission reduction method once internal lessening opportunities are achieved. The cost of internal reduction compared to offsets is precise if calculated over a proper period of time, and if it involves all of additional non-CO₂ advantages of the internal reduction. Moreover, CarbonNeutral (2015a) makes clear that a reliable carbon management program must involve internal abatements, such as decrease of energy usage, waste, and business travel. For many businesses, the decrease of emissions will lead to negative impact on the business’ performance. At this stage, carbon offset program can provide greater revenues in relation of the emission reductions produced, which enables the business to meet its reduction objective and pay off for their impact on the environment.

Also, as Andreas et al. (2011) claim, state energy offices, cities and various kinds of organizations offer partnerships for carbon offsets to diminish the environmental impacts of a certain company.

There are two major markets for offsets; the regulatory market and the voluntary market. Regulatory markets are accountable for developing the standards for offset crediting and programmatic system, such as Regional Greenhouse Gas Initiative.

Voluntary market has no common standard for offset verification and measurement (Goodward and Kelly, 2010).

In addition, numerous voluntary standards were established to grant independent assurance of quality. A guideline provides a comprehensive list of qualification requirements for projects and procedure for calculating the diminished discharges of a certain project. These are usually done by third party auditors, who must verify that the project meets the standard (Goodward and Kelly, 2010).

Andreas et al. (2011) state that the amount of greenhouse gases created from using fossil fuels for power, transportation and other uses is one way to measure the effect of actions that a business or individual has towards the environment. Finally, according to CarbonNeutral (2015a), carbon offsetting alone can't bring the solution to global warming, but it can contribute in building low carbon economy that can provide benefits for the world. These projects would not be feasible without the finance brought by the sale of carbon credits.

4. GREEN BUSINESSES IN PRACTICE

4.1 STARTING A GREEN BUSINESS

Besides commitment to certain green practices, all organizations should consider going truly green. A new business model does not require extensive learning; it only requires commitment and new way of thinking. Majority of organizations can be adjusted to a business model that is environmentally friendly (Harrington, 2010).

Swallow (2009) confirms that transforming a business to a sustainable organizational model is a matter that requires a major change of perspectives. Economic objectives have to be accomplished while observing the restrictions of the environment. The advantages of acting sustainably are the fast effects. Employees will start to offer innovative green ideas and consumers will inquire about the fresh green spirit.

According to "Going Green: A Guide to Greening Your Business" (2015), businesses that were not originally established on sustainable principles can become green businesses. Most companies deal with sustainability as an option which they can disregard on purpose without any consequences. The market and the government though, place greater importance on sustainability and therefore becoming green business will be a necessity for the survival of a company.

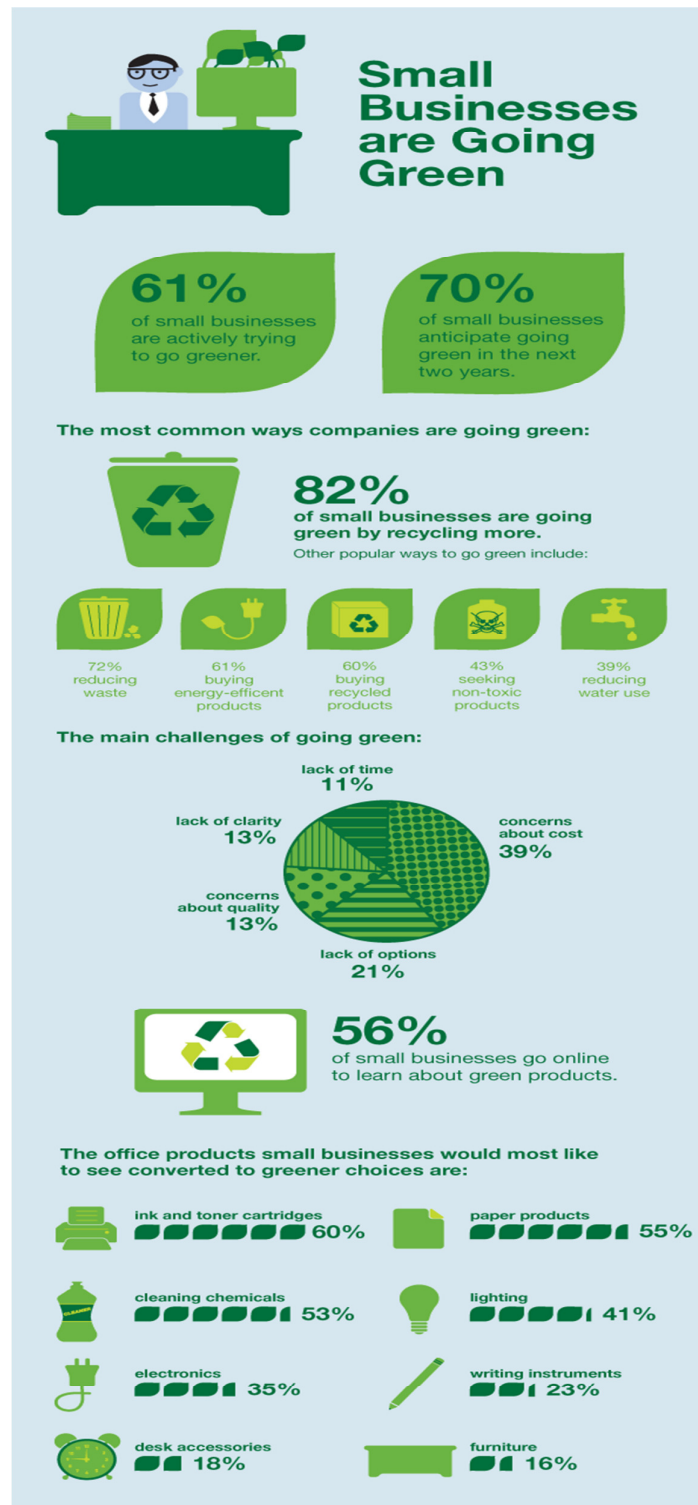
For a green development strategy to be efficient at the international level, it requires to be striking enough to both industrialized and emerging countries, comprehending that there are mutual but discerned realities in different areas across the globe. Guidelines and goals need to be attainable, taking into consideration domestic conditions and priorities, the international economic framework, and poverty mitigation goals ("Green Growth and Development", 2012).

"GreenOnlineBusinessGuide" explains that one of the most important steps in having a green business is to concentrate on the business' goals and vision. Having a straight vision will help the business process greatly. Furthermore, when it comes to starting a green business, it is important to identify and write down the skills, knowledge, experiences, interests and other assets, and to identify a demand in the market that the organization can meet and to find ways to earn profit from it. Business plan that includes a vision, mission, problems, the target market, objectives, strategies to achieve objectives, marketing strategies and capital sources, also has to be made. Likewise, when creating a business venture it is necessary to choose the type of business (Sole, partnership, limited liability company, corporation or cooperative). The project then needs to be financed in order to start running. It is vital to know that starting a green business is a continuous process that requires patience and flexibility. Swallow (2009) adds that sustainability is an adventure of important organizational tasks which also include having a comprehensive business plan. The importance of having complete preparation in sustainable development is to evaluate the global

effect of the business and be committed to sustainability during decision and strategy making. The outcome of the plan must be able to lead all people in the company towards making efforts in becoming a truly green business.

The first tip in making a business green, according to "Going Green: A Guide to Greening Your Business" (2015), is to be aware of what it means to become green. It is also important to know which areas (environment, social justice, human health) are the most affected by business' operations. Second is identifying a "green team" which will be dedicated to environmental and social equity issues, and will guide the business' efforts to become greener. Third is to measure the releases of greenhouse gas emissions and reduce them by applying methods such as minimizing the quantity and distance of shipments of the business, conserving energy and minimizing the travel time. Fourth is the efficient use of energy and education of staff about proper energy use. Applying energy efficient appliances and conducting energy audits is also important. Fifth is water conservation. Checking for any indoors or outdoors leaks, designing landscape that minimizes water, chemical, and fossil fuel usage, and installation of faucet aerators and low-flow toilets are only some of the ways to conserve water. Sixth represents provision of green-collar jobs which will add-up to a more sustainable community. Seventh is decreasing the amount of paper waste and choosing better quality papers. Eighth is preventing long toxins exposure of employees by purchasing environmentally friendly equipment and implementing green cleaning services. Ninth is becoming a green consumer in green supply chain, by choosing environmentally conscious local suppliers who offer environmentally friendly products with less packaging. Finally, getting green business certification is mandatory for maximum exposure to consumers who are environmentally conscious. A traditional corporate plan aims to illustrate the financial viability of the projected venture, whilst green business plan also demonstrates impacts on the environment and society, which is called the triple-bottom-line approach that measures its accomplishment in accordance with the effect on people, planet and profit. Moreover, a green business plan has to explain how the company can help in preserving or enhancing the environment, and how it will make improvements in the society. It should also be illustrated that the business plan's proposal is socially just, economically viable and environmentally friendly ("The Green Business Plan Guide", 2015).

Weybrecht (2013) describes guidelines which should be followed when implementing sustainable practices. Sustainability is a part of almost every organization and can be started in the smallest way possible (Picture 34). What matters the most is that an organization continues these practices, which can lower all costs and can generate higher revenues. One positive change in a certain area can lead to more benefits in other areas; for instance, implementing ecofriendly features to a product can lead to bigger production demand and savings. When these practices become a value of a company, the positive effects will be stronger. The leaders and the employees must work together to achieve sustainable goals.



Picture 34: Environmentally conscious business development. (source: http://www.officedepot.com/a/promo/pages/071512_greenbusiness/)

Furthermore, Harrington (2010) says that there are numerous steps to make a company greener, no matter what kind of business it is. Using compact fluorescent bulbs instead of incandescent light bulbs, usage of alternative energy resources when possible, nontoxic dry walls when constructing new space, using paint which consist of low volatile organic compounds, choosing recycled paper, diminishing the quantity of paper used for hard copies, and considering all-telecommuting office are only few possibilities when it comes to greening an organization. Swallow (2009) elaborates that sustainability efforts in a certain office can also bring various positive effects such as improved energy efficiency and reduction of waste. Creating new parameters for office equipment can improve energy effectiveness and the recycling capability of electronic waste. Shifting to nontoxic office cleansers can enhance the quality of indoor air which provides a healthier working environment.

"Smart steps to sustainability" (2009) proposes five steps towards business sustainability. Firstly, there has to be a strong commitment along with a business plan. Employees should be engaged in greening activities, compliance should be assessed and environmental knowledge gained. Secondly, it is important to assess organization's impact on the environment and select the best approach for greening the business. Thirdly, greening goals need to be set along with the actions to achieve them. Fourthly, it is important to keep on following the vision together with other employees, by implementing the greening strategy. Lastly, continuous development and innovation should be ensured. This includes the ideas of updating goals and measuring progress.

CarbonNeutral (2015b) describes tips and hints for using social media when it comes to promoting green business. Once the goals are determined and suitable mediums for targeting consumers selected, it is time to create a profile. If the market targets are businesses then it is advisable to create a profile on LinkedIn or Twitter, rather than Facebook for instance. Interesting ideas and relevant issues that could attract the target market should then be shared. Online media and groups allow involvement in debates and conversations which can increase the profile of belonging organization. Corporate blogs offer a marvelous way to display expertise, elevate the profile of organization, and increase attention on organization's environmental accomplishments. Social media delivers an exclusive opportunity to connect clients and consumers with organization through communication systems. Using different social channels can help an organization to gain more followers and view the insights of the consumers and meet their demands for eco-friendly products and services. People and organizations use hashtags as a suitable way to allow people to categorize content in to related topics. Including related 'green' hashtags in organization's posts is therefore another method to gain more followers. Numerous businesses are afraid of social media because of its openness and the possibility of receiving objections and criticisms in a public medium. Being able to reply to public apprehensions or queries can be effective when it comes to decreasing negative emotions about organization or its environmental efforts. It is also vital to promote organization's social media existence through present established channels to ensure success. Social media is more of a qualitative than quantitative medium of marketing, therefore measuring the outcomes is a bit challenging. Typical metrics that can be measured

are followers and likes, number of visits to the site and the time they consumed to stay on the site, positive and negative indications of organization within social media, relationships with clients and prospects, and metrics such as Klout which aim to measure organization's influence.

The managers and employees can be a part of sustainable development even if they are not specialists in this field. Employees in any levels can contribute variety of ideas to develop sustainable strategies for the company. Every business can implement all ideas which they can think of and choose which one works best considering the situation, operation, target market, and location. Some of the guidelines to consider are the objectives of the company, place, situation around the business, support of employees, realization of plans and continuous development (Weybrecht, 2013).

4.2 GREEN BUSINESS IDEAS

4.2.1 GREEN BUILDING AND URBAN PLANNING

A green building refers to a construction that includes the fundamentals of green structure such as water and energy efficiency, maximized usage of solar energy, and sourcing of eco-friendly raw materials. Green buildings are modified to lessen their impact towards human and environmental condition ("GreenGAB"). Such buildings which are recognized as energy-efficient form a great contribution to the path of sustainability, but what is even better is a whole neighborhood that is energy-efficient. The initial structure and location of a neighborhood can have effects on its ability of solar energy usage. Installing renewable sources of energy for the whole neighborhood and its distribution system is more cost-effective and energy efficient than installing it in each building separately (Welch, Benfield, and Raimi, 2010).

Swallow (2009) explains that in green building, the expenditures of a facility's whole life cycle are evaluated in contradiction of the upfront capital expense, which is needed to start the project. Green buildings decrease the maintenance costs over a building's life cycle. Therefore, even if the initial costs of constructing sustainably or remodeling are higher, these expenditures are recovered with time, often immediately, which provides support for people, planet and profit. (Weybrecht, 2013) elaborates that green building might cause extra upfront costs, but since green buildings are cheaper to operate and maintain, are diminishing impact on the environment and boosting employees productivity, all efforts are worth it.

According to "Ten Green Business Ideas For New Entrepreneurs" (2010), the rise in energy charges, businesses and proprietors seek help from energy efficiency specialists to assist them in reduction of utility bills. This can help not only the matter of lowering bills charge but also the environment. The building objects of America consume over 60% of America's electricity, which results in one third of the nation's yearly greenhouse gas releases. Operating and constructing buildings also need great quantity of resources and water, thus also leaving big environmental

impact. Sukhdev et al. (2010) explain that cities propose significant opportunities to reduce the discharges of CO₂ by construction of green buildings and transport planning improvement.

Sukhdev et al. (2010) confirm that buildings are accountable for one third of Earth's complete primary energy consumption. Retrofitting current constructions can bring great advantages and opportunities to already developed countries due to major market potential. Developing countries, on the other hand, can build new green buildings in order to meet residents' demand for objects to live in and reduce their energy usage.

Individuals with experiences in plumbing or gardening are in high demand as constructing is looking up to save water and lessen their energy usage. Energy and water efficiency are the fundamentals for acquiring the LEED certification. Customers consider the use of substitutes to grass lawns, which involved the use of major quantities of water and substances to upkeep. Green lawns can and therefore should lessen chemical, fossil fuel, and water usage ("Ten Green Business Ideas For New Entrepreneurs", 2010).

Welch et al. (2010) explain the way in which green buildings emphasize environmental achievements and sensitivity because of their design and strategies including energy and water efficiency, good quality of indoor air, sustainably purchased or recycled materials. Besides water management inside the green buildings, water consumed outside buildings for landscaping and road trees defines neighborhood's general water use. Planting local species is also desirable as they are less disturbing for the environment. Theis and Tomkin (2012) continue with stating the factors that can improve energy efficiency, which include selection of location, efficiency in water and energy management, materials used, provision of biking facilities and closeness to public transportations. Energy savings can also be achieved by implementing advanced building structure designs which can heat, cool and brighten building by itself.

Saving water is vital as the increase of population and changes in climate congest the amount of drinkable water. Over a billion people lack access to clear potable water, which can turn out to be a cause for political problems and fluctuation as the demand for water increases. The U.S. has the highest ratio of consumption of water which is nearly doubling Europe's consumption (7:4) and utterly dwarfing sub-Saharan Africa's (70:4). The main culprits in America's waste water are the ineffective plumbing and wasteful landscape irrigation. This increases the opportunity for green plumbers and productive landscapers to protect the environment whilst helping in saving consumers money ("Ten Green Business Ideas For New Entrepreneurs", 2010).

Furthermore, Swallow (2009) explains that the benefits of green building include excellent return on investment, boosted employee health, productivity and happiness, chance to certify green efforts and gather recognition, and increase in shareholder interest. According to Andreas et al. (2011), studies show that employees in green

buildings, even in hospitals, have increased productivity, health and happiness. Comfortable workplace is important for employees. Nurses and doctors can contribute more to their work and be more effective. In addition, Swallow (2009) clarifies that good quality of indoor air in buildings has to be provided to enhance the productiveness and satisfaction of employees, and to be considered a responsible corporation in regards with the society. Bad quality of indoor air can lead to 'Sick Building Syndrome', and therefore employees will have difficulties in focusing on their work, irritation in throat, nose and eyes, itchy skin and discomfort.

A good example of improved urban planning, demonstrated by Sukhdev et al. (2010), is the city of Curitiba, which has the highest percentage of public transportation in Brazil due to integrated urban planning, and thus also the lowest percentage of urban air pollution in the country. The usage of petroleum in Curitiba is 30 percent lower than in Brazil's other cities. Excessive use of fuel due to heavy traffic was about 13 times less, in per person terms, than in Sao Paulo and 4 times less than in Rio de Janeiro.

Curitiba was able to manage expensive flooding issues by planting many trees in parks that were exposed to flooding and building artificial lakes to hold floodwaters. These strategies cost approximately 5 times less than the construction of concrete canals would, not to mention the environmental benefits and the increase of tax revenues, due to improvement of belonging areas (Sukhdev et al., 2010).

Swallow (2009) explains that before starting to build or renovate, one must identify which characteristics are most important for the project when choosing sustainable materials: sustainably grown or harvested, low or no ongoing maintenance, high recycled content, harvested or manufactured locally, nontoxic and natural, or easily recycled. Water conservation in a building and around it is also of supreme concern. Inside the facility, designing of internal plumbing, water-transfer system and fixtures must be taken into consideration. Conservation of energy is significant in all aspects of green building; energy use can be diminished by applying green building methods. Employed team and professional consultants can help in prioritizing the structures that will yield the greatest savings for the building. Many managers, owners and entrepreneurs are becoming aware that oil dependence will soon necessitate serious action. One has to limit the use of energy and ensure that renewable sources of energy are used.

Considering green plans in high performing business practices such as in office area design, purchasing sector and production area, can result in generating big amount of yearly savings on energy and wastes. Performance and productiveness of employees show satisfaction output of sustainable facilities. Moreover, a green business can reduce its operating costs by water conservation, energy efficiency, and proper disposal of wastes. Green buildings in average are 30 percent more proficient than traditional constructions (Swallow, 2009).

Furthermore, ground source heat pumps and sustainably harvested lumber are the vital parts of the green building even though customers, employees and other

shareholders can't see that. What they see is the equipment, furniture, floors, window and cabinets. It is also important to have green interior design inside a green building for people to fully understand its sustainability (Swallow, 2009).

In accordance with "GreenGAB", the U.S. Green Building Council developed LEED green building rating system, (Leadership in Energy and Environmental Design) to provide certification standards for constructions in accordance with environmental sustainability. These criteria include water and energy efficiency, responsible purchases of raw materials, progressive indoor eco-friendly quality, and reduction of CO₂ discharges. Swallow (2009) also explains that LEED rating system has been evolving very fast and now offers various categories of certification for green building projects. Project's LEED-certification status level is also determined, based on dividing attainable points in six categories which include: water conservation, sustainable siting, energy and atmosphere, resources and materials, green design innovation and indoor environmental quality. The amount of points received per category on a project determinates the certification level that a project receives. There are four certification levels that a project can obtain: LEED Certified, LEED Silver, LEED Gold and LEED Platinum.

Scott (2013) states that an average LEED-certified building consumes 30%-50% less energy, 32% less electricity, 40% less potable water, has 70% savings on waste output and saves 350 tons of carbon emissions yearly.

Important segment of green building industry are also green roofs (Picture 35), which are described by Liu and Baskaran (2003) as vegetative layers grown on a rooftop. A green roof provides shade and eliminates the heat from the air, reduces temperature of the roof and the air in surroundings. During summer days, green roof's surface can be cooler than the temperature of the air, while the exterior of a regular rooftop can be 50 degrees Celsius hotter. Moreover, GreenRoofs (2015) points out that the concept of green roof needs to be understood and reinterpreted from a stormwater overflow control perspective and explanation scope against urban heat islands. Green roofs can fit on various types of buildings (Picture 36), from industrial plants to individual residences. They can be formed into complex parks filled with trees, or be as simple as a small grass covers. In the history of the United States, garden roofs were built merely as architectural accents, while the ecological point was missed out.



Picture 35: Traditional sod roofs – Scandinavian type of green roofs, which can be seen at numerous places in Faroe Islands. (source: Erik Christensen, [https://en.wikipedia.org/wiki/Green_roof#/media/File:Nor%C3%B0rag%C3%B8ta,_Faroe_Islands_\(2\).JPG](https://en.wikipedia.org/wiki/Green_roof#/media/File:Nor%C3%B0rag%C3%B8ta,_Faroe_Islands_(2).JPG))

Heat islands are the zones, normally within populated areas, where the temperature is warmer than the temperature in the surrounding areas. Because of the increased temperature, discomforts to physical laborers, health risks and difficulty in growing plants and irrigation may arise. Techniques used in lessening heat island effects are planting trees, narrower streets and parking lots, vegetated roofs and solar-reflective roofing (Welch et al., 2010).

Furthermore, the benefits of green roofs include, besides mitigation of urban heat islands, the following: lessened air pollution and greenhouse gas releases, lesser energy consumption, improved stormwater management and water quality, improved human health and comfort, and improved quality of life (EPA, 2015b).



Picture 36: Green roof on California Academy of Sciences. (source: https://en.wikipedia.org/wiki/California_Academy_of_Sciences#/media/File:CalifAcademyOfSciAug28-2008img0640.JPG)

(Eco-Roofs, 2014a) describes a similar term, so-called green wall (Picture 37), which covers all forms of vegetated wall exteriors. The three major categories are living walls, green facades, and retaining living walls. Green facades are systems in which climbing plants or vines or cascading groundcovers develop into supporting structures that are designed for their location. Living wall system is composed of pre-vegetated panels which are attached to free-standing frame or structural wall. Lastly, retaining living walls represent engineered living assemblies designed to stabilize a slope whilst supporting plants confined in their structure.



Picture 37: Green wall at Singapore Management University. (source: https://upload.wikimedia.org/wikipedia/commons/3/38/Green_wall%2C_Li_Ka_Shing_Library%2C_Singapore_Management_University_-_20140205.jpg)

The benefits of green walls for the public are improvements in exterior air quality, local job creation, reduction of the urban heat island effect and aesthetic improvements; whilst the private benefits of green walls include improvement in energy efficiency, protection of building structure, improved indoor air quality, noise reduction and marketing potential. The benefits of green walls in design-specifics are increased biodiversity, improved human well-being, urban agriculture opportunity, and onsite wastewater treatment opportunities (Eco-Roofs, 2014b).

Finally, Andreas et al. (2011) conclude that the U.S. Green Building Council and LEED (Leadership in Energy and Environmental Design) set the bar for minimum green standards and put sustainable idea to everyone's minds and continued redefining the entire building industry.

4.2.2 SUSTAINABLE AGRICULTURE

Humans have been depending on natural resources and environment for most of the time ever since the ancestors shifted from hunting to organized planting and farming, around 10,000 years ago. Throughout this time, most of the crops depended on rainfall and stocked moisture from winter snow in temperate areas. The nutrients derived from plant residues, rainfall, animal dung, and soil organic matter (Francis, 2009).

Soil supports 90% of human food, petroleum, and fiber, and is important for water health and the condition of ecosystems. Because of high demands, soil is being oppressed in all possible ways without considering the needs of future generations.

Soil holds a very important role in slowing the climate change because it acts as a global carbon sink (EEA, 2011).

People nowadays, according to "Ten Green Business Ideas For New Entrepreneurs" (2010), are progressively anxious about safety of the food, youthful obesity, and greenhouse gas discharges related with long transportations of food to reach consumers. This apprehension makes an opening for organizations producing nutritious food grown locally without pesticides which can harm the environment and human health. Establishing such a business is one of the positive ways to help the local economy, promote community health, and diminish the discharges of greenhouse gas emissions. Furthermore, as explained in , "Sustainable Agriculture", (2015), the idea of sustainable agriculture consists of a wide variety of methods, including organic, low-input, free-range, holistic, and biodynamic. The common link in these approaches is an embrace of farming practices that copy natural ecological processes. Farmers have to lessen plowing and water usage, integrate croplands with livestock grazing and encourage vigorous soil by planting fields with different kinds of crops each year. They also have to refrain from using pesticide by cultivating the organisms that control harmful pests. The viewpoint of sustainability also promotes other principles that support just treatment of farmers and pricing of food that can provide better income for farmers.

Henkel (2015) confirms that sustainable agriculture relies on replenishing the soil and at the same time diminishing the demand for non-renewable resources, such as mineral ores or natural gas.

Since the end of World War II, agriculture began changing drastically. New technologies and mechanization led to increase in production of fiber and food. These alterations allowed few farmers with decreased work demands to produce more food. Even though these changes have produced many benefits and reduced some risks in agriculture, there have also been weighty costs. Among these are increased production costs, depletion of topsoil, contaminated groundwater, decrease in number of family farms, decrease of farm laborers and breakdown of economic and social environments. Sustainable agriculture consists of three main objectives: economic growth, environmental health and social-economic equity ("What is sustainable agriculture?").

In addition, "Sustainable Agriculture" (2015) describes that sustainable agriculture has many forms, but its basis represents dismissal of the industrial food production methods, established during the 20th century. This system, with its dependence on one culture, chemical pesticides and fertilizers, mechanization and biotechnology, has made food plentiful and cheap. However, the environmental and social price have been abrupt, which led to corrosion, water and soil resources pollution, deforestation, loss of biodiversity, abuse of labor, and decrease of the number of family farms.

A developing movement has arisen throughout the past twenty years to question the part of the agricultural formation in promoting practices that contribute to social

problems. Nowadays this movement is gathering increasing approval and support within mainstream agriculture. Sustainable agriculture offers innovative and economically feasible opportunities for farmers, customers, workers, and policymakers, while addressing social and environmental concerns ("What is sustainable agriculture?").

"Ten Green Business Ideas For New Entrepreneurs" (2010) explains that some of the business opportunities in the area of sustainable agriculture include urban farming or gardening, community supported agriculture program, local grocery store, and organic coffee roasting.

Many environmentalists, according to Henkel (2015), support urban developments as a way of maintaining cultivated land and applying energy efficiency. However, some suggest that sustainable ecovillages and ecocities with the combination of farming and habitation may provide enhanced sustainability. Using available city space for cooperative food production, such as rooftop gardens and garden sharing, can also help in attaining greater sustainability. On the other hand, "Sustainable Agriculture" (2015) explains that critics of sustainable agriculture proclaim that its procedures result in lesser crop harvests and greater land usage. They add that an extensive commitment to its practices will mean inevitable scarcities for a world population, which is projected to go beyond 8 billion by 2030. However, there is current evidence signifying that in time, sustainably farmed lands can be as fruitful as conventional industrial farms.

Sukhdev et al. (2010) illustrate an example of sustainable agricultural development in Uganda. 85% of the population in Uganda was involved in agriculture by year 2005/06. As early as 1994, organizations began engaging in organic agriculture on purpose. At that time in Uganda there was a broad movement in the agricultural segment towards the development of agriculture that is sustainable and improves people's livelihoods. By year 2003, Uganda had the Earth's 13th biggest land area under organic agriculture production. By 2004, Uganda had about 185,000 hectares of land under organic agriculture, with belonging 45,000 certified farmers. By 2007, 296,203 hectares of land were under organic farming, with belonging 206,803 certified farmers. Uganda, therefore, has limited chemical use and turned this into an advantage by growing organic products and generating income for smallholder farmers.

Uganda, as an important producer of organic products, benefits from a significant source of export incomes for farmers. Through sustainable agriculture, Uganda gains in economic sense and also contributes to mitigation of climate change. Greenhouse gas emissions from organic farms are projected to be approximately 64% lower than discharges from conventional farms (Sukhdev et al., 2010).

4.2.3 ALTERNATIVE ENERGY SOURCES - RENEWABLE ENERGY

Renewable energy derives from natural resources that are sustainably and continuously replenished. The new technologies presently available can improve the health of people and quality of air. They can also reduce the dependence on fossil fuels and create new local green jobs (NRDC).

Swallow (2009) makes clear that even though a certain business operates within many energy-conservation initiatives, it will still have some energy needs. Because of the changeable carbon taxes and upcoming restrictions, businesses need to look for positive ways to mitigate green has emissions. Therefore, they have to start shifting to renewable energy sources as soon as they can for the benefit of the business itself.

"Ten Green Business Ideas For New Entrepreneurs" (2010) declares that the usage of alternative sources of energy such as solar, geothermal and wind energy can limit the on-going global warming. That will lead to a new formulation of policies and regulations, and to an increase in tax incentives. The efforts of the governments, together with the broad interest in clean energy, are expanding the market for greener services and products. Upcoming entrepreneurs can grasp the advantage of these opportunities in numerous ways.

Cedefop (2015) confirms that renewable energy sources generate more jobs per unit of energy provided than sectors based in fossil fuel segment. Energy-efficiency investments similarly offer more employment opportunities than the fuel-based segment, due to finances saved which are then able to be spent in different parts of the economy. Furthermore, Swallow (2009) explains that it is important to realize that each type of renewable energy deals with certain challenges. Hydropower is presently under question for its impact on the local ecosystems and fisheries; Wind turbines are linked to migratory bird deaths; and so on.

The Feed-in Tariff is a policy that makes it obligatory for energy organizations accountable for operating the national grid to acquire electricity from renewable energy sources at a reasonable price that is predetermined and adequate enough to provoke new investments in the renewable energy segment. This guarantees that businesses which produce electricity from renewable energy sources have a guaranteed market and a pleasant return on investments for the electricity they create. Features of the Feed-in Tariff involve access to grid, set price per kWh and long-term electricity purchase agreements (Sukhdev et al., 2010).

Moreover, it is anticipated that the Feed-in Tariff procedure in Kenya might stimulate around 1300 MW of electricity generation capacity. If the anticipated generation capacity is fulfilled, this could provide assurance in security of electricity supply in the nation by growing the reserve margin. The benefits result in increase of income opportunities for business progression, poverty mitigation, and increased renewable-based generation capacity to the nation (Sukhdev et al., 2010).

According to Swallow (2009) the best renewable energy portfolio consists of several options which include hydropower, biomass, geothermal, solar and wind energy sources. Wind power is the world's quickest growing renewable energy source. Kinetic energy of the wind is being converted into electricity through wind turbines. Solar energy represents the greenest of all renewable energy sources. It can be stored, harvested and distributed in many ways. Biomass energy refers to generating electricity from biodegradable waste or plant matter. Geothermal energy bases on generating the power from the heat that is naturally deposited beneath the surface of our planet. The energy is harvested by ground source heat pumps in order to cool and heat buildings. Geothermal energy is getting a lot of interest due to the reasonable costs of installation and maintenance of geothermal systems. Hydropower refers to energy obtained from the power of moving water.

Geothermal energy comprises five percent of United States' renewable energy. The subsurface of the earth's temperature offers unlimited resources of energy. The impact of geothermal energy on the environment depends on how it is being practiced. Heating applications and direct use have nearly zero negative effect on the environment (Theis and Tomkin, 2012).

Hydropower is reflected as a clean and renewable source of energy because it does not directly create emissions of air contaminants and the power source is regenerated. On the other hand, the reservoirs, dams, and generators operation can leave an impact on the environment (Theis and Tomkin, 2012).

Solar power, as clarified by Scott (2013), is usually regarded as an expensive sustainable option because the slow return of investment. It costs three to four times more to generate power from the solar cells than from conventional sources. Due to the decrease of prices for about 18% when production of solar power doubles, the price of solar power decreases each year. Power from primary solar cells cost around \$200/ watt. The price in 2007 was \$2.70/ watt. In Germany, in year 2012, the price dropped to \$1.34/watt.

Passive solar energy collection refers to the most common way to gather solar energy. In this method, direct absorption of sunlight is being maximized by structures' design and the right choice of building materials. This method contrasts active solar energy collection, which moves, focuses or stores solar energy with the help of technological devices (Withgott and Brennan, 2010).



Picture 38: Topaz Solar, a 550 MW photovoltaic power station is one of the three largest solar power plantations in California, and also in the world. (source: <http://clui.org/project-page/13231/13246>)

Sukhdev et al. (2010) elucidate that China is the biggest market for solar hot water, which comprises two-thirds of global capacity. Over 10% of the Chinese families, with over 160 million m² of collector area, depend on the sun to heat their water. The solar water heater sector developed swiftly due to profitability of both manufacturing businesses and the households that purchase solar water heaters. The improved availability of hot water also has sanitation and health benefits.

The Tunisian Solar Programme (PROSOL) is a good example of solar thermal market growth. Financial and economic support combine a capital fund meeting the requirements for a VAT exemption, reduction of customs duty, and low interest loans from banks. Loan repayments are controlled through regular utility bills of the state electric service, with banks receiving provisions that allow them to fund solar water heating projects with lower interest rates. More than 50,000 Tunisian families nowadays obtain hot water from the sun, based on loans which amount to over \$5 million in 2005 and \$7.8 million in 2006. PROSOL helped in preventing 214,000 tonnes of cumulative CO₂ emissions since 2008. Over 1000 companies installed the system and new jobs arose as 42 technology suppliers were registered (Sukhdev et al., 2010).

As clarified by Theis and Tomkin (2012), solar power has little effect on the environment, depending on the place of installation. Back in 2009, 1% of the energy generated from renewable sources in the U. S. was from solar power, whilst electricity obtained from renewable sources amounted 8% in total electricity production. On the contrary, Theis and Tomkin (2012) also explains that the production of photovoltaic cells causes certain toxic wastes from the solvents and chemicals that are used in the process. Most of the solar panels are placed over parking lots or on top of the buildings, while large systems are located on land and in

deserts particularly (Picture 38), where the local ecosystems can get harmed if caution is not considered. Certain solar systems contain hazardous fluids which have to be handled and disposed of properly.

The very first wind turbine constructed to produce electricity, according to Withgott and Brennan (2010), was built in Cleveland, Ohio, in the late 1800s, by inventor Charles Brush. In addition to that, Theis and Tomkin (2012) explain that wind power represents a renewable source of energy that only has minimal environmental impacts. Wind turbines are becoming widely used in the U. S., even in areas with less wind potential. Wind turbines, which are also called windmills, do not discharge emissions that can pollute the air or water (with exceptional exclusions). Water is also not a requirement to keep the wind turbine cool. The U.S. wind industry, by the end of 2010, had 40,181 MW wind energy capacities installed, with 5,116 MW installed solely during 2010, which provided over 20% of installed wind power on Earth. Wind turbines have small physical footprint in relation to the amount of electricity they produce. Many of the wind turbines are installed on forest, crop, and pasture lands. They provide economic sustainability by giving extra revenue to the ranchers and farmers. Furthermore, Theis and Tomkin (2012) elaborate that wind turbines also have some environmental challenges which include aesthetic concerns, the sound that they make, and possibility of accidental birds and bats killing, when the turbines are positioned along their migratory routes. There are solutions to lessen this impact that are presently being researched. There were also a few turbines that have caught on fire and leaked lubricating liquids, however this is very rare.



Picture 39: A wind farm in a mountainous area in Galicia, Spain. (source: https://commons.wikimedia.org/wiki/File:Windpark_Galicia.jpg#/media/File:Windpark_Galicia.jpg)

From 2005-2009, the wind power generating capacity has shown an annual growth rate of more than 100%. After the new installations of 13.8 GW in 2009, China ran the world in added capacity, whilst positioning as second, after the United States, in terms of installed capacity. The government has specified its purpose to upsurge its

prior aim of 30 GW of installed capacity, to 100 GW, by 2020 (Sukhdev et al., 2010).

Nowadays, Denmark gets over 20% of the country's produced electricity from wind turbines; Germany also obtains over 10% of its electricity from the wind; Spain installs 2,000 MW of wind turbine generators yearly (Picture 39). The U. S. wind turbines produced 50 GW of energy in 2012 and the number is growing with each year, as do also employment opportunities (Scott, 2013).

4.2.4 SUSTAINABLE FORESTRY

The forests are vital to human existence and represent one of the solutions in achieving environmental prosperity. Forests clean the air, water and soil, while maintaining the climate, amongst numerous other things. Forests are not often linked to urban areas but there also they often provide invisible efforts (EEA, 2012).

Sustainable forest management is being swiftly altered from a niche activity to more significant market opportunities. The expansion of sustainable forest management is a clear indication of a worldwide readjustment in relations between the world's forests, people, and growing industries (Jenkins and Smith, 1999).

As presented by the World Bank, about 90 % of the poorest people depend on forests for income and supplies. The establishment of small and medium forest enterprises offers opportunities for poor people to strengthen their livelihoods and conserve the natural resources through sustainable forest management. There are many local benefits from small and medium forest enterprises which include employment opportunities and just wages, profit sharing, accumulation of capital, investment in public goods, political and cultural empowerment, and improved preservation of natural resources and forest ecosystems (Donovan, Stoian, Macqueen, and Grouwels, 2006).

PEFC (2015) explains that deforestation and forest deprivation result in different negative impacts for forest biodiversity. The Food and Agriculture Organization projected that 13 million hectares of forest are lost yearly due to deforestation, which affects the species inhabiting those areas considerably.

Increased environmental tourism has provided new markets for ecotourism and handicrafts. Greater consciousness of traceability matters and forest certifications offer new market openings for lawfully and sustainably obtained wood. The increasing apprehensions about climate change and biodiversity preservation have urged the interest in ecosystem services and the necessity to pay for them (Donovan et al., 2006).

Jenkins and Smith (1999) suggest that sustainable forestry together with good business performances can add up to competitiveness through reduced costs and by being able to help organizations to guarantee reliable, long-term, high quality sources of wood. The initial expenses for sustainable forestry development may seem high in the short run, but the long-term benefits compensate for all the previous expenses.

Furthermore, as predicted by TheGuardian (2011), forests in the future might represent the framework of sustainable economies through provision of replenishing goods and services. Successful forests companies will recognize this opportunity, use it for their advancement, and ensure that forests will survive.

In order to be able to meet the demand of consumers, forests companies must shift from smaller product focus (trees for paper and timber) to a greater ecosystem service strategy. Sveaskog, the largest forest company in Sweden, is doing exactly the same. About 15% of the annual net sales originate from biomass for energy and non-timber services, such as fishing and hunting licenses, and wind farm leases. One fifth of Sveaskog's land is focused on preservation and biodiversity promotion. Sveaskog also experiments with ways to make the most of carbon uptake and plans to sell extra uptake to carbon markets (TheGuardian, 2011).

Other major organizations are also shifting focus to incorporate services. The biggest US private landowner, Plum Creek, has about a third of the company's timber lands under revenue-generating preservation and wildlife protection arrangements. Mondi, the foremost international company for paper and packaging, recently recognized openings to tap into rising markets for biomass and ecotourism through a review of environmental services at three of its South African estates. The changing nature of forest organizations is creating more employment opportunities in rural areas and developing the quality of life in urban areas (TheGuardian, 2011).

Another good example, according to Sukhdev et al. (2010), is set by Nepal and its communal forestry initiatives, which contributed to restoring forest resources in the country. Forests represent almost 40% of Nepal's land. Even though the forest area was declining at an annual rate of 1.9% throughout the 1990s, this drop was reversed, leading to an annual growth of 1.35% over the period from year 2000 to 2005.

As the usage of wood increases and availability of forests decreases, the capability of companies to ensure a steady and high-quality supply of wood will turn out to be a demanding strategic consideration in the wood products industry. Those companies that will display their ability to manage the limited resources in a sustainable way will continue to have access to forests (Jenkins and Smith, 1999).

4.2.5 GREEN HAIR SALON

Hair salons have been criticized for a long time due to the contamination that they produce. Conventional hair colors and numerous shampoos consist of harmful synthetic chemicals that are regularly used on clients' scalps and then washed away where they can gather in water channels, soils and even our bloodstreams. Whilst there is no industry-wide coordinated effort to make these operations green, environmentally friendly salons are beginning to appear (ScientificAmerican, 2009).

Conventional hair salons use a variety of chemicals and consume vital resources such as energy and water. There are numerous factors to look for when choosing a salon

that is environmentally friendly. Green salons offer healthier practices and result in reduced environmental footprint and diminished impact on human health (EPA, 2015a).

According to EPA (2015a), hair salon can go green by following the principles of reducing, reusing and recycling. Therefore, chemical exposure has to be limited; pumps should be used instead of aerosol containers; non-toxic products have to be used for cleaning and disinfecting; and products with low volatile organic compound content are mandatory. Water should also be conserved by reducing hot water usage and having a low-flow plumbing system. Waste also needs to be minimized, which can be achieved by using a dispensing system for conditioners and shampoos, using products with less packaging, offering water in reusable cups instead of plastic bottles, and using refillable containers for products. When it comes to energy management, energy efficient appliances hold a great role in conserving energy.

Furthermore, used magazines can be donated to other organizations or customers, empty containers can be made available to other businesses, and recycling bins for plastic and paper can be installed (EPA, 2015a).

4.2.6 GREEN TRANSPORTATION

Different kinds of transportation methods are partially responsible for global warming because of the emissions of greenhouse gases that are released into the air. These emissions can harm the common well-being of people. Businesses can start the usage of alternative transportation which can benefit not just the environment but also the health of society. One simple way is by using bicycles in delivering small amount of products in nearby consumers ("Ten Green Business Ideas For New Entrepreneurs", 2010).

As stated by "Ten Green Business Ideas For New Entrepreneurs" (2010), some of the potential green transportation business opportunities include refurbishing of bikes, electric bike and scooter dealership, community bike-sharing program, car-sharing program, and green taxi business.

Major lack of energy supply and extraordinary urbanization rates require energy efficient communal transportation systems in cities. The issue brings potential for new jobs creation and preservation of local livelihoods from ecological impacts, particularly climate change ("Green Growth and Developing Countries", 2012).

4.2.7 GREEN GYM

There are a lot of ways to make a fitness center environmentally friendly, and to establish a good example for competition and members. Some of the basic points in greening a gym include installation of low-flow faucets in order to save water, choosing a landscape that does not require significant watering, insulation of water

pipes and heaters, renovations and repainting done by using minimal chemicals and toxic compounds. It is also suggested for a gym to switch to the use of non-electric kind of equipment and to produce the necessary electricity from renewable energy sources (Scanlin, 2007).

Adam Boesel, founder of The Green Microgym explains that Green Microgyms are powered by the energy that people are using when exercising. These gyms make good use of spin bikes, elliptical machines and recumbent cycle generators that harness energy from exercising and transform it into electricity throughout the workout. Due to this environmentally friendly technology Green Microgyms use around 85% less electricity than conventional gyms (Risk and McClaran, 2015).

Furthermore, indoor lighting expenses for gym centers can be enormous. Gyms are therefore encouraged to install skylights or energy-efficient Solatubes. These methods can save a lot of energy and also create a more appealing environment (Scanlin, 2007).

The Green Microgyms, according to Risk and McClaran (2015), achieve their sustainability goals and reduced emissions by using energy-producing cardio equipment, treadmills that use 30% less electricity than conventional models, paper products from recycled paper, energy efficient ceiling fans, compact LED lighting, natural cleaning supplies and soaps, member-controlled lighting mechanisms and by purchasing used equipment. The Green Microgyms also use environmentally friendly building materials and solar panels installed on the building exterior.

4.2.8 GREEN WEDDING PLANNING

The responsibility of event planners is to design and to carry out different kinds of events such as birthdays, weddings, conferences, and other celebrations. To be an environmentally friendly event planner, network of contractors that provide eco-friendly services for events is needed, which includes organic caterers, green cleaning business, sustainable printers for invitation cards, green photographers, and more (Cooney, 2010).

Napolitano (2008) explains that weddings used to be smaller and focused on joining two hearts and combining two families. Wedding industry today grew to a multibillion-dollar business which is causing damages in the environment. Each wedding can bring some disadvantages to the environment. Choosing a green wedding is one way of showing love for the planet, leaving only minimal damage to environment. It is not about giving up a fairy-tale wedding, but more about being mindful of the elements and products involved in the special day. It is estimated that there are 2.5 million wedding celebrations in the U.S. yearly, and the average wedding expenses are \$25,000. Weddings can become more eco-friendly, as there are many available possibilities. The number of couples who want to decrease the amount of waste during their weddings starts to increase. Furthermore, being a sustainable event planner, according to Cooney (2010), requires skills concerning

sustainable practices in all characteristics of the business. One also has to be detail-oriented and flexible enough for last minute plans alterations.

There are many advantages in choosing green weddings. They can reduce pollution, prevent the emissions of carbon, offer local economic support, save trees, support green businesses, and more. Furthermore, they can also inspire other couples to choose a green wedding (Napolitano, 2008).

4.2.9 GREEN CLEANING SERVICES

The demand of the consumers for fewer toxins in home products and at workplace is increasing. Toxic cleaning supplies are dangerous to people, specifically janitors and house cleaners, and inhabitants in buildings where volatile organic compounds can modify the air condition. It can also contaminate not only the building but also the environmental and water condition at the same time ("Ten Green Business Ideas For New Entrepreneurs", 2010).

Buying green cleaning products is a common subject appearing in the media nowadays. Many businesses avoid buying this kind of products because they are sometimes more expensive. What should be taken in consideration is that disposal costs of toxic leftovers, in accordance with regulations, can be very high. Recycling and disposing therefore isn't free. Green cleaning supplies on the other hand avoid those costs. There are many hazardous compounds found in conventional cleaning products which can directly affect employees' health, morale and productivity. That represents just one more reason why switching to green cleaning products is recommended (Swallow, 2009).

In accordance with "Ten Green Business Ideas For New Entrepreneurs" (2010), green cleaning services business opportunities include green housecleaning (use of natural, non-toxic, and biodegradable cleaning supplies) and green janitorial. Moreover, Swallow (2009) explains that green cleaning products are animal cruelty free and lack petroleum, phosphorus and bleach. They are also made of biodegradable, natural and renewable ingredients, and do not use aerosol.

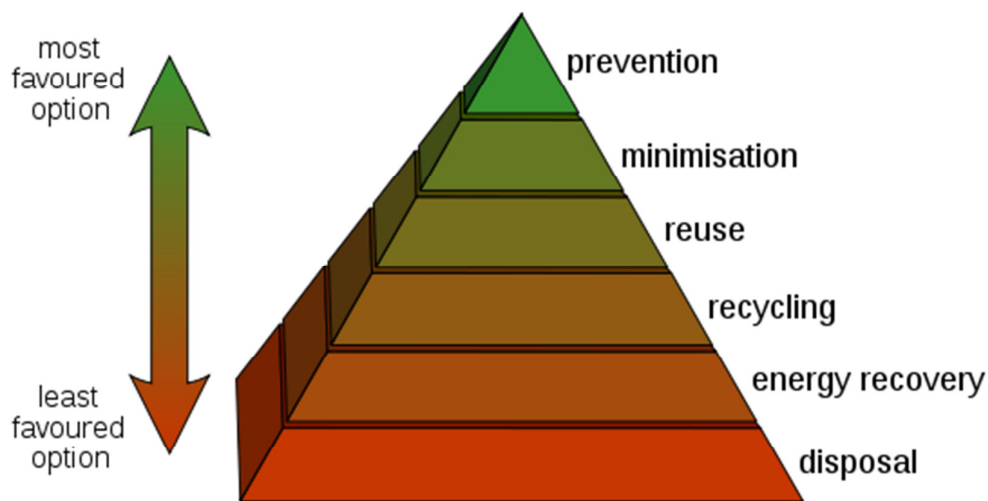
4.2.10 RECYCLING AND WASTE MANAGEMENT

Waste is a persistent social, environmental and economic issue. Developing economy and growing consumption continue to produce enormous quantities of waste, which requires more effort to reduce and prevent it. Waste in the past was looked upon as disposable, whilst nowadays it is progressively known as a resource. This reflects in the waste management shift away from disposal towards recycling and reusing (EEA, 2013).

According to "Ten Green Business Ideas For New Entrepreneurs" (2010), recycling is one of the best alternatives to getting rid of things when they cannot be used

anymore. Used items and other scraps can be recycled and sold to interested buyers, which can diminish the wastes and reduce global warming. Recreation of goods is also getting popular and is done by entrepreneurs, who recreate products out of used building materials, old furniture, recycled shirts, and more.

Recycling is one of the most beneficial practices for the environment. The benefit is not only reduction of wastes but also protection of habitats, water, energy, and resources. Recycling also helps in slowing down the global warming. Successful recycling includes minimization of waste through the entire life-cycle of a product (Picture 40), from obtaining the resources to the product's disposal (NRDC).



Picture 40: Waste management hierarchy. (source: Drstuey, https://commons.wikimedia.org/wiki/File:Waste_hierarchy.svg#/media/File:Waste_hierarchy.svg)

45% of aluminum cans, 31% of soft drink plastic bottles, and 67% of all major appliances are now being recycled. On the other hand, only 13% of water plastic bottles are being recycled. Furthermore they explain that airlines and airports recycle less than 20% of the 425 000 tons of passenger-related waste produced each year (NRDC).

Top green business ideas related to recycling, according to "Ten Green Business Ideas For New Entrepreneurs" (2010), include designing of clothes from recycled or used fabrics, making furniture out of scraps or refurbishing old furniture, and salvaging, removing, selling and setting up used building materials.

However, it is important to know that recycling also has its expenses and difficulties. Numerous materials cannot be recycled infinitely because they worsen or weaken throughout the recycling procedure. Additional work, capital and energy may therefore be required to bring the recycling material up to scratch (Scott, 2013).

4.2.11 SUSTAINABLE BREWING

Being a good brewer does not only refer to being able to make excellent or award winning beer but also to being aware and conscious of the impact that brewing leaves on the environment. Being a sustainable brewer means selecting the best ingredients and goods that have lesser effect on the environment. It is also very important to use nontoxic materials and durable equipment during the brewing process. Implementing practices that consume less energy and water is vital in sustainable brewing development. Sustainable brewery also includes recycling brewing grain, barrels and beer bottles (Slayton Loftus, 2014).

Stier (2015) explains that brewing companies are finding out that decreasing the amount of waste can reduce operating costs. Recycling materials also bring significant sources of income. Furthermore, Stier (2015) claims that many breweries use innovative solutions for waste and water management. Those solutions go beyond water conservation programs inside facilities towards the sustainable development of communities and environment.

According to Slayton Loftus (2014), organic brewing supports organic agriculture and small-scale farming industry. It was also discovered that moderate drinking of organic beer, one to two beers a day, provides health benefits, while lowering the possibility of cardiovascular ailment.

There are numerous best practices for efficient energy management and preservation that can simply be fused into daily processes, as well as solutions that can decrease greenhouse gases and operating costs, and lead to additional sources of revenue and more community initiatives. This can help breweries to become leaders in sustainable practices (Stier, 2015).

4.3 BENEFITS, RISKS AND ISSUES THAT GREEN BUSINESSES ARE DEALING WITH

One of the common issues that businesses are dealing with arrives when it is time to decide whether to get certified or not. Certification offers a powerful demonstration of organization's commitment to environmental protection, whilst it also helps in alleviating consumer concerns about greenwashing. On the other hand, it is important to know that certification costs money. Adopting extensively recognized standards and obtaining acknowledged certifications can provide many benefits for the business. Therefore, sustainability efforts will receive credibility; employees will be guided easier; potential investors and business partners will recognize the organization's efforts (Swallow, 2009).

Olson (2009) furthermore explains that new business strategies that capture the interest of consumers can be simple, such as accentuating facts about packaging and increasing recycled materials. On the other hand, it is important to know that both

risks and potential returns are higher when companies take on large research and development investments to support innovation and production of new eco-friendly products.

Risk factors represent a segment of the green business plan that normally falls short in numerous green business plans. There are many risk factors that should be taken in consideration when going green, including the amount of capital required to achieve the goals, and the sort of expected investors (GreenBusinessPlans, 2010).

Many companies are still having a hard time embracing green system because they believe that it will cost them more than they can bear. Being an environmentally friendly business does not have to cost a lot of money and can actually help in saving money and gaining more revenue (Zokaei, 2013).

Durant and Media (2015) elucidate that a business' carbon footprint refers to emissions of carbon dioxide of a company from its daily operations which include the purchasing and shipping of raw materials, the maintenance of administrative units, and delivery of the products. Businesses are implementing new systems to decrease the emissions of carbon dioxide since the climate change started to grow the concerns. Therefore, organizations are faced with numerous issues, which represent opportunities at the same time, which include the need for restructuring of supply chains, selecting less energy-intensive equipment and processes.

Common benefits of green businesses, according to Cordero (2010b), include health benefits, reduced dependency on foreign oil, reduced environmental impact, support for the economic growth, and simply doing the right thing. Moreover, as stated by Cordero (2010b), numerous organizations reported that healthier workplace diminished the number of sick days by as much as 20%. This benefits corporations through improved productivity and fewer medical bills.

By incorporating green initiatives into processes, organizations can preserve natural resources and lessen their contribution to global warming. By concentrating on jobs creation in underserved areas, businesses can use their strengths and abilities to boost those areas into economic recovery. Lastly, green organizations can be certain that they are working in compliance with swiftly changing environmental regulations ("Going Green: A Guide to Greening Your Business", 2015).

Environmentally friendly corporate practices can result in the improvement of the environment and the business itself. Green businesses can also benefit by saving money from reduced waste production and increased energy efficiency. Another major benefit represents reduced concerns about safety and health responsibilities by going beyond environmental compliance standards. Lastly, going green also results in improved public relations and provides demonstration of leadership amongst competitors (EPA, 2015d).

Businesses that give priority to their attempt in becoming eco-friendly can earn the favor of the consumers. Specifying the green activities that a business has made, such

as using recycled products and changing manufacturing processes, can also result in receiving a lot of attention (Joseph and Media).

Finally, businesses that focus on the conservation of energy not only benefit the environment but also the business itself, by reducing its expenses in form of lower energy bills. Smaller companies can also benefit from diminished energy costs by simply following the steps such as switching off lights and other machineries when they are not in use (Joseph and Media).

5. GREEN BUSINESS – A BUSINESS OF SUSTAINABILITY

The research portion of this thesis consists of qualitative approaches which include interviewing of organizations that are committed to sustainability practices in their daily operations. There are 32 organizations in total that are included in the research. Each participating organization was interviewed in the same way and asked the same questions. Answers to certain questions were allowed to be left out. The interview was specifically designed to address present issues such as environmental degradation, economic instability, and social injustice, which are inhibiting growth of sustainable development.

The interview comprises of five main sections, whereas each section consists of multiple closely related questions, which support open-minded thinking and allow respondents to answer the questions in their own words.

5.1 AIMS AND GOALS OF THE RESEARCH

Goals of the research intend to aim higher than what mere facts and numbers have to offer. In order to achieve anything close to what we refer to as sustainability, we have to look further than the reach of theory extends. Fancy suits and smiles on the pictures are honestly not what this relevant subject has to offer. What humanity needs are fresh ideas and innovations, and of course people who care enough to give them a try and share them with others. Therefore, aim of the research is to find out what some already did, what some are currently doing, and what we should do in the future with complete commitment. This research offers the insight of only but some of the ideas and innovations, of which potential development limits, I believe, are endless. Throughout the interviews, the data provided presents sustainable development examples in practice. Finally, the outcome of research represents my personal sustainability model called 'Path to Sustainability', which was built upon the analyzed data received from the interviews. Individuals and organizations can use the model to learn something new and worthy from it. Opposing the model, there is also an overview of issues and restrictions that sustainable development has to face.

5.2 PRESENTATION OF INTERVIEW QUESTIONS

First section includes the following questions: *What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?*

The primary purpose of those questions is to inquire about organizations' sustainability efforts and results of those efforts. Answers to those questions assist in

understanding the benefits of green organizations/processes, and the impacts that those organizations leave on society and the environment. Organizations are also encouraged to describe the obstacles and challenges that they had to face, or are still dealing with.

Second section includes the following questions: *What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?*

Whilst this section is also associated with impacts of the organizations, the questions are referring to deeper relations between society and organizations themselves. Answers to those questions help in understanding the social aspects of green business development and operation. As the society can determine the future of an organization, it is important to understand what kind of responses organizations are dealing with.

Third section includes the following questions: *Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?*

Questions from this section require additional amount of ‘outside the box’ thinking in order to be answered. They are referring to the unpredictable future, of which features of the planet and the role that organizations will be committed to remain unknown

Fourth section includes the following questions: *Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?*

Similarly to previous section of questions, this segment refers to future sustainable development assessment. Answers to those questions contribute organizations’ insights regarding limited time aspect in forming a sustainable environment on our planet. Answers also assist in understanding potential ways in which environmental issues should be addressed more often in the future.

Fifth section consists of the following question: *What would you suggest as a course of action for the future generations and green organizations?*

The final question yet again inquires about organizations’ perceptions, particularly about a course of action that they suggest for future generations.

5.3 PRESENTATION OF PARTICIPATING ORGANIZATIONS WITH BELONGING INTERVIEWS ATTACHED

The participating organizations are further on presented in alphabetic order, with written interview results attached next to each belonging organization's presentation.

5.3.1 ALL WOMEN RECYCLING

All Women Recycling is a small business, based in the Southern Suburbs of Cape Town, South Africa. Owned by Lynn Worsley, the business began to grow from an idea to create environmentally friendly gifts while empowering women by offering them work and stability.

“Keeping our country clean, one bottle at a time – our goal is very focused and simple; to create sought-after upcycled products that benefit the environment and empower local women.” (All Women Recycling)

“Working with women from different backgrounds is challenging, interesting, fun and it makes me laugh, cry and smile. I feel I am alive, and we are growing stronger every day.” – Lynn Worsley

The kliketyklikbox™ is company's main product (Picture 41). It's a versatile and trendy, yet practical and eco-friendly gift box recycled from plastic bottles. Approximately 350 kliketyklikboxes™ are produced by the women daily and are supplied to more than 30 retail outlets. In addition, about 60% of the eco-friendly gift boxes are exported to countries such as Germany, Switzerland, UK, USA and Australia.



Picture 41: kliketyklikboxes™ (source: <http://www.allwomenrecycling.com/>)

INTERVIEW RESULTS – Lynn Worsley, managing director of All Women Recycling

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

The benefits of being green would be the superficiality of many who believe because they recycle into various bins that they are making a difference to our environment here in South Africa, when in fact all discarded waste goes into the landfills and a great deal is never sorted into PET, wet waste, etc.

The biggest challenge we face at AWR is the collection of bottles (coke) for our product. Dumps flat pack and sell off to large corporations. They cannot be bothered saving and sorting them for us to buy directly from them. We believe that as a company, we are raising the awareness of reuse & recycle through our marketing and face to face campaigning to our people through our schools and youth, with the hope for a better tomorrow. “One small step for man” as the saying goes - A large step for mankind.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

The responses to what we do have not changed, just reached more people regionally and globally through our product and its story and of course what it is.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

Larger and with more eco handmade products, empowering more women. With the help of larger organizations and more face to face PR, the message of recycle & reuse has to impact our society and the waste we make. If we make the waste we do now, multiplied by more people, we will not survive, as our landfills are full. And more land is being targeted for more sights. Thus emitting toxic waste into our environment on a grander scale. We need to highlight the plight more and more through the media.

Green organizations need to lead the way to educate and showcase the benefits of going green in our everyday life; through our products and by speaking out to people like you, who can push the message home. It's not good enough that 2000 women recycle in their homes but that they encourage more to do the same. Everything starts off with baby steps. Again we may be too late. But we can't stop trying.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

With the way society is behaving I fear we may be too late. But as we all say, it's never too late to try to make a difference. And we certainly **MUST** try.

What would you suggest as a course of action for the future generations and green organizations?

Think new ways to stay green, encourage others to do the same. Not just on paper but in the real world.

5.3.2 ATLAS KASBAH

Opened in 2009, Atlas Kasbah (Picture 42) is the first environmentally friendly accommodation in the Argan Biosphere Reserve, Morocco. The eco lodge was granted both the prestigious Responsible Tourism Award from the ministry of Tourism of Morocco and the international Green Key Ecolabel from King Mohammed VI Foundation for Environmental protection.



Picture 42: Atlas Kasbah. (source: <http://www.atlaskasbah.com/en/gallery/>)

Atlas focuses on respect for the environment, appreciation and use of traditional architecture techniques, and above all, the strengthening of the local Berber communities. It offers exceptional spaciousness, numerous activities and beauty of surrounding nature around the unique setting of a majestic fortress (Picture 43).



Picture 43: Atlas Kasbah and the scenery. (source: <http://www.atlaskasbah.com/en/gallery/>)

“The eco lodge Atlas Kasbah integrates sustainability, innovation, respect for the environment and the appreciation for the local Berber cultures.” (Atlas Kasbah)

In order to achieve these objectives, six criteria were chosen including:

- **water** (water-saving devices, waste water recycling, chemical-free cleaning, use of native plants, water consumption awareness,..),
- **energy** (use of energy saving appliances and lighting, electricity from renewable sources, water heating from renewable sources, bioclimatic architecture, staff and guests awareness programs,..),
- **waste** (use of alternatives for individually packaged or disposable items, recycling of certain materials, composting),
- **purchasing** (use of local seasonal products, purchase of eco-friendly products),
- **the integration with the scenery** (traditional construction materials, extended garden, no asphalt on the path),
- **environmental education** (eco-activities, staff awareness and education, promotion of local heritage, indigenous plants in the gardens, cooperation with local businesses and suppliers).

INTERVIEW RESULTS – *Hassan Aboutayeb, manager and owner of Atlas Kasbah*

What benefits of being green would you like to expose the most? What benefits

for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

The quality of life of our guests, team and ours! We recycle water for the garden which is very important in an arid climate. We are a model in (the south of) Morocco with our grey waters recycling system made in partnership with the university of Agadir. We work with slow food international to provide organic food and traditional Moroccan dishes. We offer our guests eco-friendly activities; pottery classes, donkey rides and all the revenues go to the locals.

The biggest obstacle we face is the image of the destination of Agadir. As a resort, people don't imagine that the countryside is so beautiful, peaceful and that there is an eco-friendly accommodation.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

We work with the sustainable development local association that we have helped to create. We have social projects going on with the local school. We have also created a green house where the villagers bring their trash and classify it for its recycling. Then it is collected by an organization specialized in recycling. In exchange, this organization pays some gifts to the villagers. For a certain amount of trash (a few kilos of card boxes or glass...), the villagers receive a present. This is really motivating especially for women and kids.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

We hope to remain a model in Morocco and that other ecolodges will be created. Green washing will continue to spread but people will be aware of what is really sustainable and what is only marketing.

For the future, we are particularly worried about climate change. We haven't seen rain for some time and the situation is hard. Some villages don't have any water and the agriculture is barely surviving.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

It is never too late. All the stakeholders in a region should join their efforts because everybody is concerned.

What would you suggest as a course of action for the future generations and green organizations?

New way of living, new way of eating, bioclimatic buildings, biofuel, payment for ecosystem services...

5.3.3 BALTIX SUSTAINABLE FURNITURE

Baltix Sustainable Furniture is a for-profit business based in Minnesota, USA. They engage in production and sales of various types of furniture objects, produced in the way to suite the need for environmental sustainability.

»The core value of our business is sustainability, which is why we see ourselves as different from the rest... as “abnormally green.” « (Baltix Sustainable Furniture)

Since the beginning of the operations, Baltix has focused on providing their customers with products that are good for people and the planet (Picture 44). Locally sourced materials contribute in quality assurance and reducing shipping waste. Baltix offers numerous bio-based products that are made of organic and renewable materials such as bamboo.

»We did not just jump on the green band wagon as a clever marketing ploy or to profit from a fad; we dedicated the resources of our company to provide truly sustainable furniture as our only offering. Our company has been trained in the principles of The Natural Step and strives to balance people, planet & profit.« (Baltix Sustainable Furniture)

»Baltix is dedicated to the principle that the environment is common to all and requires thoughtful stewardship and accountability by everyone to sustain its quality and preserve it for future generations. We will conduct our business in a responsible and open manner that is environmentally, socially and economically sustainable. We will engage with our stakeholders and pursue continuous improvement in our business. « (Baltix Sustainable Furniture)



Picture 44: A fine example of one of many Baltix's offers – a trapezoid shape conference table with integrated power/data. (source: <http://www.baltix.com/gallery/#conference-tables>)

INTERVIEW RESULTS - Erik Knutson, executive vice president of Baltix Sustainable Furniture

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

My partner and I left the corporate world to start a company that is focused on “doing the right” thing while still being a profitable and viable business. Our products focus on using rapidly renewable and/or recycled content raw materials and also being designed to have a long life as well as using material that do not contribute to indoor air quality issues. Our biggest challenge is competing on cost as our materials and processes are more expensive than “non-green” alternatives.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

I am not sure we have left a large impact at this point. A lot of people are appreciative of what we are trying to do but we are a very small company so our impact has been minimal on the huge commercial furniture market.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

We believe our company is poised for rapid growth and that green building is becoming the norm. Due to organizations such as USGBC and their LEED standards becoming more accepted and wide spread, the acceptance and openness to our green commercial furniture will continue to grow. I believe green will continue to be a fundamental part of future purchasing decisions in our business sector and most others.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

Tough question. I guess it comes down to the definition of Sustainable. I believe humans have no choice but to form a more sustainable environment, but I am worried that too much damage has already happened to restore things to a “healthy” level. I believe long term thinking is critical in all facets of planning for human society and this does not happen in the current business and political climate – decisions are made for the short term and proper environmental accounting is not occurring.

What would you suggest as a course of action for the future generations and green organizations?

Think long term. Think of grandchildren and the world they will inherit. Treasure all of nature and understand it has a value beyond extractive industries. Be honest but provide a message of hope.

5.3.4 BLUE PLANET LIFE

As a social business, Blue Planet Life (Picture 45) was created and designed to address a social cause and maximize the social return on investment for the benefit of nature and people.

“As a startup company, our main focus right now are our pilot projects in India and the US, and to become operational.” (Blue Planet Life)



Picture 45: Blue Planet Life logo. (source: <http://www.blue-planet-life.org/>)

Blue Planet Life offers academies as a social branching program. They are offering vocational training, entrepreneurial start-up and new green market places. Their online communication platform called EarthPeople creates the integrated incubator ecosystem as a collaborative global network. It serves as a homebase for academies and online education, connecting suppliers with markets, creating jobs and offering funds based on shared and gift economy solutions.

INTERVIEW RESULTS – Urs Beck, Founder of Blue Planet Life

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

What does green mean in your definition? At Blue Planet Life we call it resource efficiency which leads to degrowth. The benefit of it is simple: sustain the future of life on Earth for all living being.

We connect people to scientific and practical knowledge about the environment and important processes regarding water supply, sanitation, organic farming, energy and resource recycling.

We enable people to work as professionals in these areas by offering vocational training and entrepreneurial startup.

We enable people to have decent lives and lifestyles based on resource efficiency (at least factor 10).

We connect all stakeholders globally on our online platform.

Biggest obstacles and challenges:

- Today's growth based economic system;
- Not readiness of the mass to change.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

We haven't yet created real impact since we are in the startup phase with three pilot projects. However, our impact calculation is based on SROI.

The response is in general very positive and appreciating. At some point many people lose track because, based on their own educational background and conditioning, they lack the imagination of "out of the box solutions" to actually make our concept feasible. The problem is to link a good, need based and fulfilling life with a resource efficient economy (meaning no mandatory growth). In this area we

are in some way a threat to other business models, obviously. This aspect triggers some negative reactions, but very seldom.

Have those responses changed during the years? No.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

We will be the leading source for environmental education, entrepreneurial creativity, green job creation and knowledge.

The situation with the environment will become bad and perhaps is going down the drain to a certain extent. People are not yet ready to change. The suffering (a key element for change) is not big enough. That is the problem with climate change in general. The majority of people look out the window and see nothing bad, smell nothing irritating etc. So why change? In here is the key for the next step of evolution. We need to leave the short sightedness and evolve into people systemically connected and aware based on empathy, wisdom and compassion. Only then will we be able to see the suffering and threats lurking around the corner long before we are directly affected by it. And only then will we be able to change on time and, as a next step, create a socio- economic environment that is proactive instead of reactive. Until then ignorance will rule the world a bit longer up to the point where we burn our fingers pretty bad, like a child not knowing that the stove is really hot.

Organisations should play the role of the spark. The real players are the people, you and me.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

This question includes a misconception. The environment on Earth is sustainable and we don't need to create it at all. Our artificial (economic- money- belief) - systems are not sustainable. We have to change them by adapting them to nature's processes and flows. Yes, we have time to do that. It just takes a decision of one human being after the other. You can take this decision right now and start right away as we all can all.

In what way should the environmental problems be addressed more often?

In a very nature related, scientific, wise and empathic way within local communities rather than G20 etc. Bottom up instead of top down, grass root movements. As a roof we can use available technology to connect, exchange and learn together.

What would you suggest as a course of action for the future generations and green organizations?

Stop believing in unsustainable artificial systems and start to challenge, question and scrutinize everything. Don't take everything for granted. Realize that nature has to produce all resources (ingredients) as a first step to cover our needs. Go back to nature, learn from nature, adapt with nature, include natural processes into daily life. Be resource efficient, use technology for the benefit of life, develop it mindfully. Don't go faster than nature can keep up. Create a proactive socio- economic environment based on resource efficiency.

And even it sounds soapy, get out and see the beauty of everything to realize how stupid it is to risk everything for a couple bucks and endanger the life or our kids and every generation following.

5.3.5 CAMPI YA KANZI & MAASAI WILDERNESS CONSERVATION TRUST

Campi ya Kanzi is located in Kenya and was created in 1996 by Luca Belpietro and Antonella Bonomi, who have made it their home ever since. They run the business together with a team of sixty-five people from the local Maasai community, who help with the guiding, cooking, housekeeping and maintenance.

“Campi ya Kanzi has two goals: treat you to the most memorable vacation of your life, while helping the Maasai preserve their wildlife and cultural heritages.” (Campi ya Kanzi)

Campi ya Kanzi is a luxury eco lodge (Picture 46 & 47), the most awarded in East Africa and the first to be Gold rated by Ecotourism Kenya. State of the art technologies have been used to make the least impact on the environment: water comes from rain cropping, electricity from 120 photovoltaic panels, hot water from solar panels; food is cooked using an eco-friendly charcoal. But most importantly the lodge is a partnership with the Maasai local community.



Picture 46: View from Campi ya Kanzi eco lodge. (source: <http://www.maasai.com/wp-content/uploads/slideshow-gallery/CYK-A-View-of-Kili-from-Tembo-House.jpg>)

“Campi ya Kanzi believes in having a self-conduct code. We believe true ecotourism needs to address each of the following points:

1. Real involvement of local communities: Conservation in the 21st century should consider people, so the first point for ecotourism should be how a tourist facility relates to the local communities.

2. Carbon footprint on electricity usage, hot water, cooking: We use only renewable energies.

3. Environmental footprint on water usage: Campi ya Kanzi fulfills all its water needs by cropping the rains and storing water in special PVC bladders.

4. Preservation of wilderness: Hard to consider ecotourism not linked with preserving the wilderness one visits. Maasai Wilderness Conservation Trust and Campi ya Kanzi have the same mission: preserving the Maasai wilderness of the Greater Kilimanjaro Ecosystem.

5. Preservation of wildlife: The same applies to wildlife. Ecotourism is about protection of natural resources. In our ecosystem the most valuable resource is wildlife.

6. Preservation of culture: Ecotourism cannot happen without considering the local communities. In our case we are dealing with arguably the most iconic tribe of Africa, whose culture is still very much alive, and deserves full protection.

7. Employing locally: in order to support the local communities not only an eco-facility should employ locally, but also train local staff. Campi ya Kanzi has a staff of 65 Kenyans, 90% of which are local Maasai.

8. Environmental footprint in recycling wastes: Not only do we use recyclable energies for our electricity, for our hot water and for our cooking, we also recycle all of the recyclable wastes: organic waste goes into the camp compost, utilized in our organic vegetable garden; wastes are separated (glass, paper, plastic, tins) and recycled where feasible. The un-recyclable wastes are incinerated in a specially built incinerator.

9. Environmental footprint in building: our buildings were built not only with sustainable materials collected locally (lava rocks, thatched grass roofs, etc.), but we avoided any landscaping.

10. Environmental footprint of supplies: We buy from Nairobi suppliers in bulk, using the best of our knowledge to support those suppliers who care about the environment. Where we are located, local farming is done totally unsustainably. We have seen many lodges praising themselves for purchasing locally, while by doing so they contribute to the destruction of the environment.” (Campi ya Kanzi)



Picture 47: Campi ya Kanzi eco lodge from afar. (source: <http://www.maasai.com/wp-content/uploads/slideshow-gallery/CYK-Camp-layout-with-Chyulu-backdrop.jpg>)

“To properly and adequately assist the local community, we have founded the Maasai Wilderness Conservation Trust, which employs more than 250 local people, running conservation, education and health programs. The Trust and invests more than US\$1,500,000 per year into the community.” (Luca & Antonella)

Maasai Wilderness Conservation Trust (MWCT) helps and assists the Maasai to implement sustainable ways to manage their land and their resources (Picture 48). Workshop and trips are organized to enable the community to better protect their wilderness. Schools courses run by teachers and Maasai elders address the need to understand the delicate balance of the environment and how the entire community can play a role protecting it.



Picture 48: MWCT logo. (source: <http://www.maasaiwilderness.org/>)

“The Trust we created is sustained for about 15% of its budget by Campi ya Kanzi visitors, through the \$100 conservation fee they contribute to it for each day spent with us. The rest is collected through fund raising.” (Luca & Antonella)

MWCT funds and operates programs that promote sustainable economic benefits from conserving this ecosystem. Lease payments for conservancy zones, carbon credits, payments for watershed protection, sustainable eco-tourism, wildlife monitoring and security, conservation and tourism employment - these are just some of the ways MWCT is creating a cutting edge model of successful community-based conservation.

INTERVIEW RESULTS – *Luca Belpietro, founder of Campi ya Kanzi & Maasai Wilderness Conservation Trust*

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

My idea of being green is based on sustainability. It makes no sense to use unsustainably nonrenewable resources. So we are 100% solar to avoid burning carbon fossil fuel, for example. But it goes much further than that. Being green means making sure people, wilderness and wildlife are in balance. We simply voice all we do and why we do what we do at all levels: within our community, within Kenya to social media followers, clients and agents, to overseas followers, clients and agents, to the UN through our being awarded Equator Prize and Champion of the Earth. If I had to put it in a nutshell I would say “wilderness with thriving wildlife does pay off economically”.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

Our impact is on the community we are engaged with and the people we deal with.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

I think the new generations are much more tuned into sustainability and I believe the development will be based on better solutions than the ones so far adopted. I see MWCT has an organization run by the Maasai landlords, managing sustainably all their natural resources, through Payment for Ecosystem Services and not through philanthropy.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

It is not a matter of time and it is not a matter of it. Carry on with an unsustainable development model and you will not have development. Being green is not a choice, it is inevitable. We can lead ourselves there, or be lead there by self-caused problems whose only solution will be finding a sustainable way of living.

What would you suggest as a course of action for the future generations and green organizations?

Study in primary and secondary school issues related to limited growth and sustainability.

5.3.6 CARBON TRAINING INTERNATIONAL

Carbon Training International (Picture 49), headquartered in Melbourne, Australia, is a global training firm that takes a human-centered approach to reducing carbon emissions. It is a part of CO2ti Holdings group of businesses.

“We specialise in developing and licensing carbon, energy and environmental capacity building programs for large established education institutions, such as UCLA Extension in California. We also deliver training for corporations and individuals through open online courses and our network of delivery providers both locally and internationally.” (Carbon training international)

They offer various kinds of courses to assist and train corporations as well as individuals. Those courses include:

- Strategic carbon management course,
- carbon accounting masterclass,
- carbon offsets masterclass,
- cogeneration masterclass,
- reducing fleet emissions masterclass,
- national greenhouse and energy reporting audit compliance training,
- applied energy efficiency masterclass,
- operational carbon management course,
- home energy efficiency workshops,
- carbon management for business and home.

Carbon Training International has also introduced a full carbon management educational program for universities, colleges, etc. This program allows organizations to develop new job skills, cut costs and increase competitiveness while managing and reducing greenhouse gases.

“Carbon Management put simply is about achieving more, with less. It’s about achieving business outcomes whilst reducing the amount of carbon emissions produced as a by-product of doing business.” (Carbon training international)



Picture 49: Carbon Training International logo. (source: <http://co2ti.com/us/>)

INTERVIEW RESULTS

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

The overall benefit of sustainability initiatives to the organization is multiplied as various factors are included; Happier more engaged staff are more productive and take less sick leave.

When sustainability plans are well deployed the staff actually understand what the business objectives are and will “pull” in the same direction, enhancing team approach to a workforce and reducing the impact of silos in an organization.

Saving money in one area such as waste or energy usually flows through to staff finding savings in other areas such as waste, energy, raw material inputs, production waste and CO₂.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

Our organization has built the capacity of key decision makers in hundreds of businesses to reduce their carbon emissions. This has been apparent in Australia and internationally. This has lead to thousands of tons less emissions. Attitudes have

changed with the political situation especially in Australia. Generally in the population there is a reluctance to act if there is any cost associated with being more sustainable.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

Hopefully in 20 years there will be no need to show people how to reduce their emissions as there shouldn't be any! Our organization will move into innovation skills training.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

Yes, but not as we currently exist. I think that the world will have to adapt to a new "norm" of climate. All developments and energy production should include the externality costs.

What would you suggest as a course of action for the future generations and green organizations?

Become more politically active and take personal responsibility for actions at home and at work. Aim for carbon neutrality and encourage others through leadership.

5.3.7 CASCADE PEAK SPIRITS

Cascade Peak Spirits is based in Ashland, Oregon – USA, and is Pacific Northwest's first certified organic distillery, which is handcrafting artisan spirits from locally sourced products under the brand name of Organic Nation (Picture 66).

“We created the brand name of Organic Nation for our spirits as a way to depict that our organic spirits are more of a movement, something you are a part of, and a way you are taking a stand.” (Cascade Peak Spirits)



Picture 50: Organic Nation Gin & Vodka. (source: <http://organicnationspirits.com/>)

Cascade Peak Spirits and its suppliers have a strong commitment to nurturing our planet. By caretaking the land to eliminate or minimize the loss of topsoil, toxic runoffs to streams, soil contamination, and harm to insects & birds insures that future generations will be provided for with healthy food supplies.

“We are a Green business dedicated to implementing sustainable practices, recycling, solar and wind power and providing “living wage” jobs once we are large enough to hire some help. We offer consumers a socially responsible alternative to mass-produced corporate spirits.” (Cascade Peak Spirits)

INTERVIEW RESULTS – Diane Paulson, president and CEO of Cascade Peak Spirits

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

I believe the most important decision we made as a small business was to obtain organic certification through Oregon Tilth. OTCO is one of the most stringent certifiers in the world. By going to organics, we did not participate in the pollution of our air, water or soil. Without clean air, water, or soil, we are doomed. It was expensive to be certified.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

Our impact was small as we are a small producer. And we also believe in buying local, which we did as much as humanly possible. Our stance & mission are small and very important. Each individual person or business organization does make a difference whether large impact or small. Consumers appreciated that we were certified organic. Trust was easier & quicker to build.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

I see Organic Nation still doing its small part. And our passion to be 'green' & not pollute will have positive repercussion for years to come. The movement to sustain & respect Mother Earth with "green practices" is growing & growing will continue until it is the norm to not pollute or damage our planet.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

I have to believe that we will have enough time & have to believe in the power of personal choice of integrity that nurtures Mother Earth. I see more & more people making responsible & sustainable choices all the time. The NON-GMO farming & labeling of GMO based products will greatly help move the "Green Movement".

What would you suggest as a course of action for the future generations and green organizations?

To give their time & resources to nonprofit groups that support & nurture our planet. To stand up & speak out about what they believe in - to tell their stories.

5.3.8 CRAFTED HERBALS

Crafted Herbals, owned by Christy Wilkinson, is a result of passion and dedication to provide people and animals with affordable products that are natural, nontoxic and environmentally friendly. The company is located in Simpsonville, South Carolina – USA. Working as an e-commerce business, Crafted Herbals offers a wide range of soaps with different kinds of herbals, oils, goat milk, etc. None of the products are tested on animals.

“I would like for my business to become truly green. I will consider this mission successful when I use completely recycled, recyclable or compostable packaging and when all of my customers do one of the three with this packaging, only energy from sustainable sources, and products that leave no lasting environmental residues either in discarded packaging or their own formulation.” – Christy Wilkinson

Crafted Herbals' soaps are all homemade and handmade (Picture 50). There are no human made chemicals used in saponification process other than the pure sodium hydroxide or potassium hydroxide that is combined with oils and water.



Picture 51: Crafted Herbals' "Jjobutters" soap made with olive oil, sweet almond oil, castor oil, raw Shea butter, cocoa butter, a touch of cream, and unsaponified jojoba oil. (source: <http://www.craftedherbals.com/store/p4/Jjobutters.html>)

INTERVIEW RESULTS – Christy Wilkinson, owner of Crafted Herbals

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

First: I DO not feel comfortable asserting that my business is truly green. There are too many things that I have not implemented yet. I am still learning and researching. When one considers "green" and "business", the challenges seem daunting. A direct environmental benefit of not using chemical pesticides that I see within my own small business is a flourishing population of insects and animals in my herb garden. Battling pests without pesticides has presented some challenges and I cannot say that I have always been successful. I grew up in the 1980s and it seems that nothing regarding the negative impact of a disposable product oriented culture was presented. My mother grew up in the 1950s and it seems that nothing regarding the negative impact of incautiously human engineered pest control or cleaning products was presented. Now, decades later, we are feeling the impact globally of so many things that were once considered harmless. My goal in business is to keep environmental impact to a minimum. Things are not ideal yet. I would like to use reclaimed rain water, and purely sustainable energy for my business power sources, but alas we are tied into the fossil fuel grid here in South Carolina for the present and possibly for several more years to come. I can say that my business power and water needs are minimal compared to larger manufacturers of similar products in the same area. I want to believe that the products I offer are more environmentally kind than products based on complicated petrochemically based formulas manufactured with larger

energy consumption and waste, but rather than make a firm assertion of truth, I can say that I am continually researching this area. I do believe that a good starting point for reducing harmful impact is by simplifying and reducing need for manufactured petrochemicals, and seeking out prolific naturally occurring alternatives. Economically, my business has not made a significant impact in the community.

I see so much packaging touting the eco system benefits of the product within the package, and then I see that the package is plastic! What good is a kinder chemical formula within a container that will most likely end up littering or lasting in a landfill? This is a challenge I wrestle with in satisfying my own packaging requirements for certain items. Another conundrum is the issue of organic sustainably produced raw materials that are packaged in the ubiquitous plastic container. The mission is sustainability, but the results are less than perfect. So, I have quite a collection of various plastics that need to go to a recycler or be re-purposed and I feel dreadfully guilty when I in turn resort to a plastic container for a product, although I do stress the possibility of re-purposing or recycling such things. We have more than enough plastic!

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

My business is a fledgling, and really goes without much recognition. I can say that it is a business founded without debt and will never turn into a soul less corporation. Due to regulations at my location, I do not have a physical retail store. This is a great way to keep overhead extremely small. My business is strictly e-commerce, or the occasional flea market or festival. My neighbors would never know there was a business next to them, unless they were told.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

I would like for my business to become truly green. I will consider this mission successful when I use completely recycled, recyclable or compostable packaging and when all of my customers do one of the three with this packaging, only energy from sustainable sources, and products that leave no lasting environmental residues either in discarded packaging or their own formulation. When all of my raw materials are sustainably produced and packaged as well, then I might start feeling green. I would like to see profits from my business go toward making sustainable energy sources more available and acceptable in my local community, as well as invest in a local plastic recycling factory. I would like to see goods transportation that involves less use of fossil fuels or none at all, preferably. I would like to see workers actually earning wages that support a healthy lifestyle by being employed at my company, rather than wages that wouldn't get them out of a welfare line. If I can't pay a person enough to cover life needs, then I won't ask a person to work. This is a global exploitation problem. If a wage isn't enough here, then it should be a punishable

offense for a company to outsource a job into another country and pay workers even less.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

I do not know if we are out of time, but I believe that as long as we are here, we have the duty to learn and try. Sustainability starts in the home-with education and implementation. In my area, I do not see keen awareness of our interplay with our environment. There seems to be no so sense of cause and effect displayed by the general population. Rather than teach our children to grab what is easily obtainable in the local chain corporation store that is prospering through its ability to exploit conditions elsewhere, we need to teach them that someone probably endured torture in another location of the world in order to produce such an easily obtainable product. Sustainability goes way beyond declining the use of plastic bags at grocery stores. It is learning how to give back in helpful ways in all aspects of living. Ditching pesticides and buying organic isn't enough. If one person in ten is doing that, that is great, but still not much. One thing that is really scary here is that there is very little localization of resources. One usually has to drive or take some sort of transportation to obtain food and other goods. I would hate to imagine how long it would take to walk to a grocery store that offered reasonable food at reasonable prices! My guess is an hour there and two to get back, plus a significant amount of down time for lugging a few extra pounds of food. Milk would most likely go off, because it is quite hot outside still. We have all of these housing developments, miles from vital daily needs. So people think they must have automobiles! I can't imagine a significant portion of our elderly neighbors making such a trip for food on foot on a regular basis. We need to restructure our very communities for sustainability. Most of my elderly neighbors think I am bonkers when I mention solar powered street lights. They blink and go glassy eyed, then change the subject. It is forbidden to give a tomato plant higher ranking than the precious well groomed, fertilized and pesticide soaked sprinkler watered twice daily completely inedible lawn. I think about how a small herd of grazing animals could keep all the lawns mowed and fertilized too. Rather than see the community waste water on ornamental plants at the entrance of the neighborhood, we could have a community garden. All of these things I mention, and I get the glazed doughnut eye look in return. We wouldn't even have to buy water for the garden if we used rain barrels and the water from the holding pond! The people seem abhorrent of these ideas, and I don't understand it. Never mind the reaction I get to composting toilets! Although some designs are truly better than others in this area, the fear level of such things here is extreme! I have seen phenomenal amounts of shrub clippings bagged in plastic and hauled away to the land fill. No one was thinking-'Oh this can be mulch.' These people would rather proudly wash their riding mowers that they bought for their postage stamp sized utterly useless money sucking ground water poisoning lawns every sunny Saturday.

What would you suggest as a course of action for the future generations and green organizations?

The only course of action that I can see is the one that keeps trying. Learn, analyze, educate and implement. Implementation can only be a willing effort though. One of the latest campaigns is the one to block a rate increase in electricity. The electric company wants to raise rates as a response to tougher carbon emission control requirements. This is getting desired results from the populace. No one wants to pay more for electricity! This is the electric company's excuse for not wanting to clean up its act. The electric company derives most of its energy from fossil fuel. This electric company gained some notoriety from a recent coal ash spill. A solid way to get around this company's choke hold would be a massive community by community solar power installation. We have more sun time here than Germany so this is plausible. Theoretically, almost every neighborhood could supply its own power and possibly sell surplus back into the grid if desired.

5.3.9 EARTHLIFE AFRICA

Earthlife Africa's Johannesburg branch was founded in 1988 to mobilize civil society around environmental issues in relation to people. Ever since then, the organization has grown to include branches in Cape Town, eThekweni (formerly Durban) and Tshwane (formerly Pretoria), as well as in Windhoek, Namibia. Branches are autonomous, but linked through the ELA Statement of Belief and common campaign activities. Earthlife Africa is a largely volunteer-driven organisation, however, in recent years, funding has been acquired by some branches to staff and facilitate specific campaigns.

Earthlife Africa's campaigns include Sustainable Energy and Climate Change Project, Zero Waste Project, Animal Action, Anti-nuclear energy campaign, and more.

With the existence of legal frameworks in a society, the environmental struggles are also fought out in courts. As more and more information about non-compliance with and disregard of existing environmental legislation is unveiled, we see increasing numbers of respective court cases. Earthlife Africa (Picture 51) encourages communities to consider legal action against environmental injustices as an important element of their struggles.

“We seek to understand the complex and interdependent relations between human beings and the environment. We aim to uphold and realize the following principles:

- **Reverence for the Earth:** We encourage our members and activists to develop an attitude which is respectful of and nurturing towards the environment in all its diversity. Grassroots Democracy: There is equal and active participation by all in decision making and mutual responsibility for implementation in all human and environmental relations.
- **Rejection of Discrimination:** We reject all forms of discrimination. We pledge solidarity and co-operation with people struggling against oppression

and exploitation particularly through democratically organised representative organisations.

- **Non-Violence:** We promote peaceful solutions to conflict.
- **Ending Exploitation:** We fundamentally reject abusive power relations.
- **Freeing of Human Potential:** We encourage spiritual development, personal and social growth and the freeing of human potential.” (Earthlife Africa)



Picture 52: Earthlife Africa's logo. (source: <http://earthlife.org.za/>)

INTERVIEW RESULTS – Muna Lakhani, branch coordinator of Earthlife Africa Cape Town

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

The fact that most “GREENING” efforts do not seek to address the root causes of environmental and social harm, but instead focuses on greening buildings, not the business model, product or process. Neither is the continued drive for more and more “consumption” in the name of ever increasing profits – this simply means that more and more harm is done in the process.

Genuine greening would ensure that sustainable materials using sustainable energy would be at the top of the list.

Many, seeing as the organisation has been going for over 25 years – climate change was considered a joke when we first raised it in the 1990's; we have stopped many problematic products and processes, including waste incineration; previous attempts to build nuclear reactors; exposing industrial pollution at places such as Thor Chemicals and many others; raised awareness of the whole notion of “greening” the world; and many more successful campaigns...

The biggest obstacles and challenges was the power of companies to lobby government to water down legislation, allows pollution and to “sell” the wrong ideas of greening the economy such that the very term “green economy” no longer represents the original meaning but has become just a new consumer market.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

ELA was not considered very important to start with, but our consistent message of environmental and social justice has meant that while people (particularly in government) may not like what we have to say, we are a respected voice in the country, regionally and globally. The notion that being genuinely green (i.e. not just conservationists) has meant that society, including scholars, academics and government, now understand the notion of justice in this context.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

Ideally, it would stay much as it was and continue to increase its supporters and influence... If the world continues to support “economic growth” and the rampant form of Capitalism that now prevails, Humanity is going to die out... Which is all well and good, but the innocent will suffer first... which is unjust...

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

Only just enough time – relying on the UN and expecting companies to stop chasing profits, or governments to stop chasing “growth” means time is running out... genuine sustainability should be at the heart of all decision making, but is unlikely...

What would you suggest as a course of action for the future generations and green organizations?

If there are going to be many more future generations, look back and see how badly we did, and do NONE of what we did! Do not make a fetish of consumerism, or blindly follow those who make you feel bad and damage your self-esteem... concentrate on being a sound person, in heart, body, soul and mind, and ignore the blandishments of money = success or that “things” “stuff” will make you happy or popular... They do not!

5.3.10 ECOTEACH & ECOTEACH FOUNDATION

Founded by teachers in 1994, EcoTeach specializes in providing educational tours to Costa Rica, Peru, Mexico, Ecuador and Nicaragua for student groups, teachers, families and individuals. Company is based in Poulsbo, Washington. While fun and adventure are part of EcoTeach trips, it's the conservation work and cultural exchange that make difference for their travelers and the communities they visit (Picture 52).

“Our tours have always been focused on hands-on conservation work, authentic cultural exchange and real-world experiences. EcoTeach carefully selects local, community-based projects that have a positive impact on the environment, community and our travelers’ perceptions of the world.” (EcoTeach)



Picture 53: Mangrove reforestation project with Latin American Sea Turtle Program. (source: <http://ecoteach.smugmug.com/Project-and-Places/Reforestation/n-wHvtc/i-sCgXwWb>)

Each year, EcoTeach gives its volunteers a chance to participate in conservation projects such as planting trees, saving sea turtles, learning about sustainability, conducting turtle researches, volunteering at wildlife rescue center, etc. EcoTeach also works side by side with rural schools and communities in a variety of projects designed to aid their economic vitality.

“EcoTeach has been an advocate and active supporter of turtle conservation programs in Costa Rica since 1994. Most of our student tours and volunteer expeditions include hands-on conservation work at one of our sea turtle conservation projects along the Caribbean and Pacific coasts.” (EcoTeach)

The EcoTeach Foundation (Picture 53) is a nonprofit organization that works in tandem with local communities in Costa Rica to ensure economic and environmental sustainability, and provide vital funding for a wide variety of locally-owned and managed environmental, educational and grassroots cultural conservation projects.

In partnership with EcoTeach student tours, the Foundation builds relationships with community leaders, providing equipment and funds to encourage economically and environmentally sustainable farming, building and conservation practices, and enlisting hands-on volunteer support from visiting groups to administer these initiatives.

Through EcoTeach Foundation programs, financial assistance has been provided to support the threatened culture and peoples of the BriBri Indians of the Talamanca Mountains. The natural habitat of sea turtles is being conserved along the Caribbean shores of Costa Rica, local schools are receiving funds and necessary infrastructure, and a variety of animal conservation and rehabilitation initiatives are underway.



Picture 54: EcoTeach Foundation logo (source: <http://www.ecoteach.org/>)

INTERVIEW RESULTS – Greg Enright, EcoTeach director of finance

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

Our small eco-tour company started about 20 years ago. One of the biggest changes is in the area of printing. When we first started I remember printing and mailing over 110,000 pages per year. With more parents and teachers using the internet, our printing is now zero. Having the ability to do all of the data on the net and communicating through email has changed the way our business functions. It is interesting to see the change in how the access to computers has grown with younger parents and students. One of the biggest obstacles as a small business is that many of the software programs that are web based are expensive for a starting up. It's nice when large software companies have multiple payment plans.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

As an eco-tour company that takes individuals to foreign countries, it is always a struggle to find green companies as service providers. In many ways we are both learning how to work with companies and communities to become more aware of the environment. Being “green” is not always the most cost effective way, but small changes and awareness is moving forward.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

I think the biggest issue is the use of oil for transportation. Since we use airplanes to reach our destination and busses for transportation, it is sometimes hard to feel green as a company. Somehow we need to get off the oil band wagon and move more to sustainable resources.

What would you suggest as a course of action for the future generations and green organizations?

Support research in green science.

5.3.11 ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency (EPA) is at the front line of environmental protection and policing in Ireland. The EPA is an independent public body established under the Environmental Protection Agency Act, 1992 (Picture 54).

“We regulate and police activities that might otherwise cause pollution. We ensure there is solid information on environmental trends so that necessary actions are taken. Our priorities are protecting the Irish environment and ensuring that development is sustainable. We employ 340 people who work in ten locations throughout the country.” (EPA)

With mission to protect the environment in Ireland, EPA’s primary responsibilities include:

- Environmental licensing
- Enforcement of environmental law
- Environmental planning, education and guidance
- Monitoring, analysing and reporting on the environment
- Regulating Ireland's greenhouse gas emissions
- Environmental research development
- Strategic environmental assessment
- Waste management

- Radiological protection



Picture 55: Environmental Protection Agency logo. (source: <http://epa.ie/#&panel1-1>)

THE GREEN BUSINESS INITIATIVE

“The Green Business Initiative is an inter-linked suite of projects, specifically aimed at helping enterprises save money and help to reduce their environmental impacts. The projects aim to actively help enterprises to become more “resource efficient”. This means that they will use less energy, less water and less raw materials, in turn producing less waste and costing the business less money. It’s a great example of the Green Economy in action and a real win-win situation.” (EPA)

“The **Greenbusiness.ie** project offers a range of supports to help business identify savings. By registering at www.greenbusiness.ie and using the on-line audit tools, users can start to measure their resource use and identify where savings might be made. They can also request a site visit, where a Greenbusiness Advisor will visit their premises and identify actual "no" and low cost measures that will save businesses real money. The service is entirely free, confidential, and operated by the Clean Technology Centre, on behalf of the EPA.” (EPA)

“The **Green Hospitality Programme (GHP)** is a range of projects specifically aimed at the tourism and hospitality industry. The Green Hospitality Award (GHA) is a certification aimed at the Hotel, Hospitality and Catering Sector, and has already produced efficiency savings worth millions of euro per annum for its members.” (EPA)

“The **National Waste Prevention Programme** is working with healthcare providers to look at water and energy use and waste production, with a special emphasis on food waste. By investigating areas where efficiencies can be made, often through simple "no" and low cost procedures, real savings can be generated for hospitals.” (EPA)

“**SMILE (Saving Money through Industrial Linkages and Exchanges)** is a project where businesses identify useful by-products from their processes or activities, and are "matched" with businesses seeking those same resources. This can be via an on-

line directory or at tri-yearly "speed dating" networking sessions, where businesses meet at facilitated events to identify their resource "wants" and "needs"." (EPA)

INTERVIEW RESULTS – Keiron Phillips, EPA Green Business Initiative project manager

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

The benefits of being green I would like to expose the most are the associated cost savings that can accrue. People assume the environmentally friendly choice is always more expensive but one considers the lifecycle, or say, LED lighting, payback times can be very short, less than a year for example.

The Green Business Initiative is an umbrella of projects covering many aspects of resource efficiency. Over the 6 years it has been operating, it has saved client businesses, directly, well over €30m and indirectly, through the production of guidance, "how-to's", case studies etc., even more than this. Considering the level of investment per capita in these projects appears much lower than in other EU countries, I feel the Green Business Initiative has certainly a significant national impact, and on a regional basis, elements such as the Green Hospitality Award have been cited as Exemplar projects.

The biggest challenges include;

- a) Selling the benefits of the resource efficiency agenda to businesses and individuals, especially in times of austerity. Most individuals are apathetic and do not wish to change established practices, even when the business case is compelling.
- b) Lack of cash flow. Many businesses would rather absorb inefficiencies in operating costs than make modest CAPEX to generate year on year benefits.
- c) Apathy as to the environment as an issue.
- d) Fear of the EPA as an enforcement body.
- e) Confidentiality and inability to cite good case studies because businesses who save significant amounts of money using our service often do not wish this to be made public.
- f) Lack of engagement from other State organisations, although this is slowly starting to change.

What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

In the near future, I do not see any significant changes on the environment in Ireland that will have any significant impact on people's lives. No doubt there will be more extreme weather events, but people do not link these with their own actions and choices and generally, the populace will dis-associate micro climactic effects with

macro climate issues. Green organisations will continue to be considered marginal for the foreseeable future.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

This question needs to be thought out better. Of course there is always enough time to form a sustainable future, this is not time limited. However, if you mean is there time enough to form a sustainable future to mitigate climate change, no, that horse has well and truly bolted. We have, in my view, passed the point of no return and efforts much be made now to try and limit further damage and invest in technologies and infrastructure that will allow us to live with the damage already done. People are always firstly motivated by self-interest and until the effects of environmental degradation affect enough people to an extent that it becomes a motivating factor to enable behaviour change, then no significant progress will be made. Sadly it takes disaster to move people to action, and then after the disaster, people slip back into their pre-existing paradigm. The problem is the issue is too big and too abstract for most people to grasp, and many of the people doing the telling are over-zealous in their messaging and this means that the listening majority tune them out. No-one is prepared to reduce their standard of living to the point where their lifestyle is sustainable. I suspect that the vast majority hope that technology will provide a method of filling that gap, but until governments provide the incentive to make filling the sustainability gap profitable for those developing those technologies, then progress will be limited.

A good example of this reactionary way of addressing environmental issues is that of the UK Government and the Environment Agency. The EA was subject to a significant budget and manpower cut until the flooding of 2012/13 caused so much public outcry that suddenly the government decided it did need to invest in the EA after all, and the massive cut was not made.

Scientists and policy makers need to present a united front to the public, and vested interests, to say “there is a problem and this is how we intend dealing with it”. The link between lifestyle and climate effect needs to be a constant, consistent method, and people need to be reminded of it often. They also need to be offered a sustainable, affordable choice of lifestyle that will lower their footprint and maintain their standard to living, and this needs to be made as easy and accessible as possible.

What would you suggest as a course of action for the future generations and green organizations?

Future generations need to adapt sustainability as a core element of their lives. Organisations need to provide mechanisms to enable people to do this easily, and cheaply, so that it is more difficult NOT to live sustainably. Most important this should not be seen as a cost burden to the populace.

5.3.12 FAIRTRADE INTERNATIONAL

Fairtrade International roots back in year 1988 when the first Fairtrade label was launched. The Fairtrade international organization system nowadays consists of three producer networks, 25 Fairtrade organizations, Fairtrade International, and FLOCERT, the independent certification body of the global Fairtrade system.

The three producer networks are regional associations that Fairtrade certified producer organizations may join if they wish. They represent small-scale producers, workers and other producer stakeholders. They are located in Asia, Africa, and Latin America and the Caribbean.

Fairtrade organizations literally represent fair trade, conducted in the way that opposes conventional trade, as it bases on the partnership between producers and traders, businesses and consumers. Business operations are done in environmentally sustainable way, meaning that Fairtrade organizations must: protect the environment in which they work and live in, not use genetically modified organisms, oblige international environmental standards, strive towards organic production and lessen their impact on the environment.

»The Fairtrade Standards promote sustainable development through best agricultural practices, which not only guide producers to adapt to climate change, but also encourage them to mitigate their impact. The environmental standards include the following practices: integrated pest management, prevention of soil erosion, improvement of soil fertility, sustainable use of water sources, sustainable waste management, prohibition of GMOs, protection of biodiversity, use of renewable energy, and reduction of greenhouse gas emissions.« (Fairtrade International, <http://www.fairtrade.net/climate-change.html>)

In return for being a member of Fairtrade, for all products sold, Fairtrade standards require the buyers to pay a Fairtrade Minimum Price and/or a Fairtrade Premium to the producers. The Fairtrade Minimum Price aims to help producers cover the costs of sustainable production. The Fairtrade Premium is money for the producers or for the workers on a plantation to invest in improving the quality of their lives. Premium money in this sense is meant to improve the situation of workers, farmers and local communities in health, education, environment, economy etc. The farmers or workers manage the use of the Fairtrade Premium and decide the most important priorities for themselves. Furthermore, a recent study by the University of Gottingen showed that incomes of smallholder farmers increased by 30% through Fairtrade.

For small-scale producers Fairtrade standards require an organizational structure that allows the producers to take a product to the market. All members of the organization need to have access to democratic decision-making processes and as far as possible participate in the activities of the organization. The organization needs to be set up in a transparent way for its members and must not discriminate any particular member or social group. In hired labour situations the Fairtrade standards require the

company to implement social rights and security to its workers. Forced labour and child labour are prohibited in the Fairtrade standards.

The FAIRTRADE Mark is worldwide known symbol of Fairtrade (Picture 55). Products with this Mark meet the social, environmental and economic Standards set by Fairtrade. The international FAIRTRADE Mark and its distinct blue and green roundel; which symbolizes the relationship between consumers and campaigners, companies and traders, farmers and workers in a joint endeavour to improve lives and wellbeing through everyday shopping; were created in 2002 to replace multiple individual national Marks used before. The logo unites a blue sky symbolizing optimism, green for growth and a raised arm for empowerment. All together they represent the vision and principles of Fairtrade as a modern movement.



Picture 56: FAIRTRADE Mark. (source: <http://www.fairtrade.net/>)

The FAIRTRADE Mark can be found on more than 27,000 products around the world which include food and drinks, cotton and clothing, and even jewelry made from Fairtrade gold and other precious metals. Products with the FAIRTRADE Mark are available in over 120 countries.

Beside the previously mentioned benefits, Fairtrade also offers support for producers in confronting climate change. The system supports implementation of adaptation measures such as: organizational development, financial stability, environmental sustainability, investment possibilities, and greater autonomy. A global work strategy for climate change has been developed, centering on producer services, producer support for climate change adaptation, and producer-driven advocacy. The main task is to empower vulnerable producers to adapt to climate change and support them to lessen the impacts, while stimulating further sustainable development practices.

»In addition to its environmental standards, Fairtrade is currently assessing and developing voluntary climate change standards to further support producers adapt to the effects of climate change and mitigate their impact. These include:

- Development of a FairCarbonCredits standard to ensure fairness in the production and trade of carbon credits, while promoting best practice in terms of climate change mitigation and empowering producers and their communities.
- A possible FairAdaptation Standard, aiming to channel greater levels of investment towards building the resilience of the most vulnerable to climate change. FairAdaptation will also promote best practice in terms of climate change adaptation while empowering producer communities.« (Fairtrade International, <http://www.fairtrade.net/climate-change.html>)

Fairtrade also launched Access Fund to address smallholders' need for credit and has already loaned \$15 million to smallholder producers. Today 1.5 million farmers and workers in 1,210 organisations in 74 countries participate in Fairtrade.

INTERVIEW RESULTS – Fairtrade International

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

Fairtrade rewards and encourages farming and production practices that are environmentally sustainable. Producers are also encouraged to strive toward organic certification. Organic production is rewarded by higher Fairtrade Minimum Prices for organically grown products.

Fairtrade standards include requirements for environmentally sound agricultural practices, e.g. Producers must:

- Protect the environment in which they work and live. This includes areas of natural water, virgin forest and other important land areas and dealing with problems of erosion and waste management.
- Develop, implement and monitor an operations plan on their farming and techniques. This needs to reflect a balance between protecting the environment and good business results.
- Follow national and international standards for the handling of chemicals. There is a list of chemicals which they must not use.
- Not, intentionally, use products which include genetically modified organisms (GMO).

- Work out and monitor what affect their activities are having on the environment. Then they must make a plan of how they can lessen the impacts and keep checking that this plan is carried out.

As the effects of climate change become more evident, Fairtrade producers need additional technical and financial support to confront these new challenges. Beyond the benefits that Fairtrade offers to producers (Fairtrade Minimum Price, Fairtrade Premium, strong environmental standards, etc.), the system supports basic pre-conditions that are needed to implement climate change adaptation measures such as: organizational development, environmental sustainability, financial stability, investment possibilities, and greater autonomy.

Fairtrade International acknowledges that the current benefits of the Fairtrade system are insufficient to help producers confront the effects of climate change. As a result, we have developed a climate change strategy. A global work plan for climate change has been developed, focusing on producer services (i.e. climate change standards), producer support for climate change adaptation (creating partnerships for adaptation projects), and producer-driven advocacy. The overall mission is to enable vulnerable producers to adapt to climate change and support them to mitigate the impacts, while promoting further sustainable development practices.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

Trade today continues to be more and more concentrated in the hands of fewer companies, so strengthening their power in supply chains and deepening the divide with producers. That is why Fairtrade strives to be as innovative as our founding pioneers. We have for example started ground-breaking work on how we can make progress towards a living wage for workers on plantations. We have changed our whole global structure, ensuring that the producers, organised into networks in Africa, Asia and Latin America, have half-ownership of Fairtrade International. We've taken a first step into the minefield of Fairtrade gold, shining a light on the scandalous poverty among small-scale miners. And we're working on new standards for textiles and for Fairtrade Carbon Credits. We've launched a Fairtrade Access Fund to address smallholders' need for credit and already has loaned \$15 million to smallholder producers.

25 years ago, Fairtrade burst onto shop shelves with a dangerous idea: that farmers and workers in developing countries should be paid a fair price, that they needed a better deal – and that we, the companies and consumers should pay for the true value of our cocoa, coffee or bananas. Of course, Fairtrade, like all dangerous ideas was initially dismissed, laughed at, argued down by confident economists.

But that wild dangerous idea soon became part of a quiet revolution in our shopping baskets as the public took Fairtrade to heart. The brilliant idea was that step by step, product by product, we could put justice into trade and create the living alternative.

Today 1.5 million farmers and workers in 1,210 organisations in 74 countries participate in Fairtrade.

A recent study by the University of Gottingen found that incomes of smallholder farmers increased by 30% through Fairtrade. For other coops, such as olive oil farmers in Palestine or women coffee farmers in Congo, Fairtrade is a lifeline as they struggle to access markets and build the economic underpinnings of peace. In Paraguay this year, sugar farmers cut the ribbon on the world's first sugar mill owned by smallholders.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

Unfortunately, the picture of the future does not appear promising. In fact, several modeling studies predict that by 2050 the productivity of coffee, cocoa, tea or cotton will severely be affected and production in some areas might even disappear. Many farmers will need to adapt their practices to the new climatic conditions or risk losing their livelihoods.

The Fairtrade system has demonstrated itself to be an alternative trade mechanism that takes into account key principles such as social justice and environmental sustainability. The Fairtrade system, thus, believes that conscious consumers from the north should continue selecting Fairtrade products in solidarity with populations from the south and in support of sustainable development, taking into account both climate change adaptation and mitigation. We believe that Fairtrade, as a model for a fairer global trading system, can be part of the solution.

Like all individuals, businesses and governments, green organizations should also be looking at the direct impact of their operations. Fairtrade International and some member organisations have introduced carbon reduction plans to reduce their operational impact on climate change. Fairtrade International has developed a methodology to monitor its own carbon emissions and is implementing a strategy to reduce them. This methodology has been audited by an external party to verify its efficiency and accuracy. The strategy is targeting to reduce 5% of the emissions by 2015 and 10% by 2017. Fairtrade International will promote the use of a similar approach throughout the international Fairtrade system.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

We need a stronger voice for farmers and workers in finding solutions. Right now the people most affected by climate change – rural agricultural communities in developing countries – are the ones whose voice is least heard. They also need investment. In our experience in Fairtrade, we have seen farming communities make very savvy, future-looking investments in their farms and businesses.

What would you suggest as a course of action for the future generations and green organizations?

The global food production and trading system is broken. Farmers and workers at the beginning of the chain don't get a fair share of the benefits of trade. Across agricultural chains, a tiny handful of traders, branded manufacturers and retailers control the terms of trade and make good business in the process. For example, just four corporations trade 90% of the world's grain, and 5 supermarkets control 50% of the market in Europe. They can set the terms of trade in their favour, so farmers make a fraction of the overall value. In cocoa, for example, retailers and branded manufacturers are each taking 35-40% of the value each – leaving the cocoa farmers themselves with just 5%. Now farmers from developing countries are increasingly showing their concern as they are more and more affected by climate change.

In order to address this new global issue and in solidarity with the most affected and least responsible, we need to find new ways of working. Through a fairer approach to trade we can offer this to today's farmers and workers and provide hope that the next generation will be better off. Strong environmental standards in trade, better terms of trade and a stronger voice for farmers and workers, allied with the commitment of every actor in the supply chain, can help safeguard the world's precious natural resources.

Future generations and green organizations can begin by supporting a system of fairer trade to induce sustainable change. Fairtrade is a true partnership; farmers and workers, companies and traders, consumers and campaigners working hand in hand.

Farmers need to be supported in adapting to climate change challenges and reducing their impact on climate change. Empowered and energized farmers and workers, willing to invest and innovate, are at the heart of efficient and productive supplier businesses. Adapting agricultural practices and improving water management techniques can help in sustaining livelihoods and, thus, preventing migration and displacement. Further, many adaptation measures also help to mitigate carbon emissions or to sequester carbon.

5.3.13 GOLD STAR HONEYBEES

Driven with a passion for organic farming and beekeeping, Christy Hemenway founded Gold Star Honeybees in 2007. Company is headquartered in Farmingdale, Maine – USA.

Gold Star Honeybees manufactures high-quality natural top bar beehive kits (Picture 56). Besides selling kits for making the hives, the company also offers service for those who want to help the honeybees but are unable to keep their own bees. In that case, Gold Star Honeybees places a hive on a client's property and maintain it for the full season. The client gets all the benefits of bees' pollination, without having to tend the hive themselves. The company also captures and relocates swarms

throughout the area. Furthermore, it also supports top bar beekeepers with education. A Gold Star Honeybees Weekend Intensive offers a bee's eye view of the reasons that top bar hives make sense – for bees, for beekeepers and for the planet.



Picture 57: Gold Star Honeybees' premiere Deluxe Top Bar Hive Kit: The New Englander Model. (source: <http://www.goldstarhoneybees.com/products/13-Deluxe-Top-Bar-Hive-Kits/36-The-New-Englander-Model/>)

Christy Hemenway is also the author of *The Thinking Beekeeper – A Guide to Natural Beekeeping in Top Bar Hives*. The book was published in 2013 and contains the practical how-to informations about natural beekeeping.

INTERVIEW RESULTS – *Christy Hemenway, founder and owner of Gold Star Honeybees*

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

I think the most important thing that people should be encouraged to understand is the fact that all systems on this earth are connected. I happen to work with honeybees, which point to this fact repeatedly. They are small insects, and cannot be “contained” in nature – so they come into contact with all substances that are used in our environment, especially in agriculture and landscaping. My work as a treatment-free beekeeper and advocate for more natural beekeeping as well as more natural agriculture is intended to support and sustain the backyard beekeeper, in contrast to the large-scale industrial beekeeper.

One challenge I have faced has been to overcome some outdated methodology long ago adopted by traditional beekeepers – a mindset that has come to believe that using chemical treatments in the hive is not only beneficial, but necessary.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

Gold Star Honeybees has been generally well accepted by, and I personally have been invited to speak to state and regional beekeeping organizations – to groups where it is known beforehand that there is a bit of animosity toward treatment-free beekeeping. Being able to speak levelly with an opinionated audience, and handle their questions with alacrity has been a valuable tool in shifting the paradigm toward natural beekeeping – and has helped top bar hives to become increasingly accepted by the mainstream.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

Myself personally? Good question... But what do I think is going to happen with the environment and what role will green organizations play? I think that there's a chance that we will manage to "shift the paradigm" and turn back the clock on our callous mindset. The real question in my mind is whether the planet can undo the damage we've inflicted by poisoning our environment. I think green organizations are the "bannermen" for the trend back to green/organic/natural/clean/safe.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

I don't know. I don't know that we, as humans, know. If we were to stop every single poisonous thing that's occurring right this minute, is the damage too great to repair? Who has the answer to that question? Long term effects are hard to study.

What would you suggest as a course of action for the future generations and green organizations?

To work towards crafting a sincere, planet-friendly standard and adhere to it.

5.3.14 GREENSTREAM NETWORK

GreenStream Network is a leading Nordic company focused on delivering energy efficiency projects in China and providing carbon asset management and comprehensive services in the climate and renewable energy markets. GreenStream Network (Picture 57) was founded in July 2001 in Helsinki, Finland by three climate enthusiasts from energy and environmental markets. With offices in Helsinki, Beijing, Berlin and Kiev, GreenStream is ideally placed to operate in the interconnected world of climate markets.

“Our vision is a world in which climate change has been mitigated to a sustainable level through determined and co-operative action by responsible nations, businesses and people.” (GreenStream Network)

As one of the first companies in the climate markets, it got a fast start. The company soon became the most successful intermediary in the green certificate, effectively green electricity markets. As the clients’ demands grew, the intermediary was expanded into portfolio management. GreenStream was chosen twice to manage the EU ETS emissions allowance portfolio of State of Denmark and currently it manages the emissions reduction portfolio of the State of Finland.

During the years GreenStream has developed an extensive track record across the entire climate sector. After successful launch of intermediary and advisory services the company started asset management business in 2006. Again, the company reached success and launched one renewable energy fund and four carbon funds: Kyoto-period funds Fine Carbon Fund and Nordic Carbon Fund, and later two post-Kyoto funds Climate Opportunity Fund and Fine Post-2012 Carbon Fund. GreenStream was also elected to act as Carbon Manager for European Bank for Reconstruction and Development and European Investment Bank Multilateral Carbon Credit Fund. In short time GreenStream became the leader in the management of advanced, client-focused environmental funds.



Picture 58: GreenStream Network logo. (source:

http://www.greenstream.net/sites/greenstream.net/files/logos/GreenStream_logo_cm_yk_300dpi_6cm.jpg)

INTERVIEW RESULTS – Jussi Nykänen, CEO & Chairman of the Board of GreenStream Network

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

We are involved in development and financing of emission-reducing projects. There is a range of projects from industrial energy efficiency projects and renewable energy power production to small-scale projects like solar cooking systems for households. The first ones are making the industrial processes less harmful for environment and reduce the carbon emissions, the latter is an example of a project that, in addition to

bringing environmental benefits, saves time for women and enables them to help their children with school or take care of their grandparents, for example. Our scope is merely in the larger projects as those have the biggest effect on climate change, which is the biggest risk for the society.

The key obstacle is that the climate policies are currently not strong enough and the incentives for companies to act have gone down simultaneously with the carbon prices in the emissions trading markets. The political momentum is more in financial issues and for example in Ukraine & IS.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

The impact remains to be seen but as it is, we act globally and hope to make an effect on large scale. When the company was established in 2001 there were no real environmental markets and we were one of the first companies on global scale. The feedback was mostly positive as we were a small but extraordinary company. The industry did not believe that the emissions trading markets would start and consequently they did not consider us seriously. The feedback currently is much more professional and we are considered as a credible “business-world” actor. Funnily, while that has happened, some (but not all) environmental organizations and NGOs have taken more distance.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

The biggest change that is happening is that while the Western World is losing momentum with environmental matters, China is going to other direction: they are establishing new environmental policy schemes and are investing in renewables and energy efficiency. They seem to be taking the lead in the environmental markets which will increase pressure to European industry. The EU is waiting for an agreement concerning the 2020 targets and I hope that EU will again take the lead after 2020.

The big change during the next 20 years will however not be political: the natural disasters (floods, draughts, hurricanes etc.) will become more frequent leading to human catastrophes. We have already seen that the process is on-going. This will lead to major change in the politics, industry and our daily life. In a way, although it is quite sad, the fact that environmental problems are getting more severe is one of the drivers for the companies that are active in environmental markets.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

Although I believe that we have to fight for the environment, I do not believe that the current way of living can continue for long as we are running out of food & water, just to mention some examples. It seems difficult to enforce policies that would secure sustainability. As this seems to be the case, natural disasters will become more frequent. Nevertheless, I believe that we will however find ways to reorganize our lives – while maybe creating a more artificial world.

One should look forward and for opportunities, not to try to protect existing models. Currently the key would be to re-invent policies that create (proper) carbon pricing and create policies that make the price of environmental damage visible to CEOs and CFOs. One would also need to consider adaption to environmental problems, not only prevention of those.

What would you suggest as a course of action for the future generations and green organizations?

I hope for that the change can be made from inside the system. To enable large-scale implementation of actions and change in the behavior in a major sense we need to find solutions that enable business life to take action; the Governments & NGOs cannot make the change on their own. Thus I see public-private partnership as one of the tools to maximize the impact of our environmental efforts.

5.3.15 HOCKERTON HOUSING PROJECT

Hockerton Housing Project (HHP) is a self-sufficient co-housing development (Picture 58). The company was founded in 1996 and is based in Nottinghamshire, England. The earth-sheltered homes are built with high thermal mass and high levels of insulation to eliminate the need for heating systems. Residents of the five houses generate their own clean energy to meet their remaining energy needs. They also grow most of their own food, harvest their own water and recycle waste materials.

“Having proved our approach works in practice, we now host tours and courses, and provide consultancy services to help others deliver sustainability in their home or workplace. We also run a number of craft events for children and adults, making the most of the natural resources at HHP.” (HHP)

Food at HHP is grown communally, with households growing 50 – 80 percent of their fruit and vegetables. Chickens provide eggs for residents, and sheep are kept for grazing and meat. The land provides food and a water catchment area, but also offers space for social activities. Hockerton Housing Project is an exemplar of community energy: The five homes on the Project share two wind turbines (total 11kW) and 7 solar PV arrays (total 13.6kW). Rainwater harvesting is also a part of an integrated system that minimises the costs of water treatment and use.

At Hockerton Housing Project: Potable and non-potable water are captured and treated separately; No chemicals are added to the water; Water heating uses a third of the energy used by an average household; Residents use efficient appliances and behaviour to conserve water; A reedbed treats waste water; There is no wasteful treatment of water used on the vegetable garden.



Picture 59: Hockerton Housing Project co-housing community. (source: <http://www.hockertonhousingproject.org.uk/wp-content/uploads/2013/01/General-shotPVsHigh-Res1.jpg>)

INTERVIEW RESULTS – *Pete Rajan, Hockerton Housing Project team member*

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

I think the benefits of being green are that we can move to a more sustainable lifestyle at a local and global level in the spheres of Environment, economics and social interaction.

We aim to inspire individuals and groups to believe that working sustainably through implementing green ideas is practical and achievable with benefits to health and the environment and this doesn't have to be at a cost to a comfortable lifestyle. We demonstrate this through offering education and tours of our housing project, as well as offering consultancy. So people can see at first-hand what can be achieved by ordinary people.

Initially the obstacles we had to face were our own internal beliefs about what might be possible and being willing to challenge the status quo and take personal risks with what we were seeking to do. From there in building a sustainable housing development we had to confront local skepticisms as well as the doubters in our local planning department and council that what we proposed to do was viable and should be approved.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

We have over 2000 visitors a year from universities, schools, individuals, builders and planners. We are visited by media from the UK but in addition across the world, including the Ukraine, S. Korea and New Zealand. Locally through our efforts we have established a local sustainable energy producing company funded largely by local people who as well as benefiting from the income associated with this donate funds to the community to reduce energy consumption in the local housing stock.

As you can see from the above, from skepticism in our local area, we have managed to encourage people to work alongside us, and our local planners have treated us as something of an exemplar bringing people to visit.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

We are a small organisation, but we believe on the multiplier effect i.e. that those who have visited us will carry the messages we believe in out to the wider community and some of these ideas will be taken up as mainstream. We see ourselves adapting and changing the emphasis of what we deliver as an organisation, staying small scale but acting to demonstrate that small community organisation based upon a cooperative model are desirable and effective.

The environment will continue to be under challenge from short termism and political stagnation. AS crises develop there will be an increasing effort to seek solutions and we hope that individuals, groups and governments will look to projects like ours to find solutions.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

I am not sure about this but we have to remain optimistic. Governments have to take much more focused an active lead nationally and globally and recognize that the aim of continual growth is illusory.

What would you suggest as a course of action for the future generations and green organizations?

I think green organizations will grow in terms of their relevance and productivity will be measured more in terms of sustainability and not just in terms of short term economic outputs.

Green organizations need to be able to capture these elements of sustainability in terms of performance indicators to be able to speak the language of large companies and prove the relevance of what we are doing.

5.3.16 KANON ORGANIC VODKA

Kanon Ventures, better known as Kanon Organic Vodka, is a liquor company based in Stockholm, Sweden. It was originally founded in 1580 by King Karl IV of Sweden who built the Åkers Styckebruk foundry in Gripsholm to produce cannons for the Swedish army – and the distillery to make vodka for its workers. Reputed for quality, the high demand for cannons saw an increase in vodka production as well.

By 1775, King Gustaf III had monopolized alcohol production to fund his many wars and even borrowed money from the owner of Åkers Styckebruk, Joachim Von Wahrendorff. Unable to pay his debt back to Von Wahrendorff, King Gustaf made Gripsholm a Royal Distillery. Freed from state regulation it became the largest distillery in Sweden, producing over a million liters a year and employing nearly 300 workers. In 1792 Gripsholm fell prey to royal whim – King Gustaf was shot and his successor Gustav IV Adolf outlawed the private production of spirits. Gripsholm was closed for over 200 years until Sweden lifted the monopoly in the 1990's and Kanon Vodka owner and founder Peter Hjelm set out to revive the Gripsholm legacy. Kanon Organic Vodka is nowadays being sent out mainly to the USA.

Kanon Vodka focuses on sourcing the ingredients from local farmers who grow according to EU and USDA organic standards. This assures that farmers don't use synthetic fertilizers or pesticides. Kanon never spurs distillation along with synthetic processes. They also use water exclusively from their own artesian aquifer.

“400 years ago distilling with wheat from a local source was self-evident. And we took that as our starting point. We love our past, but we do some things better now. Responsibility to the environment is a no brainer for us. We hope the great taste of our good practice will show people that green is anything but boring.” (Kanon Organic Vodka)

Kanon's entire distillery is run on electricity sourced from wind and waterpower. The offices are heated from steam produced in the fermentation process. By-products are reused in other industries or recycled into biofuel for local buses. On top of all, bottles are made from recycled glass, and are 100% recyclable (Picture 59).



Picture 60: Kanon Organic Vodka. (source: <http://kanonvodka.com/>)

INTERVIEW RESULTS – Peter Wijk, president and CEO of Kanon Ventures

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

The biggest challenge was building our production plant, making it as green as possible. The benefits are not immediate when you look at the P&L. However we believe our product is done in a better way than 99% of our competition by being certified organic. We simply believe that putting good raw materials into production makes a better product for our consumers and they will recognize this.

We decided that we wanted a sustainable distillery for ourselves, to make a positive impact regionally. We want to do what we can as global citizens as much as we do in our private lives. I get the sense that many corporate leaders are actually pretty good at home, recycling etc. But as soon as they enter into the corporate world this is out the window and profit is the ONLY measure. Sure, our profit margins are lower than most in our industry and category but as we built this into the original business plan it works for us. We're a company built for the 21st Century with roots dating back to 1580. Best of both worlds.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

Our company culture defines the team. We believe in our values of being sustainable and organic. To be the best we can. We're not perfect and we can always do more and do better, but the strive for this is appreciated, by business partners consumer as well as the local region where our production sits. We donate waste ethanol to the local municipal busses which has a direct impact on the environment where we do business.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

I think companies like ours are leaders, we'd win the front. Future governments will push companies to do better in this area if they don't do it themselves. I think it might be a slight competitive advantage in the short term but it will be mandatory 20 years from now.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

There is time but I wish more leaders took it seriously.

What would you suggest as a course of action for the future generations and green organizations?

Consumers have all the power. If they choose green products and services corporations will change. By nature they follow the money.

5.3.17 LUNAPADS INTERNATIONAL

Lunapads International is a women-owned mission driven business based in Vancouver, Canada.

“Our mission is to help menstruators have healthier and more positive experiences of their menstrual cycles, and by extension, their bodies overall. Our team is made up of a passionate group who believe that using natural menstrual products is a creative and empowering way to honor and care for ourselves and the planet.”
(Lunapads International)

The benefits of using a reusable Lunapads products show greatly in reduced waste, financial savings, increased comfort and fewer health issues (Picture 60).

Pads4Girls is a social impact project of Lunapads. Its mission is to support better access to education for girls in developing nations, by providing sustainable, affordable menstrual care products for girls in need, as well as improving menstruation awareness. Since company's foundation in 2000, Lunapads has been

providing girls and women in developing nations with cloth pads and underwear so that they can attend school or work during their period.

“The solution is simple; provide school girls with washable menstrual pads and underwear that will last them for years. Providing reusable products means the burden of purchasing products each month is removed and the environmental devastation that thousands of disposable pads would have on the landscape is alleviated.” (Lunapads International)



Picture 61: Lunapads' reusable overnight pad & insert. (source: <http://lunapads.com/pads-and-liners/pad-style-lunapads/heavy-pad.html>)

INTERVIEW RESULTS – *Christa Trueman, team member of Lunapads International*

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

The benefits of "being green" extend from the personal to the global, from the philosophical to the political. All of these aspects play a role in Lunapads' desire to be an eco-friendly company. From a personal perspective, using products that are made from recognizable materials and from ethical sources means we know exactly what is being put on/near our bodies, without the wondering and confusion that other disposable products can cause. From a global perspective, making sure our supply chain is ecologically sound, from sourcing raw materials to how the products are manufactured (right next door to our warehouse/distribution center), to how long our customers will use the products, to how they can be disposed of, means we are having a major impact on global levels of garbage and pollution. Philosophically, being green means recentering our experiences as inhabitants of earth by becoming more in tune with our own bodies/cycles and how they are linked to the cycles of the

planet; additionally we can actually live our ideals of limiting our impact and the harm we do by simply existing. Politically we can take up the cause of educating others, through sharing the knowledge of our products and how they can be used, and through consciousness raising around the harm disposable culture has on the environment and our bodies.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

Worldwide and regionally we have helped thousands of women make the switch to a greener, healthier way to manage their menstrual cycle. Response in the beginning was skeptical and perhaps a little grossed out as women have been taught to consider their bodies and menstrual periods unclean and taboo through centuries of patriarchy and misogyny. The industrial menstrual product complex of disposable tampons and pads has contributed to that through intense, expensive marketing attempts that teach girls and young women that they must hide the fact that they menstruate completely. We have turned that narrative on its head, encouraging women and girls to take care of themselves and their bodies by no longer ignoring their natural cycles and changes, by taking an active role in their own care, and by refusing to let the products used in those cycles be committed to landfills. Thankfully, the reactions we get seem to now be changing, as people take long hard looks at the impacts their consumer choices have in many other arenas - from reducing or eliminating the use of plastic shopping bags and disposable coffee cups, to carrying reusable water bottles everywhere. People used to think composting food waste and recycling were inconvenient and yucky but now both are integrated into municipal systems; and we're seeing menstruators feeling very differently about reusable products as well.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

I will say that I believe Lunapads, in 20 years, will be considered the industry leader in modern, stylish, comfortable and high-performing reusable menstrual products and other high-end eco-friendly products catering to body care and comfort.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

Yes, but that window of opportunity is narrowing quickly and people need to make bigger changes, faster. We have created a capitalistic society where individuals bear the brunt of the responsibility for environmental degradation when in fact it is industry that should be leading the way. Corporations need to step up and be the leaders in the fight against climate change and pollution. Yes, every little change a person can make helps and they all add up, but let's face it - as consumers we have a limited number of options, and those options are served to us by big business. Big

business needs to hear from us that we want different choices made available, and then they need to respond to that demand.

What would you suggest as a course of action for the future generations and green organizations?

I think future generations are going to handle things much better/differently than our current generations are. They are going to be able to take advantage of tech we can barely even imagine now and use it to manage waste streams and pollution. They are going to do a better job at creating less and reusing/recycling more. Kids today are already growing up seeing that recycling and composting are a "normal" integrated part of daily life (unlike how it was when I was a kid in 70s and 80s!), I can just imagine how different it'll be for the next generation and the generation after that, as alternative sources of energy become more commonplace and our communities focus more on using locally produced goods and services. Companies will be forced to respond to all of this change and consumer demand and show how they are a part of the solution.

5.3.18 MIT SOLAR ELECTRIC VEHICLE TEAM

The Solar Electric Vehicle Team (SEVT) is a recognized student organization at the Massachusetts Institute of Technology, working under the auspices of the Edgerton Center. The team draws on a broad range of technical knowledge encompassing all fields of engineering and science.

The MIT Solar Electric Vehicle Team sets its goals beyond just winning races (Picture 61). The team is dedicated to promoting alternatively powered vehicles. Members participate in seminars, lectures, museum displays, conferences dedicated to alternative energy, and numerous Earth Day and ecological fairs. Team members answer questions about electric transportation at these events as well as during race-sponsored demonstrations.



Picture 62: MIT SEVT's Chopper del Sol. (source: http://4.bp.blogspot.com/-8CcvEjTrvC4/UBaue0DDjpI/AAAAAAAAANM/KBe9yp8x6Ns/s1600/394765_499156566768156_1935276786_n.jpg)

INTERVIEW RESULTS – *Dillon McConnon, systems engineer of MIT Solar Electric Vehicle Team*

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

In our everyday lives we must work alongside and with fossil fuels, we are dependent upon them to meet the basic needs of citizens of the world and the economies of the world. The noxious gases that these types of fuels can exude are not only irritating, but dangerous. Our team's focus is to attempt to eliminate the need of burning these fuels on the road (by supporting the development of electric cars) and eventually eliminate the need of burning them altogether (with solar power and solar powered vehicles).

As an organization we help people by exposing them to green technology and help them have hope that one day solar vehicles will be a reality that people can afford. This affect is not restricted to our neighborhood in Cambridge, USA, but extends throughout the worlds when we race in competitions such as the American Solar Challenge and the World Solar Challenge.

The largest challenge that we've had to face is the cost of green energy. The solar panels we use for our car alone cost us the same as a new Hummer, not to mention the cost of lightweight materials such as carbon fiber and high-grade aluminum.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

Our impact on the green movement is to improve the existing technology for solar powered vehicles and electric vehicles. We work to make the most efficient solar car, and out of this comes techniques that can help improve the efficiency (and thus reduce the cost and increase the mileage driven per charge) of electric vehicles.

Global support for this endeavor is huge. The support we get from corporations is still astonishing to me; we get donations from companies such as Infinesse, Konica Minolta, Cabot, 3M, MathWorks, and Altium. Even corporations whose gasoline powered cars are the ones we are looking to replace, such as Ford, donate to the cause. Our home university, MIT, is very supportive of us with many of the major engineering departments donating and the Edgerton Center giving us shop space to work in and space to store our vehicle. Throughout the years this support has only grown.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

Our team goal is to “form a more perfect means of transportation” and I do not see ourselves veering from this path in the near future. In 20 years we will be focusing on improving solar electric vehicle technology; wherever that technology may be at the time.

5.3.19 MULONDON

Based in London, UK, MuLondon specializes in producing natural and organic products for skin, body and home (Picture 62).

“I make my fine products by hand from pure, natural and, where possible, certified organic ingredients. MuLondon products contain no artificial preservatives, emulsifiers or fragrances. Instead, pure natural essential oils and herbal extracts are used to divinely scent and gently preserve.” (Boris, owner of MuLondon)

All MuLondon products are:

- Organic, where possible. Natural - in the true sense of the word
- Mild and effective
- Super-concentrated and full of active ingredients
- Completely free from man-made chemicals: preservatives such as parabens,

emulsifiers, mineral oils and artificial fragrances are banned

- Cruelty-free: never tested on animals and always free from animal ingredients

“My suppliers are thoroughly vetted and share my green and ethical ideals: no animal testing, proactive environmental, recycling and fair-trade policies and support for community projects.” (Boris, owner of MuLondon)



Picture 63: MuLondon's organic lavender face moisturizer. (source: <http://www.mulondon.com/moisturisers/organic-lavender-moisturiser.html>)

INTERVIEW RESULTS – Boris, founder and owner of MuLondon

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

Being green is not new. It's old and it's good. Living in a world where our bodies and the environment are exposed to numerous chemicals on a daily basis is a new phenomenon. That bothers me. Being green is not a novelty. It's how we're supposed to live.

MuLondon, as a responsible and honest producer of organic skincare products, has a very strict ethical and environmental policy: no animal ingredients or testing, no petrochemicals, no palm oil. We use recyclable plastics that are free from phthalates, bisphenol-A and PVC, and we only buy bio-degradable bubble wrap. Using naturally and sustainably sourced materials, we formulate our products to be gentle in every sense of the word – mild on the skin, with minimal environmental impact.

Sourcing green ingredients and packaging can take time, as vetting suppliers and their individual environmental policies can take time. Costs are often higher than for conventionally produced materials, but this is a worthy investment.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

MuLondon is paving the way to show that environmentally sound products can be mild, effective and cruelty-free. We look at the whole picture – from ingredients that are carefully chosen to synergistically offer stability and natural preservation to our products, without the use of chemicals, to how we pack and ship our goods to end-consumers. As we have customers around the world, it's important that our goods are adequately protected in transit, while our parcels are just the right size and recyclable and bio-degradable materials are used. We work locally, but think globally.

Since its inception, MuLondon has always had a clear mission of making organic, sustainable skincare products that are environmentally friendly. This was confirmed by our 2013 accolade: Environmental Award from the Mayor of Lewisham's (Lewisham is the London borough where MuLondon is based). As MuLondon keeps growing, we're delighted to share our values with our customers, who understand and appreciate what we stand for.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

MuLondon will always be at the forefront of the green movement. As more companies adopt green policies like ours, it will become easier to operate sustainably for all of us. We're all on a really good path, but there's so much more left to do – from removing unnecessary and potentially harmful chemicals from our food, drink, personal care and household products, to respecting all life, including fellow humans, animals and plants.

Green organisations have a pivotal role to play in changing the public opinion on what is considered to be normative. Once people understand and accept that relying on quick fixes, numerous chemicals and GM food only benefits large corporations and not the humanity as a whole, the process of greenifying will accelerate.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

We've got time. We're already half-way there. It's all about changing our beliefs about what benefits us, and considering long-term effects of our actions. Fortunately, we live in a connected world where organisations that tirelessly campaign for our well-being can help rally support from around the world overnight. It's heart-warming to see people join to support causes that matter to them, via Change.org, Avaaz, SumOfUs, Greenpeace, PETA and many others. Learning about sustainability needs to start from a very young age, so the educational system,

parents and NGOs need to work together to make that happen. Every voice makes a difference.

What would you suggest as a course of action for the future generations and green organizations?

Educate yourself about the things you eat, drink, put on your skin and spray around the house. Once we all begin reading ingredient lists and start questioning if all these chemicals are really needed and if they are safe, we'll hold all the power.

5.3.20 MUMM'S SPROUTING SEEDS

Located in Saskatchewan - Canada, Mumm's Sprouting Seeds grows and supplies Certified Organic, GMO-free seed for sprouting. The Mumm family has been farming organically since the 1970s, and selling high quality organic sprouting seeds for over 30 years (Picture 63).

*“We've modeled Mumm's Sprouting Seeds on the core principles of organic agriculture: environmental stewardship and sustainability. We provide the seeds and knowledge needed to grow fresh, healthy, organic sprouts and microgreens.”
(Mumm's Sprouting Seeds)*



Picture 64: Mumm's sprouting seeds' Ancient Eastern Blend – Contains Fenugreek, Lentils, Kamut & Adzuki beans. (source: <http://sprouting.com/canadian/seeds/ancient-eastern-blend-group.html>)

“Sprouts, like any fresh live food, could carry harmful bacteria; nothing grown in nature is sterile. Although we feel the risk of organic seed being contaminated with salmonella or e.coli is very small, we do take it very seriously. We sample each lot (probe every bag) as it arrives in our warehouse. Samples go to an independent lab for sprouting, followed by salmonella and ecoli O157 tests. We keep seeds quarantined until negative test results are returned. We use a system of GMP's (good manufacturing practices) to insure the seed stays clean until it reaches the customer.” (Mumm’s Sprouting Seeds)

INTERVIEW RESULTS – Lisa Mumm, farmer and business assistant of Mumm’s Sprouting Seeds

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

We are organic farmers who supply organic seed for sprouting. Some of my answers will be from the perspective of an organic farmer, while others from the perspective of an organic seed supplier.

As organic farmers, the greatest benefit of being green is seeing the biodiversity being returned to the land. As sprouting seed suppliers, the greatest benefit is allowing people to grow sprouts in their own homes, which is the epitome of local organic production.

The biggest challenge we’ve had to face is the growth of industrial, chemical based agriculture. In our province of Saskatchewan, there are fewer and fewer small, family run farms. New entrants and young organic farmers are often faced with insurmountable financial barriers as large corporations buy up the farmland and drive land prices higher and higher.

The risk of contamination by GMOs is also a huge obstacle for organic farmers in our area. We have to stagger planting times, use huge tracts of land to create buffers, and often forgo planting certain crops altogether to avoid GMO contamination.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

We have allowed many people to grow and eat fresh organic produce who otherwise may not have been able to afford it. The very act of sprouting a seed has allowed those who have never had the opportunity to garden or grow food in any capacity to experience the shift from seed to plant, one of the most wonderful transformations on Earth.

When my parents started Mumm's Sprouting Seeds 32 years ago, they were viewed as radical fringe hippies. The organic and local food movements were in the embryonic stage, and most of their customers were located in California or British Columbia, where these movements were beginning to take root. Today, organic food has reached mainstream consumers, and people from all walks of life are interested in improving their health while protecting the environment.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

We are working to bring organic sprouts to more people, while maintaining the values and integrity of a small family-run business. While I hope that we are able to bring nutritious affordable food to more people, we will continue to be small, organic family farmers.

In the near future, the environment will continue to be sacrificed for the sake of the so-called economy. At the same time, there are so many wonderful people and organizations who are truly making a difference. Green organizations will be at the centre of this shift. Green for-profit organizations will also play a roll, but the pull of profit draws many who claim to be working towards a sustainable future when in fact they are simply greenwashing.

The idea that we can make a change with purchasing power has some merit, but the truth is that the only way to create a true change is to reduce consumption. There is a lot of resistance to this idea in North America.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

I have to believe that there is still enough time to form a sustainable environment, otherwise we're left with nothing but despair.

What would you suggest as a course of action for the future generations and green organizations?

There are a lot of competing ideas in the green movement, and that can at times cause antagonism. We must put our differences aside and remind ourselves that we are all working for a common good. Community is key to any transformation.

5.3.21 NATURAL BODY

In 1989, Natural Body was founded on the principal of providing natural and nurturing services and products to its clients, while helping the environment.

Over two decades later their vision is stronger than ever. The company has spread its reach in 5 states and is headquartered in Atlanta, Georgia – USA. Certain Green Spa touches are evident, from natural approach to massage, aesthetic and anti-aging treatments, to the natural and organic products in the retail area. Natural Body makes all its business decisions with an eye on sustainability, including the use of recycled paper and soy ink in its marketing materials, and the selection of recycled materials in building its spas (Picture 64).



Picture 65: Natural Body spa & shop in Cumming, Georgia. (source: <https://naturalbody.com/wp-content/uploads/2012/01/forsyth-retail.jpg?99a228>)

From their founding role in the Green Spa Network association of eco-friendly spas to opening the only platinum LEED certified day spa in the U.S. to partnering with nonprofit community organizations, Natural Body walks the talk in their care and compassion for our precious planet.

INTERVIEW RESULTS – Cici Coffee, founding partner and CEO of Natural Body

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

A1: The financial savings from energy efficiencies, health benefits from indoor air quality, waste audits from recycling programs.

A2: Predominantly our LEED certification Platinum for new interiors.

A3: Documentation of these efforts and staff embracing the ongoing disciplines of systems and green cleaning supplies etc.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

A1: Education is the largest. When I'm talking to large groups they tell me how their lives have changed for the better through adoption of our practices.

A2: Initially they thought we were witches and too granola.

A3: Yes we're pretty main stream now.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

A1: More of a vitality center and going back to our wellness roots

A2: I believe technology will lead the way and organizations adopting these apps or applications will be ahead of the curve.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

A1: For our lifetime yes for our grandchildren I'm afraid not.

A2: Politically across the aisle!

What would you suggest as a course of action for the future generations and green organizations?

To care of our bodies like we only have one and to take care of the environment because where else are we going to live? We have to own it, and educate others to do the same. Community action is a starting point for businesses and individuals.

5.3.22 OLD WIVES TAIL

Working as an e-commerce business, Old Wives Tail provides its customers with high quality natural, chemical free, environmentally friendly hair care products (Picture 65). The company is based in England.

“We aim to nourish your hair back to life the Latino way with our unique blend of oils. Our main lifetime goal is to eradicate animal testing in the beauty industry and 10% of our profits go to charities that save animals from being tested upon.” (Old Wives Tail)



Picture 66: Old Wives Tail's melado organic hair growth mask. (source: <http://www.oldwivestail.com/collections/organic-hair-mask/products/melado-organic-hair-mask-150ml>)

INTERVIEW RESULTS – Lily Florentino, head of customer relations of Old Wives Tail

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

Being a green organization is something we hold close to our hearts. We believe that the natural way of living is the best way. Being in the hair care industry, there are many companies that unfortunately do not abide by the same ethics as we do, however it is our mission to help people recognize the benefits of going green. The biggest challenge we face, and are still facing (although not quite as much as people are becoming more educated) is people simply aren't aware of the benefits and importance of going green. We have to compete against huge well-known brands that have made it 'acceptable' and affordable to buy chemically enhanced products that are bought by the millions each and every day worldwide in supermarkets.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

We have had positive responses towards our company ethics and have had lots of great feedback from our customers and other brands. We have had some great feedback that our products work as well if not better than some global brands that are loaded with chemicals and cost at least double the price. By providing our customers with a quality product that is natural, organic and cruelty free that actually works gives them faith in the way we work and hopefully encourages them to think about other changes that can be made on a day to day basis as to the way they live. Just one little change by everyone can have a huge impact on the earth and our environment.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

I believe the word of going green is rapidly spreading and more and more people are making the change. I see our company becoming more well-known and recognized in 20 years from now as more people become aware of the benefits of using green products. I hope to see more environmentally friendly products being stocked in supermarkets at reasonable prices so people can make the switch without having to sacrifice price.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

I believe there IS still time to form a sustainable environment on Earth; however A LOT of actions need to be put in to place to ensure things are heading in the right direction. There are many things that contribute to becoming a sustainable planet and I believe the best way to encourage sustainability is to make people more aware of the importance and benefits of becoming sustainable. Actions that are put in place to prevent problems should be closely monitored and rewards could even be given for those who demonstrate sustainable behaviors. The best way of learning is to teach, rewarding positive behaviors will encourage others to do the same.

What would you suggest as a course of action for the future generations and green organizations?

The reality is that most organizations simply do what makes money. If going green will not affect their business by increasing profits, they won't change their ethics. I believe that being green is something that you have to live by and have to believe will benefit your consumers and the environment regardless of the costs it may have. At the moment I believe the biggest cost is that people are not aware of how beneficial it is to choose organic alternatives of products they may already have. I believe the best thing would be for the government to put laws in to place to ensure people and businesses practice environmentally friendly ethics.

5.3.23 PLANT A TREE TODAY FOUNDATION

Plant A Tree Today Foundation (Picture 67) is a United Kingdom registered charity and a Thailand foundation, founded in 2005, that operates throughout the Southeast Asia region. Plant A Tree Today Foundation is initiating, developing and managing large-scale reforestation projects in order to counter deforestation and climate change. In order to educate people, Plant A Tree Today Foundation is also conducting environmental education programs for children, businesses and individuals across the United Kingdom and Thailand (Picture 68).

“We believe that by creating the right partnerships we can implement valuable initiatives on the ground that make a concrete difference to the environment, livelihoods and the environmental education of children.” (Plant A Tree Today Foundation)



Picture 67: Plant A Tree Today Foundation symbolic picture. (source: <http://www.pattfoundation.org/who/about-us/>)

“We recognise that children represent the future of our planet and educating them on the environment is therefore critical to building a better future.” (Plant A Tree Today Foundation)



Picture 68: Environmental education project with Plant A Tree Today Foundation.
(ource: <http://www.pattfoundation.org/what/environmental-education/>)

“Trees have the power to change lives. Planting the right trees in the right projects can bring economic sustainability to poor rural communities, as well as provide significant environmental benefits.” (Plant A Tree Today Foundation)

INTERVIEW RESULTS: United Kingdom – Founder and CEO, Mr. Andrew Steel

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

There are numerous benefits that our organization offers from social and economic development but the most important is the increase in natural habitat due to our reforestation projects. The biggest obstacle is generally fundraising as the public don't see trees as particularly exciting, yet this is the natural habitat of thousands of thousands of specials of animals and needs to be preserved and increases. Without the trees wildlife simply has no home! Convincing people to support reforestation is a tough task.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

We started out pretty small and early in the climate change discussions, within the last ten decades as the issue became a matter of public concern. So we were well received from a climate change perspective however that angle has diminished significantly and fundraising cash goes to well-deserved projects that are closer to people's hearts, like saving wildlife or stopping hunger.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

I would like to think as an organization we will still exist but we can't predict the future and as the economic situation for individuals is becoming tougher so is fundraising for worthy causes and organizations, such that many will not survive. In the near future I don't see any dramatic changes that we are not already aware of but I do hope that more companies take the 'green' option where they can but that again is quite often a question of profit and loss, companies are often prepared to sacrifice the green theme to increase profit.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

I don't think it's a question of time but a question of action and some action is better than none! The more people taking action the larger the effect will be.

What would you suggest as a course of action for the future generations and green organizations?

Think and act in a sustainable manner/ The number of options is wide and varied but people have to take some form of action now rather than sit on the sidelines and watch others try or just pay lip service to the problem. Many companies are using 'greenwashing' tactics to make it appear that they care – that has to stop.

INTERVIEW RESULTS: Thailand – Project executive, Ms. Sudarat Sangkum

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

We would like to combat climate change in simple way like promoting planting trees. We aim to plant A Million Trees.

We aim to raise awareness and create the global citizen who has awareness and responsibility to environment.

Most people concern about themselves and their poverty eradication first then environment later. We need to let people realize that nature is part of us and we can't live prosperously without taking care of nature.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

We generate environmental awareness to audiences with learning by doing. We plant trees in human's heart.

We provide income to the local communities who live around the project site as well as aiming to bring more sustainable livelihood for future generation.

We will plant around million trees to combat climate change which will help to reduce global warming and bring better environment to the world.

At the first start, we got good responses from society as we simplified the way to combat climate change to be simple process such as tree planting and less Carbon Footprint Campaign that they can apply and open the door to any level to join this strategy. The Business companies, students, and individuals are taking part to support our work and we offered education services which will benefit to society in long run.

Nowadays, climate change may not the first issue in the global society. However, we still find the channel and people who would like to do this and pay back to environment through their CSR scheme. We also provide professional environmental education services to generate income to sustain our foundation.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

We still doing this green business however the protocol and strategies may need to adapt to fit with global issue and society awareness in the future.

I think we will suffer more from climate change and people need to adapt ourselves a lot to cope with that. The green organization needs to adapt and apply new approach to raise awareness among people and society to make them see that the environmental issue is getting severe.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

Yes, To Reduce, Reuse, Recycle and Plant more trees in every day.

What would you suggest as a course of action for the future generations and green organizations?

To raise awareness from within and create environmental education platform in every level. I think people's attitude and awareness is the most important to save the environment together.

5.3.24 PLASTIC FREE SEAS

Plastic Free Seas is a Hong Kong based environmental charity dedicated to advocating change in the way we all view and use plastics in society today, through education and action campaigns (Picture 69).

“Our mission is to have clean beaches in Hong Kong. The way we aim to achieve this is through:

- *Education and awareness in schools of our local issues in context to the global plastic pollution problem*
- *Corporate events to encourage participation & understanding*
- *Action campaigns at individual, community & government level*
- *Engaging in and fostering programs to better define and understand the impact of plastic in our marine environment.” (Plastic Free Seas)*



Picture 69: Plastic Free Seas logo. (source: <http://plasticfreeseas.org/>)

“The orange life ring is a symbol of rescue and it is what we need to do for our seas and oceans now. We have hit crisis point with the amount of stress we are putting on our oceans; the biggest life force that sustains our planet and us. With acidification, overfishing, pollution both chemical and solid waste and global warming taking their toll, what can we do? We can do something! We all need to re-commit and re-engage on the challenge of healthy seas and oceans. The PFS life ring is a symbol of that commitment to rescue.” (Plastic Free Seas)

The Plastic Free Seas community beach cleanup program provides individuals, families, community groups and school students with the ability to make a positive difference to the beaches and sea.

INTERVIEW RESULTS – Tracey Read, Founder & CEO of Plastic Free Seas

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

That everybody can and should make an effort to try and reduce their waste - through refusing extra packaging, BYO bag, cups, containers, packaging etc, and by teaching this to others - especially family members and within companies. It is easy to do and

doesn't necessarily cost anything. By producing less rubbish and managing the waste we do produce we should be able to stop things like mega incinerators being built for the future (as planned by HK Govt.) which would result in cleaner air and cleaner water.

PFS empowers people to make changes - whether that is through community actions such as waste reduction projects or beach cleanups or from personal actions. We want to teach people about what is happen in Hong Kong now and on a global scale in regards to waste production and plastic marine pollution. The programs that we have in HK can inspire similar programs elsewhere. We are happy to collaborate with other groups and share our information - that is part of how we make an impact globally. By being a role model organisation in Asia too.

Biggest obstacles are lack of awareness and often times apathy. We need to show people the benefits for them both personally and as a community why it is important to create less waste and clean up the mess we have already made. At times govt. policy is all a hindrance but by working with them we have had some successes too.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

We are well regarded in Hong Kong despite being only officially registered for under 2 years. We have a strong support base in schools (our main focus is education) and throughout the community including companies and government. We have worked with over 50 schools and more than 9000 students as well as supporting govt. backed projects and corporate engagement programs.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

In 20 years I would like to see Plastic Free Seas offices set up regionally all supporting programs that continue to educate people on what we did and how we stemmed the flow of ocean bound plastics. It took several generations to get to this point of plastic oceans and I expect it will take the same to change behaviour to implement better practices by habit wide scale. PFS will work strongly with companies too to support innovation and better product design.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

Science should be listened to. Too many governments worldwide are not working together to focus on these issues. It will take a global effort. I think we have time but we have to make radical fast changes. There was a cartoon I read that said 'What if climate change really wasn't true and we made the planet better for nothing!' - It is an attitude some of the naysayers could adopt! :)

What would you suggest as a course of action for the future generations and green organizations?

Get involved. Find what you are passionate about and do something about it. The world needs more people to do things because they want to and to want to do good things, not just for themselves but for the benefit of everyone.

5.3.25 RANCHO SOTOL

Rancho Sotol is a nature reserve & adventure community with plots allocated for building new ecological homes with spectacular ocean views in Baja California Sur, México.

Rancho Sotol and surroundings are ideal for kitesurfing, windsurfing, diving, sport fishing, kayaking, mountain biking, hiking, zip lining and other eco touristic activities. Avoiding scenery exploitation ensures sustainable development and the environment's preservation. The impact on flora and geography of Rancho Sotol is regulated by means of a master plan that restricts human footprint on only 35% of the total land area. Existing building regulations and behavior ensure harmony between people and nature. Due to its smart design (Picture 70) and use of alternative energy, maintaining Rancho Sotol is particularly low.



Picture 70: Rancho Sotol Master Plan. (source: <http://www.ranchosotol.com/plan.aspx?language=US>)

“Our mission is to encourage investment, development and protection of natural areas in Baja California Sur. Our development model promotes respect towards nature, supporting local communities, productive business incorporation and promotion of tourist activities that use natural resources responsibly.” (Rancho Sotol)

INTERVIEW RESULTS – Rodrigo Seira, commercial director of Rancho Sotol

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

For us, being a residential development on an eco-touristic paradise, being green is not only very important for the natural surroundings but also gives us great benefits. We’re protecting more than 70% of the land and leaving it as a nature reserve, thus benefiting all the species that are already there (in contrast to other residential developments which impact 90% or more). We also benefit from having super low maintenance costs compared to others. We don’t have all these “luxury” amenities (like a golf course on the desert, spas, or big pools), all our amenities are simple and natural, requiring less maintenance and being recession proof.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

We’re setting an important example on developing in this fragile desert ecosystem which many other major resorts have already destroyed. We’re also very involved with the local community to help them grow along us and create businesses through our clients. People are fascinated by this concept and are finally seeing somebody that offers this responsible way of owning a vacation home in Baja California Sur, Mexico.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

We’ll set the change, at least locally, to have others develop this way. Having low impact residential and showing a great respect for nature, which after all is the main attractive.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

Sure, the most important thing we must do is educate and shift our perspectives on what is valuable (e.g. why is a nature reserve more valuable in the long term than a golf course in your back yard).

What would you suggest as a course of action for the future generations and green organizations?

Focus on long term benefits and strategies, as well as investing in “green” education.

5.3.26 RENEWABLE CHOICE ENERGY

“Our mission is to provide opportunities to help move our society toward a more sustainable future with clean technology solutions.” (Renewable Choice Energy)

Renewable choice energy is a firm founded in 2001 and headquartered in Boulder, Colorado - USA. They offer renewable energy, carbon offsets, and education and outreach services. Their subsidiary company Mosaic Labs offers services in areas of carbon accounting and disclosure, supply chain sustainability assessments and scorecards programs. Renewable Choice (Picture 71) promotes a revolutionary shift in the energy economy and the end of dependence on carbon-based fuels by working to change the global energy paradigm towards one of sustainability and ecological regeneration.

“We achieve our vision by engaging, educating, and collaborating with our stakeholders; leading the industry with innovative strategies, products, and service solutions; delighting our customers; establishing strong corporate partnerships; and providing employees with fulfilling yet balanced careers of which they can be proud.” (Renewable Choice Energy)



Picture 71: Renewable Choice Energy logo. (source: www.renewablechoice.com)

Renewable Choice is also the leading supplier of green power for LEED green building projects. They also engage into distribution of green power to the green building market.

“We're proud to have worked with than 4,000 LEED building projects across the world with 100% success in green power credit approval.” (Renewable Choice Energy)

At Renewable Choice they practice what they teach. Their corporate environmental responsibility commitments and initiatives help to measure and reduce their environmental footprint. Those commitments and initiatives include: zero waste policy (recycling and composting programs); clean energy use (office and employee home electricity is offset with wind power); reduced corporate travel by 50% since 2008; use of alternative transportation; carbon reductions; telework options; reduced resource use; environmentally-preferred office products; responsible vendors, etc.

“We are proud to have met rigorous performance standards and are using the power of business to solve social and environmental problems. We are honored to be named a 'Best for the Environment' B Corp 2013.” (Renewable Choice Energy)

INTERVIEW RESULTS: Amy Haddon – vice president of marketing and communications

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

“Being green” is the only real way to operate business for the future. We are already seeing the global impacts of climate change, water scarcity, resource scarcity, and other environmental impacts, and these impacts have the potential to significantly disrupt business. Companies that don't embrace a more sustainable way of operating are taking an enormous risk. However, “being green” can also have bottom line impacts in terms of reducing redundancies and inefficiencies, increasing consumer confidence, reducing employee turnover, and more.

As an organization, our biggest benefit is that we are contributing to the climate change solution, providing companies with products and services that help them reduce their environmental footprint. The biggest obstacles we have had to face have been education, “greenwashing,” dealing with purchasing organizations budgets, long sales cycles, and negative press (although not so much anymore).

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

When I joined the organization in 2007, we were fighting a lot of naysayers and negative press. Sustainability, although it had been around for a while, was not yet a buzzword. We had to fight a lot of misconceptions about the value of our products and services. Over time, these opinions have changed as consumers perceptions have also changed. We've benefitted from the growth of sustainability as a whole.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

20 years from now, our company will be playing a crucial role in the development and operations of renewables. We will move away from the products and services we currently provide to follow trends in the market, and will take a more substantial role in the development of the industry. While I don't see us becoming project developers ourselves, we will use our expertise to further the growth of the industry as a whole.

Since government is dragging its heels on the environment—unfortunate, given that it is probably the most important and pressing issue of our time—business **MUST** play a role in the near future. We are at a tipping point in terms of how bad the situation with climate change could become, and voluntary players in the space have the ability to lead when government will not.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

No, I'm not sure I do believe there is time. In order to turn back the clock, we will need radical change on a global scale, and I don't believe that is going to happen. I think the best we can hope for is that, as the side effects of climate change become more serious, we will finally begin to take action. However, I believe that things are likely to get much worse before they get better. Global governments **MUST** step up to take action on the environment, by regulating emissions, requiring higher mileage vehicles, etc. As long as the government is in the pocket of businesses like gas and oil, we as a species are in trouble.

What would you suggest as a course of action for the future generations and green organizations?

I think the opportunity that exists for organizations is to do things completely differently. The B Corp movement is a start, but I think companies need to radically reconsider how they are operating and the goods and services they are producing. The same opportunity exists for future generations: they will be forced to live differently, but now is the time. The biggest challenge is for us to stop living as though we have 3-4 Earth's worth of resources and instead live as though there is only one. That is going to mean radical lifestyle shifts for the largest, developed countries. The opportunity also exists for future generations to solve the problem, by developing new technologies, new methodologies, etc. for truly sustainable growth, rather than the outrageous, uncontrolled growth we have experienced over the past 150 years.

5.3.27 ROSE CITY MORTGAGE

“We’re an independent, socially responsible Mortgage Broker from Portland, Oregon. We opened our doors in 1999 with a desire to do business in a different way. Our mission, to improve all we come in contact with, has resulted in happier employees that value service and relationship over volume and profit. Being an independent broker allows us to work with many lenders to always get you the best deal. We work for you, not the big banks.” (Rose City Mortgage)

The unique way in which the business operates has resulted in business being named the 2014 #1 Green Company in Oregon. Rose City Mortgage (Picture 72) is an upstream company. With sustainability in mind, their office is LEED Gold certified amongst other green initiatives taking its place in the business.

“We take sustainability seriously. Our office in Old Town Portland is LEED Gold certified. We recycle everything, including composting our kitchen scraps. We support other local business and the environment by purchasing locally. Loan files are handled electronically to reduce paper consumption. Our office is cleaned with non-toxic cleaning products and we even flush our toilets with rain water.” (Rose City Mortgage)



Picture 72: Rose City Mortgage logo on the 15th anniversary celebration cake of the company. (source:

<https://www.facebook.com/RoseCityMortgage/photos/pb.193417010689074.-2207520000.1441461957.723951277635642/?type=3&theater>)

INTERVIEW RESULTS – Renee Spears, owner of Rose City Mortgage

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

There weren't really any obstacles or challenges. It's really easy to change habits to be green.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

Does anyone really know what lasting impact they have on anything. We practice business in a sustainable way because we feel this is the best way to do business. We've never had any negative responses from anyone. And really, we wouldn't care even if we did. We do business like this because of what we believe not based on what others think about us.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

The environment will be the #1 issue in the future. We all need to change. All organizations will be green. Businesses that aren't green won't be in business anymore.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

Of course we have enough time, but the changes need to come from higher thinking. More scientists and tech people should be working on the problem. I don't believe the small changes we are doing as individuals is enough.

What would you suggest as a course of action for the future generations and green organizations?

Rethink everything. Don't do it the same way. Everything is about the environment so get with the changes now so you are ahead of the game.

5.3.28 SINGAPORE GREEN BUILDING COUNCIL

The Singapore Green Building Council (SGBC) was officially launched on October 28, 2009, as the only non-profit organisation with a concerted private-public sector partnership to achieve a world-class and sustainable built-environment in Singapore

(Picture 73). Key role of the organization is to advocate green building design, practices and technologies and drive environmental sustainability in the building and construction industry.

“Through the Singapore Green Building Product & Services Certification schemes, SGBC is the first dedicated certification body for green building products/services for the building and construction industry. SGBC also remains on the pulse of the industry, conducting highly relevant and specific seminars and workshops to build awareness, knowledge and adoption of green building practices. Further strengthening its position on the green building scene, SGBC is an established member of the World Green Building Council since 2010, part of a wide global network of green building councils in more than a hundred countries.” (SGBC)



Picture 73: Singapore Green Building Council logo. (source: <http://www.sgbc.sg/>)

The key areas of SGBC's focus include:

- Profiling Singapore as a leading Sustainable Hub in the tropics through Public Education and Industry Promotion
- Providing a Dedicated Certification Body for Green Building-related Products and Services
- Creating International Collaboration, and Expanding Global Outreach
- Enhancing Professionalism and Knowledge in Sustainable Development Via Knowledge Creation and Industry Research
- Inspiring Membership

INTERVIEW RESULTS – James Tan, Communications Executive, Singapore Green Building Council

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

The Singapore Green Building Council (SGBC) is the only non-profit organisation with a concerted private-public sector partnership to achieve a world-class and sustainable built-environment in Singapore. Our key role is to advocate green building design, practices and technologies and drive environmental sustainability in the building and construction industry.

The key areas of SGBC's focus include:

- Profiling Singapore as a leading Sustainable Hub in the tropics through Public Education and Industry Promotion
- Providing a Dedicated Certification Body for Green Building-related Products and Services
- Creating International Collaboration, and Expanding Global Outreach
- Enhancing Professionalism and Knowledge in Sustainable Development Via Knowledge Creation and Industry Research
- Inspiring Membership

Through the Singapore Green Building Product & Services Certification schemes, SGBC is the first dedicated certification body for green building products/services for the building and construction industry. SGBC also remains on the pulse of the industry, conducting highly relevant and specific seminars and workshops to build awareness, knowledge and adoption of green building practices.

Further strengthening its position on the green building scene, SGBC is an established member of the World Green Building Council since 2010, part of a wide global network of green building councils in more than a hundred countries.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

Industry support and buy-in have been encouraging and steadily increasing over the years as green building as a movement begins to see fruition.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

Global warming and climate change have become stark realities, no matter what their harshest critics might say. The changes in the Earth's weather have becoming increasingly tangible, with its associated effects impacting humanity on often unprecedented scales. As we continue to find hard evidence of human effects on the

planet, green organisations will have more say, better influence and hopefully increased resources to advocate their practices. Even if healing the Earth is a long shot, green organisations can do their part to mitigate the damage already done and educate the future generations adequately.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

More existing buildings can be retrofitted with green features to reduce their environmental footprint, while new buildings can be built with sustainability in mind, incorporating green features right from the get-go.

The younger generation can also be educated from a tender age, inculcating in them the awareness of a harmed environment and what can be done to remedy the situation.

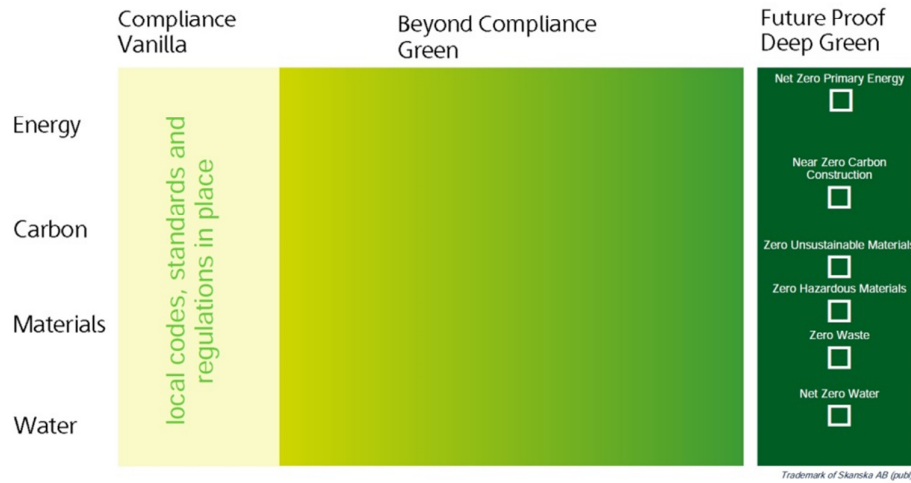
5.3.29 SKANSKA AB

Skanska is one of the world's leading project development and construction groups, concentrated on selected home markets in the Nordic countries, other European countries and in North America. With a focus on green construction, ethics, occupational health and safety, Skanska offers competitive solutions – not least for the most complex assignments.

“We strive to use fewer natural resources, to emit less greenhouse gases, we support and lobby for stricter environmental regulation on both a national level in our Home Markets and on a global level. We offer products that can help customers to lower their environmental impact. We are using the Skanska Color Palette™ as our strategic framework and primary communication tool for Green Construction and Development (Green Business). It was introduced in 2009 and describes what we mean with Deep Green. Building Deep Green means that the construction process and our product performance has a near-zero impact on the environment and thereby Future Proofs our projects. Deep Green is defined by 6 zeros that relate to the priority opportunities for reduction of the environmental impact of our projects, i.e. Energy, Carbon, Materials and Water.” (Alexandra Bomb, SKANSKA AB)

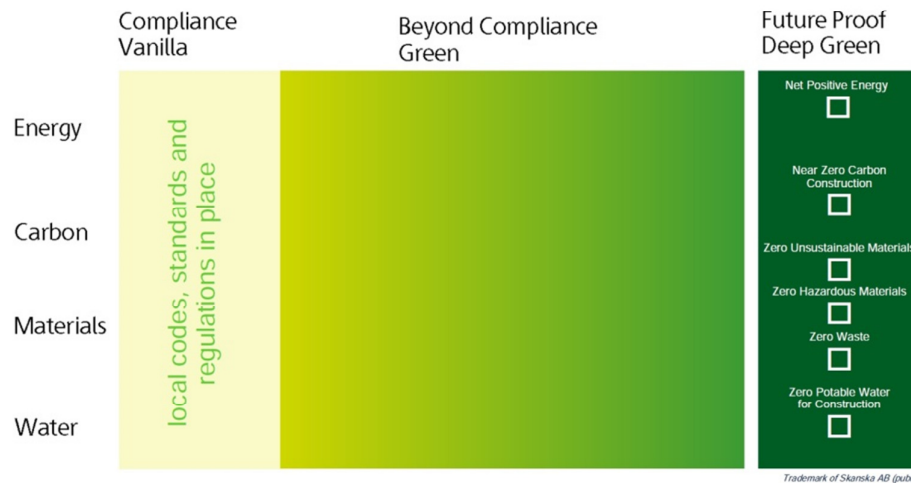
Skanska Color Palette™ (Picture 74 & 75) is the strategic framework and communication tool that has been developed to measure and guide the company's performance on this journey with destination Deep Green.

Skanska Color Palette™ - Building



Picture 74: Skanska Color Palette™ for Building specter. (source: <http://www.skanska-sustainability-case-studies.com/General/skanska-color-palette>)

Skanska Color Palette™ - Civil/Infrastructure



Picture 75: Skanska Color Palette™ for Civil/Infrastructure specter. (source: <http://www.skanska-sustainability-case-studies.com/General/skanska-color-palette>)

Categorization of projects within the color segments:

Vanilla – The construction process and product performance is in compliance with law, regulations, codes and standards.

Green – The construction process or product performance is beyond compliance, but not yet at a point where what is constructed and how it's constructed can be considered to have near-zero impact.

Deep Green – The construction process and their product performance has a near-zero impact on the environment and thereby Future Proofs their projects.

INTERVIEW RESULTS – *Alexandra Bomb, Manager Sustainability Programmes, SKANSKA AB*

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

What benefits of being green would you like to expose the most?

To have a better risk management (be better prepared for future legalization, have better management over procedures and operations and be prepared for extreme weather events), to attract and retain the best people, to do cost savings in form of being more resource efficiency (e.g. energy consumption and material demand), to do the right thing.

What benefits for the people and the environment do you, as an organization, leave on regional and global platform?

We strive to use fewer natural resources, to emit less greenhouse gases, we support and lobby for stricter environmental regulation on both a national level in our Home Markets and on a global level. We offer products that can help customers to lower their environmental impact.

We are using the Skanska Color Palette™ as our strategic framework and primary communication tool for Green Construction and Development (Green Business). It was introduced in 2009 and describes what we mean with Deep Green. Building Deep Green means that the construction process and our product performance has a near-zero impact on the environment and thereby Future Proofs our projects. Deep Green is defined by 6 zeros that relate to the priority opportunities for reduction of the environmental impact of our projects, i.e. Energy, Carbon, Materials and Water. These zeros are:

- Net zero energy
- Near zero carbon construction
- Zero unsustainable material
- Zero hazardous material
- Zero waste
- Zero water

What are/were the biggest obstacles and challenges that you have/had to face?

To get everyone onboard: customers, suppliers, subcontractors and employees.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

As a project developer and contractor we leave a huge impact on the society. No one wants to have a construction company in their backyard but we also provide working opportunities in local communities and distribute incomes in the communities in which we operate including suppliers, subcontractors, salaries to employees and to tax money.

We constantly change as a business. Today we want to be perceived as a community developer and that demands that we take wider responsibilities for our products: we just don't build a school – we build a school where students get better grades. We don't just build a hospital – we build a hospital where patients recover faster. When it comes to our sustainability agenda, we today see a bigger interest in the social part of the agenda, and just not the environmental part as before. This added focus has changed over the last year in some of our markets.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

In 20 years from now businesses have tougher regulations. Since natural resources are more expensive and we need to pay for ecosystem services, businesses are expected to have a life cycle perspective of the services and goods they sell. This means that we need to take responsibilities for the whole value change. We are also required to have a more transparent approach and disclose more information about our operations and how it affects the environment than we have today. To not be Green in 20 years is therefore not an option – it is a hygiene requirement.

In the near future extreme weather events will have devastating human and economic consequences. We as an organization need to take into consideration increased drought and climate adaptation of our products in our Home Markets.

In what way should the environmental problems be addressed more often?

Using all possible ways; using a combination of incentives from legal to economic ones.

What would you suggest as a course of action for the future generations and green organizations?

Be smarter, be persistent, and challenge the truths. Define and communicate the Green business case and put a price on the environment.

5.3.30 THE GREEN MICROGYM

The Green Microgym and Plugout Technology were invented by Adam Boesel who started up his first gym in Portland, Oregon in 2008. Due to lack of equipment that could provide truly green energy, Adam invented his own device, which was a reconstructed spin bike that is grid tied by plugging out into a normal wall outlet. Since there was a lack of interest in green fitness market in 2010 to support an early stage startup, Plugout stopped offering equipment in 2011. Adam also made two Green Microgyms from the scratch and sold them, but he never stops making new green equipment.

The Green Microgyms use about 85% less electricity and their carbon footprint is about one tenth that of a conventionally run gym. A member of The Green Microgym saves about ¼ ton of carbon compared to if they belonged to a traditional gym.

UpCycle Ecocharger (Picture 76), Adam's latest invention, is a bicycle that represents human power generator. When the energy is being created, there is enough power to charge a cellphone or laptop (20 minute workout fully charges 2 smart phones, while 1 hour workout fully charges a laptop).



Picture 76: The UpCycle Ecocharger. (source: <http://www.thegreenmicrogym.com/electricity-generating-equipment-2/>)

The Green Microgym (Picture 77) provides effective and comfortable workout space that strives to be self-sustaining. Total carbon emissions can be reduced by 60% in this kind of environment while still maintaining a first-class gym facility.



Picture 77: The Green Microgym logo. (source: <http://www.thegreenmicrogym.com/>)

»Some of the ways we achieve our goal of sustainability and reduced emissions:

- Energy-producing cardio equipment (ellipticals and stationary bikes)
 - Treadmills that use 30% less electricity than regular models
 - Purchase of slightly used equipment
 - Tablets for Personal Use vs higher consuming TVs
 - Member-controlled lights, televisions, and fans that are turned on only when needed
 - No bottled water sales; encourage use of refillable steel water bottles, which we do sell
 - Use all natural, non-VOC cleaning supplies and hand soap
 - Paper products (toilet tissue, paper towels, etc.) are all recycled paper
 - Eco-friendly building construction materials, including recycled rubber and Marmoleum flooring
 - Solar panels installed on the building exterior
 - Energy efficient ceiling fans
 - Compact fluorescent and LED lighting«
- (<http://www.thegreenmicrogym.com/the-story-of-the-green-microgym/green-advantage/>)

INTERVIEW RESULTS – Adam Boesel, founder of The Green Microgym

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

I'd like to show people that being green is the opposite of sacrifice, that it improves your life in obvious ways. The main benefit I leave right now is to show there is the possibility to change the way things are done in positive ways. The biggest challenge I faced was having to invent a lot of the equipment in the beginning while still having to make money doing it.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

The impact has really mostly been in raising awareness that green gyms are possible, locally and globally. In the beginning, I got a lot of media attention. That attention has slowed, but now I get more interest from individuals and groups who are interested in purchasing the equipment and starting their own gyms.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

I have no idea where I or the organization will be 20 years from now. Six years ago, I didn't even know if the equipment I envisioned could truly exist, and now it does. We will continue to experience the effects of global warming, but only green organizations that can be economically sustainable will survive the next 20 years.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

I believe there is plenty of time. In order to effectively address environmental problems successfully, there must be incremental and economically viable progress toward conserving energy.

What would you suggest as a course of action for the future generations and green organizations?

Create solutions that can be fun, cool, and make money.

5.3.31 WOOD JOINERS

*“Informed by the past, inspired by the future, integrating sustainable forestry...”
(Wood Joiners)*

Wood Joiners is owned by Michael Yaker and is located in De Forest, Wisconsin – USA. The business is striving to be a model of ecological and economic efficiency, sustainable job creation, responsible use of natural resources and positive carbon flows. It promotes the enduring beauty of wooden architecture, while creating positive effects on the environment. The company is engaged in vernacular building architecture and also hosts workshops in building arts (Picture 78).

“Wood used in the built environment sequesters the carbon of mature trees, replaces high embodied energy modern materials, and increases the carbon carrying capacity of forests.” (Wood Joiners)



Picture 78: Wood Joiners' timber frame. (source: <http://woodjoiners.com/?wpsc-product=timber-frame>)

INTERVIEW RESULTS – Michael Yaker, owner of Wood Joiners

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

Benefits of being green I would most like to expose are photosynthesis - energy is reflected as green and wood as a sustainable building material. Beyond that most benefits of being green are personal and evolutionary. The benefits we have provided are structural manifestations, integration of built and natural environments. Largest obstacles have been ignorance and ambivalence.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

We have created spaces for living. The impact is incalculable.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

Adapting is necessary to an unpredictable environment, not sure. Green is just a color, a refraction of light.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

A sustainable environment is a temporary construct, relatively speaking. The earth will sustain for a period of time before being absorbed by the sun.

What would you suggest as a course of action for the future generations and green organizations?

Live life with gratitude for the beauty of Earth.

5.3.32 ZEME ORGANICS

Zeme, also referred to as Zemes-māte, means “Goddess of the Earth” in Latvian and Lithuanian mythology. Zeme Organics is an organic clothing company which is operating since 2007 and is based in Karnataka, India. Founded and managed by Arati Nagaraja, the business was conceptualized in San Francisco, where Arati got to learn about organic farming.

Zeme Organics’ mission is to offer and encourage people to wear organic clothes in a way that contributes to reducing ground water pollution and greenhouse effect (Picture 79).

“We offer organic clothing for men, women, infants and maternity. Each design has been pored over, persevered through and perfected. Our clothes are a 100% certified organic, and we use only biodegradable, EZO free dyes which are good for the planet and good for you.” (Zeme Organics)



Picture 79: Zeme Organics' infant organic T-shirts. (source: http://www.zemeorganics.com/baby_clothes)

INTERVIEW RESULTS – Arati Nagaraja, managing director of Zeme Organics

What benefits of being green would you like to expose the most? What benefits for the people and the environment do you, as an organization, leave on regional and global platform? What are/were the biggest obstacles and challenges that you have/had to face?

Organic cotton garments are made of Organic cotton, i.e. cotton grown in organic farming methods and procedure and regulations - cultivation of plants without synthetic pesticides, herbicides or fertilizers. By not using synthetic fertilizers and pesticides, organic agriculture reduces the pollution of ground water, prevents soil erosion and promotes biodiversity. It also helps to minimize the greenhouse effect and global warming through its ability to trap carbon in the soil.

Not many obstacles but challenge was to create awareness of product and funds to market the product.

What kind of impact did your organization leave on the society, regionally and globally speaking? What kind of responses did you get from society when the organization was established? Have those responses changed during the years?

Impact is only environment, related. People do appreciate the product since its eco-friendly and also price is right. Some were sceptical if we will be successful. Zeme branded garments are available in market last 6 years.

Where do you see yourself as an organization 20 years from now? What do you think is going to happen with the environment in near future and what kind of role will green organizations play in it?

For next few years we would like to start stand-alone exclusive Zeme branded stores in India. Environment has to be protected now and in future too and green organizations will help create awareness of damages to environment if environment is not protected.

Do you believe there is still enough time to form a sustainable environment on planet Earth? In what way should the environmental problems be addressed more often?

There is no question of enough time, we have to act now, we all need to be proactive, and push for protection of environment, government agencies have to be sincere and play big role in passing laws and implementing them.

Environmental related problems should be addressed in all public forums, Government offices, even in schools. All schools it should be made mandatory to have entire 1 subject related environment and wild life etc. This should be from 1st grade till 12th grade. This will have impact on kids and next generation; they will have knowledge to protect & act positively towards environment.

Most schools have just one chapter as part of some other subject. Instead, Environment and wildlife protection should be taught as one full subject every semester.

What would you suggest as a course of action for the future generations and green organizations?

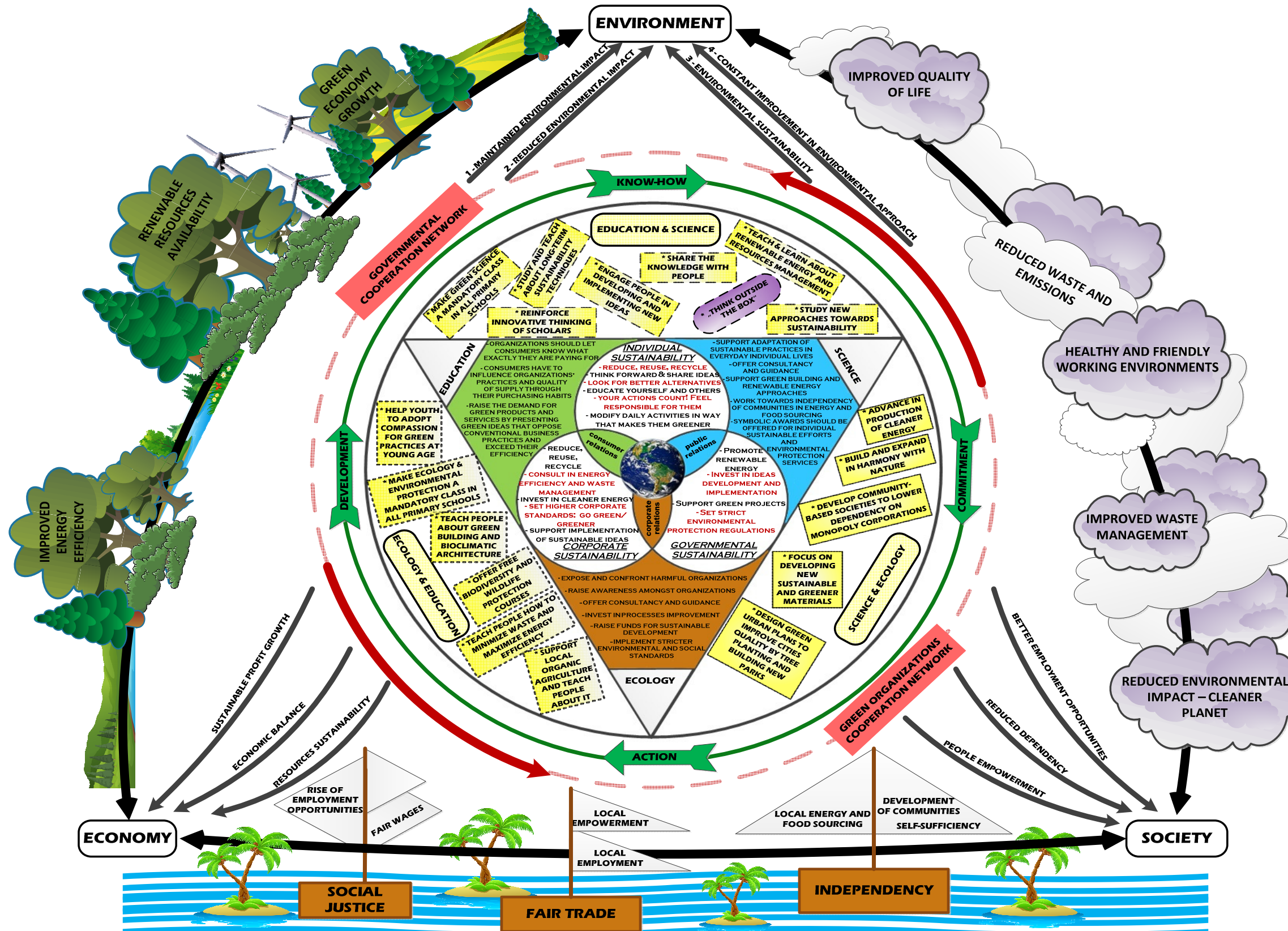
Future generation has to learn and protect environment from today and not wait till they are 20 years old or more. Even small contribution will make a difference.

Initially it's difficult to survive as green organisation, but one should not give up. Have patience and work hard on what you believe in.

6. RESULTS AND DISCUSSION

Analyzing the data from the interviews led to the development of the 'Path to Sustainability' model which aims to connect all essential sustainability fragments together in a wholesome system, together with connections between related fragments. Organizations that participated in the research offer priceless knowledge regarding how sustainable business should operate like and how to get to that point. The associated data was connected together in a form that offers a broader insight into the meaning of sustainability and its development.

The model symbolizes what I see as a true path to sustainable development and does not refer to the current form of the global system operations. The aforementioned model is illustrated on the following page (Picture 80), followed by the description of the model and related issues/restrictions.



Picture 80: 'Path to sustainability' model, which represents the course of action in attaining sustainability through sustainable development commitment. (source: Žan Kokalj in association with Dr. Marjan Senegačnik and Dr. Matjaž Maletič)

Whilst the model is surrounded by the three basic segments, which include environment, society and economy, the sustainable development begins in the center of the model, which is represented by the Earth. While discussing the notion of sustainable development, one should take into account that sustainability definitions can be distinct with respect to the following categories (Lozano, 2008): 1) the conventional economists' perspective; 2) the nonenvironmental degradation perspective; 3) the integrational perspective, i.e., the integration of the economic, environmental, and social aspects; 4) the intergenerational perspective, i.e., the time dimension; and 5) the holistic perspective. According to the model presented in the Picture 80, there are three main categories of sustainability commitment exposed in this area and refer to individual, corporate and governmental sustainability.

Individual sustainability refers to individual commitments towards sustainable development and includes the need for reducing, reusing and recycling materials as well as the need to feel responsible for personal actions. Individuals have to think of new ideas that can make daily activities greener and act in accordance with those ideas. The knowledge then has to be shared amongst other people. There should be no end to commitment in growing fresh green ideas and making necessary improvements of those ideas.

Corporate sustainability on the other hand, represents actions through which organizations can contribute to common sustainable development. Companies should go green or greener by implementing green practices into their daily operations and setting stricter environmental and social standards. Organizations have to look for consultancy in energy efficiency and waste management matters, whilst reducing, reusing and recycling also has to become an internal part of every organization's perspectives. Since almost everything can be improved, organizations should keep on supporting green ideas growth and implementation. Investments in cleaner and renewable energy should also be done in order to reduce fossil fuel dependency and pollution of the environment.

Governmental sustainability, globally speaking, refers to the potential sustainable development efforts of the governments. Governments have to promote renewable energy and invest in green ideas development and implementation. Besides that, many business startups are dealing with lack of resources and knowledge when evolving the business, which is why government should support them in creating as green business as possible. Strict environmental protection standards have to be implemented by the government, whereas organizations and individuals that are harmful for the environment have to be exposed, confronted and given help in going greener, by professional consultancy and guidance.

Consumer relations area represents connection between individuals and organizations and therefore the link between individual sustainability and corporate sustainability. Organizations should clearly let consumers know what they are paying for, whilst consumers should influence organizations' practices through their purchasing habits. Rise of green ideas which oppose harmful conventional business practices and result in same or higher efficiency will cause growth of demand for

green products and services. Public relations section, on the other hand, refers to relation of sustainability between individuals and governments, which should support the adaptation of sustainable practices in individuals' everyday lives. The aforementioned governments have to offer consultancy and guidance, whilst supporting renewable energy approaches and green building. The transformation towards sustainability will also require the governments to decrease the dependency of local communities by establishing local food and renewable energy sources. Another idea included in the model claims that symbolic rewards should be offered to the individuals that prove themselves by commitment to environmental protection services and sustainable efforts in order to increase the interest in sustainability matters. Lastly, corporate relations part represents the link between organizational and governmental sustainability. Governments must be held responsible for setting strict environmental protection regulations which should apply to all organizations, disregarding their size, role and power in the social-economic systems. Raising awareness amongst organizations is also very important to prevent the old habits that misuse the environment for selfish benefits. In order for organizations to invest in greening their processes, additional resources might be required, which should be raised with the help of governmental funds for sustainable development.

Surrounding the boundaries of the three main categories of sustainability and associated connections are the three factors (education, science and ecology) that greatly influence sustainable development and should be taken into consideration by everyone. Therefore, some practical tips are available in related areas of the abovementioned factors, which include education & science area, science & ecology area, and ecology & education area.

The education & science range of ideas includes the need for people to be engaged in innovation and implementation of new ideas. Each one of us has the potential to do something good and the least that we can do is to try and think. We have to learn about long-term sustainability techniques and teach other people about them. This way, new approaches towards sustainability will be discovered and passed on to future generations. It is also important that we research further about renewable energy possibilities and waste management. Green science should be a mandatory class in all primary schools, whereas innovative approaches of the scholars should be heavily valued and reinforced. Thinking 'outside the box' will be vital in the transformation to come.

Secondly, the science & ecology area includes the need for advancement in production of cleaner energy and development of sustainable and greener materials and products. Green building and expanding in harmony with nature is very much achievable and not necessarily more expensive than conventional building methods and should therefore be considered by every individual or organization that plans to build. In order for the impact of the green building to make a stand, major green urban plans need to be designed and carried out. That will improve the quality and health of urban areas. As hard as it may seem, and in fact is, it would be practical to strive to developing community-based societies in order to lower dependency on domination corporations.

Lastly, the ecology & education area consists of ideas which include teaching the people about green building and bioclimatic architecture, and helping the youth to adapt passion for green practices at a young age, which is why as well as green science, ecology and environmental protection should also be made mandatory class in all primary schools. Free courses regarding biodiversity and wildlife protection have to be offered to people so that the knowledge can be shared and the need for that knowledge recognized. People have to be ready to learn about these matters, as well as about minimizing their waste and maximizing their energy efficiency, as it takes nothing but a moment of our time to do so. Learning and teaching about the need for supporting local, if possible, and organic agriculture is also vital.

The sustainability categories and the factors that influence sustainable development are surrounded by a simple never-ending circle of know-how, commitment, action, and development. Know-how is of great value and often hidden away in fear of potential competition. When it comes to being green, commitment sometimes might not be enough; therefore knowledge is required and should be provided for everyone that tries to make a good change. Following the knowledge is the action, a time for big changes to occur. These changes then need to be continuously developed and improved because there is almost always a way to make something even better. That offers new and enhanced know-how, which can serve as basis for the organizations to come or those yet to be changed. Beyond that, I also see the need for new organizational cooperation network and governmental cooperation network, which would work side by side in sharing the knowledge, standards and regulations.

Outside of the circle of the model there are lines that represent potential impacts of sustainability development on environment, society, and economy, along with the outcomes that refer to the relations between environment and society, society and economy, and economy and environment.

The first step of sustainable development in relation with the environment will result in a maintained impact on the environment. This impact will then have to be gradually reduced, which will lead to environmental sustainability, followed by constant improvements in environmental approach. Regarding the social sustainability development, the impacts will include reduced dependency, people empowerment and better employment opportunities. Impacts of sustainable development of the economy will consist of resources sustainability, sustainable profit growth and economic balance.

Furthermore, the benefits of sustainability related aspects in connection with environment and society will represent reduced environmental impact, which will provide us with a cleaner planet, and improved quality of life. Waste management will improve and cause reduction of waste, whilst the emissions will also start to diminish. Healthy and friendly working and living environments can therefore be provided for the people. The benefits of sustainability aspects related to the link between society and economy will offer rise of employment opportunities and fair wages, local employment and empowerment, development of communities, local

energy and food sourcing, and self-sufficiency. Lastly, the benefits of sustainability related features in connection with economy and environment will indicate a green economy growth, increased energy efficiency, and renewable resources availability.

The aforementioned benefits are only but some of the potential outcome features that sustainability has to offer. In order to fully understand sustainability and sustainable development, we will first have to start living by its requirements.

6.1 MAIN ISSUES AND RESTRICTIONS

‘Path to sustainability’ is a role-model and is far away from signifying what is in fact presently happening. There are major issues that restrict sustainable development and might prevent sustainability from ever happening. Those issues, in my opinion, are mostly present due to the flaws of human beings and are further on assorted into five categories.

6.1.1 SUFFERING ASPECT

Sadly, people often act only when pressured hard enough. The higher the pressure for the change will become, the higher the need for transformation will turn out to be. When environmental, social and economic features bring the suffering to the limit where people will say: ‘now it is really time to change’, the desire for real transformation will be triggered. I believe that there is still not enough social pressure that could enhance the transformation, whilst economic aspects are justified based on their minimal effect on middle-class and high-class, disregarding the lacking of people from the low-class. Environment itself began to draw attention on its matters due to continuous excess pollution, but it is still not nearly as dangerous as it can become, which should not be taken for granted as the time to act is limited. Once the suffering aspect reaches its triggering point and the desire for real transformation begins, it will probably be too late to think of anything else but short-term survival.

6.1.2 SUSTAINABLE PRODUCTS AND SERVICES AVAILABILITY

Sustainable products and services are being repeatedly well-advertised. Greenwashing on the other hand, is also commonly used for deceiving the consumers and public. While it may seem that availability of sustainable products and services is high, it should be considered that it is still considerably too low to reach the desired and required impact. The offer is limited due to major ruling corporations and corporations from regions with cheap working force and materials. Those organizations can easily compete with sustainable organizations, at least in terms of setting prices. Production mass and resources misuse provide the power for ruling

corporations to lower the prices as much as necessary to sweep away with smaller organizations' offer. As it is true that consumers hold a lot of power, it is nowhere near the truth that consumers possess all the power needed to make a visible difference. What is left out of that idea is a simple reality check. Many people need to primarily worry about their own ability to survive (paying for the food, bills, medical expenses, etc.). Whilst others may be able to afford certain sustainable products, there are hundreds of products that are presently desired in everyday lives and require improvement in certain areas. There are also numerous products and services that do not have a more sustainable alternative yet, therefore the only way to be sustainable is not to use those products or services – which is sometimes nearly impossible.

6.1.3 GREED AND LUST FOR POWER

Whilst short-term sustainable development goals may seem rather achievable, I believe that human greed might as well be one of the most important suppressors of sustainable growth. Whether determined by human nature or not, greed always have been and most likely always will be present in human beings. The greed and lust for power are often overpowering the desire to build a just and healthy environment on the planet. Craving for complete personal pleasure and ignoring the given boundaries of our planet may offer short-term satisfaction, whilst it cannot provide hope for sustainable development and future generations.

6.1.4 HUMAN (DIS)CONNECTION AND INTOLERANCE

Human connectivity in sustainable development sense represents the connection amongst people that work towards achieving sustainability. On one hand there are globalization and technology availability that offer the chance for people to remain connected, whilst on the other hand humanity faces a huge disconnection due to religious and ethnical reasons, which are utterly irrelevant when it comes to sustainable development approach. Intolerance have grown to be extraordinary enough to rationalize the beginning of wars and destruction, which make humans yet again look like primitive beings compared to superior beings that are required to achieve sustainability.

6.1.5 OVERPOPULATION AND POVERTY

In close relation with one another, overpopulation and poverty are the two connected factors that somehow represent the contrary of what sustainability is referred to as. Some researchers claim that higher population density is related with a higher level of sustainable development. Whilst it most possibly can be, it doesn't mean that it in

fact is on a global scheme. That relation would only be achievable in an ideal or at least well-improved form of the planet's systems and their belonging people. Poverty leads to absence of education, health issues, and overpopulation, whereas it is well-known that children born in poverty are often misused in order to provide necessary resources for survival of the family which they belong to. In order for people to understand the concepts and not to be deceived by media or anyone else in any way, they should see the real poverty and overpopulation by themselves. Many opinions are bound to get changed drastically when the theory fails to meet the reality. Overpopulation is messing with the carrying capacity of our planet which does not possess unlimited resources; therefore population size has to be controlled in order for the resources to be accessible to majority of people. Poverty, furthermore, is pressing the world and its inhabitants into a state of social and economic inequality, enlarging the gap between possibilities and reality. Since overpopulation and poverty are present side by side on a global scheme, it is difficult to distinguish where and how to start dealing with the problem.

7. CONCLUSION

One of the important findings of the thesis represents the need for realization that sustainability itself is a developing concept which is wider than the meaning of simply “being green”. It involves a wholeness of the system through economic, social and environmental fragments connected together. Since we all leave some kind of an impact on the environment, greening the organizations and human minds is definitely a step towards achieving sustainability. Some of the organizations that we know in the present are already exhibiting commitment to environmental principles for a long time, while others have just started doing so or are still making plans to. In fact, the words “green” and “sustainable” are nothing but a new disguise for principles that have been in connection with people for thousands of years. Our planet is a constantly changing system in which people began their adaptation long ago. It is vital to know that people influence the alteration of the planet by their actions. First drastic changes of human alteration effect began with permanent adjustment of hunter-gatherers to a certain place. As found out further on in the history of sustainability part of the thesis, hunter-gatherers were constantly moving in order to secure availability of food. Human knowledge advancement caused a change of perspectives which led to domestication of animals and cultivation of plants. Agriculture was born and represented the basis of survival methods for the tribes that eventually grew into complex societies. Over time, those societies learned about the meaning of sustainability, as they faced major issues due to reckless expansion and continuous abuse of environment. The goals of the chapter regarding the history of sustainability were achieved through connection of historical aspects together with social, economic and environmental aspects. The current and future generations can use the knowledge for the benefit of sustainable development. There is much to learn from ancient civilizations such as Ancient Roman, Greek, Aztecs, Incas, Mesopotamian, Mayan, Persian, Chinese, Egyptian and Indus Valley civilization. On one hand, those civilizations managed to establish numerous sustainability practices in building methods, water management and agriculture, whilst on the other hand they failed to continue the quest for sustainable development due to various reasons. Ancient Romans were masters of harnessing water in aqueducts, whilst they misused the environment in many ways by excess lead pollution, deforestation, etc. Ancient Greeks and Egyptians were experts in agriculture until they become too intrusive for the environment. The Ancient Mayas and Mesopotamians have built huge canals and water storages, which offered not only an on-going provision of water but also a source of contamination as the garbage began to accumulate around the water supplies and brought diseases in the cities. The Aztecs were great engineers and like Egyptians, very educated in irrigation systems. They were strictly implementing recycling and environmental protection standards until they were destroyed by the Spanish. Ancient Incas, the great farmers, were also destroyed because of the Spanish lust for power. Ancient China and Indus Valley civilizations were provided with good opportunity for evolution of farming due to their rivers, whereas the Indus Valley was the leading civilization in residential plumbing and water supply. Ancient Persians are the inventors of the first windmills and qanat systems, which were used for water distribution as well as for cooling purposes. Following the description of ancient

civilizations, modern history is further on described in the history of sustainability chapter. From the preindustrial time and globalization to the idea of global warming to definition of sustainability in 1972, the modern history connects human development over time in a brief summary. As explained in the thesis, the environmental revolution has been in motion since 1960, and has thrived in 1990s. The beginning of the Sustainability Revolution was in 1972 when the UN Conference on the Human Environment was held in Stockholm and led to Brundtland report named *Our Common Future*, which was issued in 1987. The explanation of sustainable development in the report refers to ‘development that meets the needs of the present without compromising the ability of future generation to meet their own needs.’ Since then, numerous definitions of sustainability and sustainable development have followed. Throughout the history part of the thesis I have found out that ecological factors were often one of the main factors that shaped the societies and modified the planet. These findings should be taken into consideration by everyone.

Succeeding the history of sustainability segment is the chapter that achieved its goals by defining green business and sustainable development, and explaining other related terms. As I was reaching deep into the core of sustainability, I noticed how complicated all the arguing about the right definitions and correct use of terms seemed – complex and pointless enough to repel many people away from it. A green business in simple and meaningful sense is any organization that has the least harmful impact on the environment and participates in environmentally friendly activities. Because of the need for being responsive for the importance of preserving the environment, organizations are looking for ways on how to become (more) environmentally friendly, also known as “green”, “eco-friendly” or “sustainable”. The word green itself has become a common catchphrase for sustainability and conservation of natural resources. Sustainable development, as previously mentioned, involves numerous ideas and definitions, which in common refer to the use of the planet and its resources in a way that does not compromise the capability of upcoming generations to do so too. Other terms have also been described in the thesis for a deeper insight of sustainable development and include definitions of eco-innovations, green products, green consumer, green marketing, greenwashing, green certification, and carbon offsets and carbon credits. Important findings of the thesis also include the understanding of green businesses in practice. The aims were achieved by introducing requirements and steps of starting a new green business or remodelling already existing systems, as well as by presenting numerous green business ideas and issues that green businesses are dealing with. In order to preserve humanity, all organizations will have to go green(er) eventually, since it has become clear that the conventional business methods oppose sustainable development. Most of the organizations can be modified by changing the very basis of perspectives and transforming a business model into environmentally friendly one. Some relevant green business ideas that were presented in the thesis include green building and urban planning, sustainable agriculture, renewable energy sourcing, sustainable forestry, green transportation, green hair salon, green gym, green wedding planning, green cleaning services, recycling and waste management, and sustainable brewing. As it is not always easy to be green, the thesis also offered overview of issues and

risks that green businesses are dealing with. It is important to understand those in order to be able to enjoy the benefits of sustainable business development. Common welfares of sustainable business development include health benefits, lessened dependency on foreign oil, reduced environmental impact and support for the economic growth. Alternative business approaches which seize the interest of consumers can be simple and may not require any additional funds besides the need for constant commitment. On the other hand it is also vital to distinguish that both risks and potential returns are greater when businesses take on big scale research and development investments.

Furthermore, the research part of the thesis consists of presentations and interviews from 32 organizations, a sustainable development model, and main restrictions of sustainable development. The 32 organizations that I have interviewed offer extensive knowledge about how business should be practiced. Answers to interview questions have been analysed which led to creation of extensive sustainability model, called 'Path to Sustainability', which connects essential sustainability fragments together in a wholesome system, together with connections between related fragments. The model can provide individuals and organizations with tips and ideas regarding sustainable development, whilst advising preservation of natural resources and our planet in general. Therefore, the goals of the model are partially achieved, and will further on keep on being partly achieved each time someone learns from the model. In opposition to the created role-model, an overview of issues and restrictions that sustainable development has to face has also been prepared. Major issues, which restrict sustainable development and might prevent sustainability from ever happening, are present due to the flaws of human beings. Those issues have been assorted into five categories: suffering aspect, green availability, greed and lust for power, human (dis)connection and intolerance, and overpopulation and poverty. Each of the issues on its own is enough to prevent sustainable development. Since the time is limited, the time for act is getting to its end. If the issues will not be removed in time, achieving sustainability for human beings will not be an option anymore.

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