

Environmental Design For Coordinated Collections Of Furnishing Printed Textiles And Lighting Units For Saudi Farahan Protectorate To Become Ecofriendly Touristic Destination

By

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Abstract

Recently the intensity of competition has increased among countries in tourism industry due to ascending globalization after the second millennium. Governments have realized the importance of showing a distinguished personality and creating a unique identity for its touristic destinations that are characterizing it, and have become an ambassador for its natural and cultural heritage. The research problem is represented in the following question: Can environmental design for coordinated collections of furnishing printed textiles and lighting units achieve functional and aesthetical dimension through linking among them in a way that reflects on tourists' attraction for hotels and resorts for Saudi Farasan nature potectorate to become a unique touristic destination? Saudi Farasan nature preserves lack factor of tourism attraction (tourism industry) despite the habitat diversity and rare natural life that the preserve has. The research importance relies in innovation of consistent collections of environmental designs for (Farasan islands protectorate), that realize an integrated relationship between design of printed furnishing textile for touristic hotels and resorts and surrounding lighting units and their effect on realizing touristic attraction for the protectorate. The researcher assumes that using ecofriendly, aesthetical and technical linkage for lighting units and printed furnishing textiles leads to innovation of consistent collections of ecofriendly designs for the preserve that achieve touristic attraction and allow it to be ecofriendly touristic destination. The researcher follows the analytical, descriptive approach and experimental methodology that were applied on experiments of ecofriendly designs for the consistent collections of furnishing design and lighting units for female students of the graduation project for textiles, department of applied arts- faculty of architecture and design- Gazan university- Saudi Arabia 2021-2022, using computer applications. The research special limitations are limited to Saudi Farasan island. The most important results are: Using integration for consistent collections of ecofriendly for natural protectorates and smart lighting units gives a distinguished unique style that fits purposes that carry functional and aesthetical values that leave a direct impression inside the tourist's mind and elevate the factor of touristic attraction and tourism industry with realization of comfort and luxury as it creates a comfortable environment for users. The study also shows the potentials of designer of textile printing and his/her experience to create the best consistent collections and alternatives through computer applications and techniques of textile printing.

Keywords: Environmental design- coordinated collections- natural protectorates- ecofriendly touristic destinations- touristic attraction

Introduction

Saudi knights' island nature protectorates lack factor tourism attraction (tourism industry) despite the habitat diversity and rare natural life that the preserve has, and its natural and cultural heritage that allowed it to be the most important touristic destination around all the kingdom. Also, exposure of aquatic and land creatures and rare phenomenon that characterize Farasan island all over the world to be exposed for extinction due to hunting and overgrazing and factors of immigration and modern technology, in addition to absence of land or air means of transportation to reach Archipelago of Saudi Farasan islands, as transportation is only through aquatic passages in specific times. Low number of cultural and environmental studies on the islands which are in a need for documentation and limitation of its cultural and social qualities and its biological diversity. Regarding natural aspect, it is perfectly qualified and match the global standards and demands. From the previous, they are all phenomena that deserve study and research. Through technological advancement and use of modern techniques in design and industry, that led to natural fusion among activities of design and technology for more innovation and challenges. Creativity in the field of technology and tourism industry is the fastest engine for progress of economy as ecofriendly technical linkage was used through the use of smart lighting units and furnishing textiles that are printed with ecofriendly digital printing and recycled materials and link between them in consistent collections in an atmosphere of harmony and cohesion among elements of environmental design and same coloring groups for the same place, which will lead to realization of touristic attraction for hotels and resorts in Saudi Farasan island protectorates to become one of the most important ecofriendly tourism destination.

First: Theoretical Part

First Axis: Ecofriendly Touristic Destinations

Any touristic destination is formed of mix of interconnected elements that are presented at certain place. In order for having a satisfied vacation for tourists, all these elements should be presented in one place, they are (qualities of touristic attraction- providence of all means of transportation- hospitality). (Samir. S 2021)

Touristic destination is described as “geographical location where tourists travel to, it expands in the identification pointing at geographical location that reflects being a unique entity for its visitors within a legalized, political frame and touristic planning that distinguish it from any other place (Twfek. A 2023). In other study for touristic destinations: it is geographical locations that are formed of natural, cultural, historical and heritage resources that the destination has in addition to infrastructure and political and laws of countries which can have positive or negative effect on development of destination and its economic progress (Manhas. (P, Manrai. L &Manrai. A 2016). Touristic destinations represent the identity of the area and its trademark. Examples of global touristic destinations as shown in figure 1, tourism fun and nature lovers.

		
Uruguay in south America joy of tourism	Costa Rica is famous for its weather	Best destinations in Turkey
<p>Figure 1 examples of the most famous ecofriendly global touristic destinations- https://www.sayidaty.net/node/</p>		

Natural preserves are linked closely to history and culture of Saudi Arabia kingdom and its identity, examples for the most famous touristic destinations all around the kingdom as in figure (2), that's why the researcher is concerned with the subject of study to develop touristic destinations and make them more attractive especially preserves as it is a base for development of natural life and treasures of nature.

		
Nature tourism in Yanbu	Riyad	Nature tourism in Fifa
<p>Figure 2: the most famous touristic destinations all around the kingdom https://www.urtrips.com/saudi-arabia/</p>		

The most important touristic destinations: they are divided into two main sections:

- 1- Resources of main destination include: (climate- environment- traditions- architecture).
- 2- Resources of secondary destination include: developments that are made to satisfy and serve tourists like development of resorts, hotels, restaurants, transportation and residence, etc.).

the most effective factors on tourists are infrastructure and living style, then security and natural and historical characteristics, then culture of the society, identity and finally promotional efforts (Twfek. A (2023) which is the area understudy, the development of interior spaces for hotels and resorts of Saudi Farasan island protectorate through applications of environmental designs for consistent collections for printed furnishing textiles and smart lighting units and their environmental and aesthetical effect to increase touristic attraction.

Natural protectorates:

They are known as area of land or sea that are being specified for protection of cultural and natural resources and maintenance of biological diversification through various and effective legal means. There is an effective role for natural preserves in activating environmental tourism which is about obligatory enjoyment of nature and its components and it is realized without messing up with environmental systems and without negative effect on components of biological diversity (Mahmoud. G 2021).

Saudi Farasan island preserve (one of the protectorates of the red sea)

Location and area: it is located in the southern east part of the red sea, and it is far about 42 km. from coast of Gazan city, the area of the preserve is around 5408 km². (Net. 1) Figure no.(3)shows the location. Farasan islands are considered one of the most important preserves in Saudi Arabia which were listed among “human and biosphere” program, one of the programs of UNISCO, Farasan islands are located in the southern western corner of Saudi Arabia, it is considered the biggest Archipelago in the red sea, its islands are 262 islands separate from each other, and each of them has its own magic, Farasan inhabit only 3 islands of them (the great Farasan- Sajid-Gumah). So, the great Farasan is considered the largest island in the red sea and the largest within the Saudi water (Al-Bouq, A 2001).



Figure no. (3) shows the location. <https://www.almrsal.com/post/437653>

Farasan islands are characterized by the importance of its location near the international ships’ passages and its location near bab al-Mandab and the African countries and its enrichment with natural, touristic, archeological resources and coral reefs and marine creatures, which cause it to be point of attraction to tourists and businessmen, isolating, rare magnificent nature is the magic of Gazan’s Farasan island as it is called the Saudi Maldives as in figure(4)

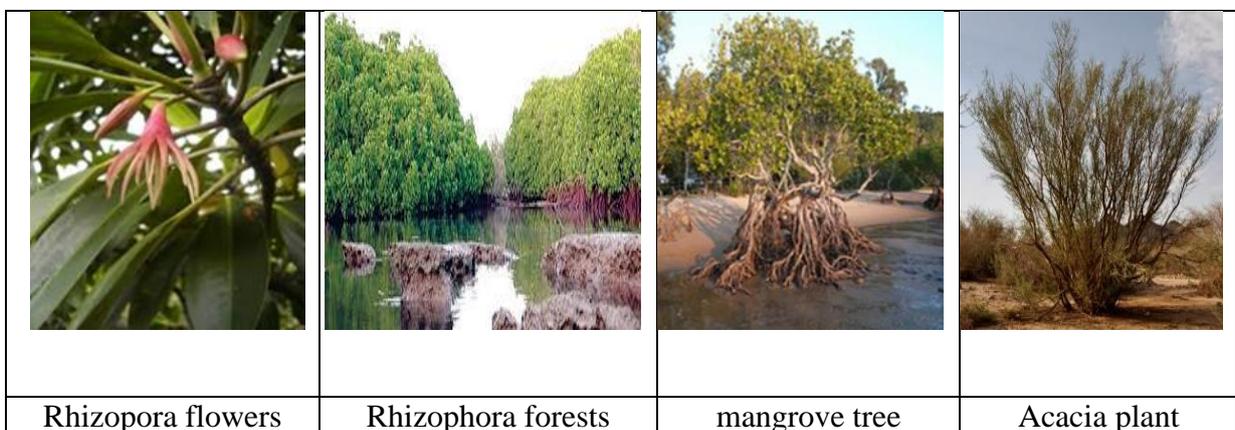


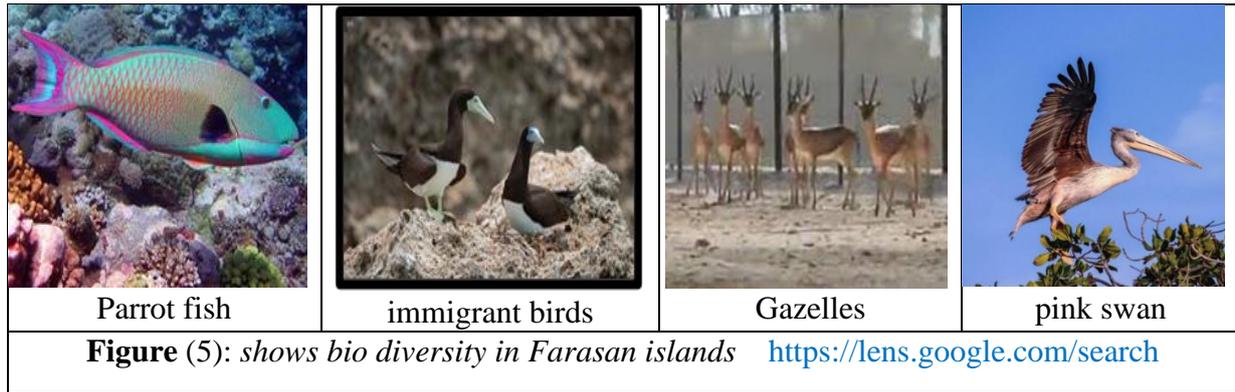
Figure (4): shows the rare magnificent turquoise beaches (Saudi Maldives).
<https://lens.google.com/search>

Climate: the islands are characterized with tropical climate, hot moist in summer and warm in winter, little winter rain due to seasonal wind from Indian ocean. Average temp is 30 (great is 35- low is 26) perfect temp is 27 during January and February, which is the lowest in Fifa mountains, Makkah, Taif which represent the main resources for tourism to the protectorate, some limitation of the attraction is high moisture which has average of 76% reaches its max during the winter, it might decrease to 40% as it is inversely proportional to temperature, so it is at its lowest during the summer, Winter rises (Al-Harith. P, Metwally M. 2016)

Environmental study and biological diversity:

The island includes a huge biological diversity and it is consisted of areas of coral limestone with average height of 10-20 m. which might reach up to 40 m., the maximum height is 75 m. such heights are locally named mountains. There are short valleys that lead to the sea. Coasts are covered with white calcareous sand that were resulted from breakage of coral reefs and seashells. The most important types of trees are (Vachelia tortilis- Balsam-Christ's thorn-Salvadora) in addition to Avicennia and Calicotome that create a heavy costal tree, lately Mesquite trees have spread or intruder Prosopis. The preserve is characterized by the presence of Farasan antelope which inhabit some of Farasan islands in addition to white tailed mongooses and some rodents, while birds are distinguished with their diversity and availability especially costal, marine and immigrant birds, the most important ones are osprey- grey swans- dark larus- soty falcon-snowy egret and some types of turtle dove and some lizards and snakes. (Net ,1) Fig. 5 shows the heavy biological diversity in the protectorate





Field study, cultural heritage and historical locations: the island is characterized with unique cultural heritage location (green and rain valley) with their historical ancient importance for what they contain of old houses for pearl traders with their specific engravings: Farasan house- Rifai house-Qessar village- and Roman castle have raised the touristic attraction as it is characterizing with standards of global cultural natural heritage, Figure 6 shows field visit for the protectorate with students of the faculty in a scientific trip for the protectorate that emphasizes the magnificence and history of Farasan heritage and museums (Ibrahim Muftah Museum –marine museum and al-Zailai).



Characteristics of the protectorate understudy (prepared by the researcher):

- 1- Unique and charming locations on the red sea and its fine weather through the warm winter which caused it to be a suitable place to visit during winter and for immigrant birds from Europe.
- 2- It includes many islands with exceptional cultural, touristic and rare environment, more than 200 islands with different areas separated by water passages.
- 3- Enjoy natural rare life and amazing scenes and charming isolation with heavy plant coverage of mangroves and various trees that include over than 180 types of rare plants.

- 4- Environmental diversity: it provides different habitats for all kinds of birds and animals even fish that represent an independent culture for the locals and residents of the entire area, it is an element of attraction for visitors of the protectorate, it includes 50 types of corals and over than 230 kinds of rare fish that increase factors of tourists' attraction.
- 5- The islands include the largest gathering of rare Farasan deer, and Gazella.
- 6- Rare natural phenomenon that distinguishes the protectorate (touristic harid (parrot fish) festival- pink swan phenomenon- the largest gathering of mountain gazelle-heavy plant coverage despite the salty soil- immigrant and resident birds).
- 7- It is characterized by cultural unique heritage location and monuments and diversified cultures.
- 8- Exclusive social style; style rich with cultural diversity resulting from succession of civilizations that created a human with cultural diversity and forgiveness from the culture of water.

Sustainable touristic development in Farasan Island protectorate:

It has qualities for touristic attraction that qualify the area to become a sustainable environment, the definitions for environmental tourism have multiplied as the international union for nature preserve has identified it as being “environmentally responsible trips and visits for unthreatened natural areas, for joy and admiration of nature and enhancement of its protection with what it accompanies of ancient or modern cultural monuments, also the international fund for environment identified it as “travelling to unpolluted natural areas and its natural balance wasn't disrupted, for the enjoyment of its views, plants and rare animals and ancient and present civilizations “ as it is tourism that is based mainly on nature and is considered a source for income and creation of work opportunities, in addition to preserving the environment and biological balance ([Sousse. A 2022](#)). The following is a display for some touristic activities in the protectorate.

Environmental tourism: is a term that expresses a new model for ecofriendly touristic activities that is practiced by humans to protect natural and civil heritage of the environment where he lives, it is part of sustainable tourism that is founded by environmental, economic and social aspects([Skandar. D, 2022](#)).

For sustainability there is 3 main axes that are considered the main support for it, if one is disrupted the main aims for development and sustainability will be affected. Theses axes are (society- economy- environment).



Figure (7): illustrates axes of sustainable tourism <http://la394khanbashi.blogspot.com>

Available tourism activities (Saudi Farasan island protectorate):

Farasan protectorate is distinguished by its special nature which allowed it to be one of the most beautiful natural touristic areas in the warm winter season, diving to watch coral reefs, colored fish, sea turtles and aquatic creatures and watching nature and monitor fish especially “the annual festival for harid (parrot fish) touristic season” and dates of Qassir village, cultural diversity, historical locations, Roman, Himyaritic and Islamic monuments, pure, turquoise beaches which have the first ecofriendly resort in al-Faqua coast (**Al-Harith. P, Metwally M. 2016**). Activities vary in the protectorate as:

- Availability of beaches tourism and marvelous resorts and coasts and pure water.
- Meditation in nature and lovers of nature.
- Visiting islands and watching birds and protectorates.
- Multiple activities and experiences such as kitesurfing, diving, rowing and swimming in the warm water of the red sea. The Saudi association for tourism provides the availability of online booking for any of its programs through its website (spirit of Saudi kingdom) which also provides opportunities to participate in fees free fun trips that are organized by professional tourism companies.
- Camps and safari trips.
- The sea and festivals tourism (touristic festival al harid).
- Sea trips and fishing.
- Photography, documentation of sites, and visiting heritage sites and touristic villages. (Prepared by the researcher).



Table 1 shows the most important instructions and conditions for designing in a protectorate:

1-	Environmental conditions	<ul style="list-style-type: none"> - Use of ecofriendly, safe, not harmful materials that can be repeatedly recycled on one condition to not cause any harm to the environment. - Shapes of products should be in harmony with the local environment from cultural heritage and climatic conditions. - Use of renewable energy as natural resources to aid in running projects. - Benefit from various plants and trees to improve local environment.
2-	Technological conditions	<ul style="list-style-type: none"> - Use of simplest modern technology and emphasize the necessity of using renewable energies. - Used designs and materials should be according new technologies and techniques. - Produce energy from environmental system according to available techniques.
3-	Economic conditions	<ul style="list-style-type: none"> - Cost effective and efficiency - Design and development of modern industries - Provide aesthetical and functional needs with the least possible use of energy and resources.
4-	Conditions related to the user	<ul style="list-style-type: none"> - Study culture and awareness of inhabitants of protectorates which the project will be displayed in. - Enhancement of environmental awareness and education at the society of protectorate for the benefit of humanity and the environment. - Study morals and behaviors of the residents from one region to the other. - The products shouldn't cause any harm to monuments and historical resources in the protectorate. - Study taste of tourists with their various nationalities and cultures, determine their tendencies and favorite entertainment activities which they prefer.
5-	Functional and aesthetical conditions	<ul style="list-style-type: none"> - Designs and colors must influence the senses of tourists. - Designs and ideas should be innovative and inspired from the surrounding environment. - Qualified with durability to be able of being used repeatedly. - Designs can be transformed, and easy to be installed and disintegrated effectively. - Designs, colors and instructions should be simple and clear. (Skandar. D, 2022)

Concepts and principles of environmental design:

Environmental design: one of the fields of integrated design fields that preserve the environment, based on that the design process has been built through study of one of the most important sciences of biological science to inspire from while formation, design or creativity

in the design process, through the previous the concept of environmental design can be concluded:

Principles of environmental design and its purposes:

- 1- It aims at finding an integrated system to maintain the environment and interact with it and satisfy humane needs without any disruption. Humane needs are classified into:
 - Physiological needs: such as (protection related to climatic factors, need for lighting, ventilation).
 - Psychological needs: related to feelings and emotions.
- 2- Environmental design aims at realizing efficiency in using materials through:
 - Use of good manufactured modern materials.
 - Use of ecofriendly substances.
 - Waste management and control of emission of carbon and volatile organic substances.
- 3- Use of renewable natural energy resources which aren't harmful to the environment such as (wind- solar energy- etc.).
- 4- Use of natural elements such as plants and trees and their fusion within design and construction.
- 5- Design for energy efficiency: through products' design that use the minimal amount of energy through life cycle of the product ([Aleazm. H 2018](#)). That's why the current study follows use of ecofriendly techniques and materials, and realization of all functional and aesthetical aspects without affecting the environment.

The most important used techniques and materials:

Techniques and materials that realized the principle of sustainability:

- Environmental friendly printing: which depends on fabric printing that isn't resulted from waste recycling, non- woven fabrics, textiles, cotton fabrics and ecofriendly digital printing were minimal use of chemicals and harmful materials.
- Hand tuft technique and manual engraving techniques- semi automatic production which allows the product to carry environmental style.
- LED ecofriendly lighting units, smart lighting is characterized by the reduction of energy use as it is safe for humane at night with improving quality of life during the day, and achieve happiness and joy and attract tourists by creating comfy atmosphere that enhance luxury and life quality and use of technology.
- Recycle of natural raw materials for elements of cultural and natural heritage as a material that carries environmental style of the protectorate through processing of computer design programs. Rhinoceros 5 (64-bit) - Adobe Illustrator CS6 (64 Bit)- Adobe Photoshop CS6(64 Bit)

2-The second axis: the coordinating collections

Design of consistent collections: said by Hoda Abd Alrahman that this kind of designs are derived from one design which are sometimes called "twin designs", it can be used with each other, and sometimes you create 3 to 4 designs of coordinated designs within the line of the one design whether for fabrics or furnishing textile ([Othman.S, Qandil. L 2021](#))

It was also mentioned by Iman Abdullah that it is a group of developed and innovative designs to be used together, and come out of a main or stand-alone design, and it is about creating a design in the same intellectual and artistic direction in terms of colors and motifs to create another design that can be used together in a consistent style ([Abd-Allah. E 2019](#))

It is considered one of the significant means of design in the field of printed furnishing or hanging fabrics for hotels or resorts, as it simplifies the process of search for suitable designs that can be used together in one place or one room. They are used for the purpose of linking various furnishing fabrics with hangings and lighting units in one room or one space, also to link interior design and furniture. A design can be innovated or a coordinated collection among printed furnishing fabrics, hangings and lighting units through multiple forms. The formula of coordination could be controlled through the use of same formation elements with differentiation in the distribution as it adds a unique style for the place and harmony and increase magnificent aesthetical values that elevate the attractiveness of the product. (2017 Hamod .M, Shaheen. A). They are used in house décor as coordinated collections are used in linking bed sheets to pillows covers and blankets in a way that the back is matching the front and the original design, also linking curtains to textiles of covers.



Fig 9 shows coordinated collection for an appropriate design for furnishing fabrics, Textile digital design sales

Means for design coordinated collections:

The coming **table no. 2** clarifies mechanism of innovation of coordinated collections in design and print of textiles using various elements (prepared by the researcher).

No.	Means for innovation of coordinated collections in design using various elements	Coordinated collections
1-	Spread design for flowers and leaves	Coordinates are one flower with: <ul style="list-style-type: none"> - Regular planning in a square. - Change size of the flower. - More spread or distribution.
2-	Design of flowers with geometrical element	Coordinates are: <ul style="list-style-type: none"> - Only flower as background - Only geometrical element - Negative processing of the geometrical element (light over dark or vice versa). - Change size of shapes
3-	Multicolored abstract design with a set layout	Coordinates are: <ul style="list-style-type: none"> - Distribution of only one element with only 2 colors - Design with lines that are created of one or two elements of the original design - All colors of the original designs - One or two colors of the original design
4-	Patch work	Coordinates are: <ul style="list-style-type: none"> - One element or model of the original design as a whole design - Design of a frame that contains some elements of patch design
5-	Conversional design	Coordinates are: <ul style="list-style-type: none"> - Texture only - Only used units using same size and original plan Some elements with different scale either smaller or bigger <ul style="list-style-type: none"> - Different spread of units Effect of texture and color unit to create lines or frame or geometrical design
6-	Benefit from positive and negative values and color treatments	Coordinates are: <ul style="list-style-type: none"> - Light over dark and coordinated design for it is the dark over light. - Remove the background of a design and display units over a white background
7-	Design with interesting borderlines	Coordinates are: <ul style="list-style-type: none"> - Use of borderlines only with a background of one color of the original design - Change original scale or distribution (Alhady, H, Afifi, M 2011)

Best methods and technological programs that aid in choosing colors in coordinated collections:

Coordination of colors is an art that everyone needs in life whether designers or not, colors give life to everything, color coordination in a design is like a heart that pumps life in it. Unprofessional designers always face problems in picking up colors that fit each other (color coordination) it can be mastered through: (prepared by the researcher)

- Study the use of color circle in design.
- Analyze color energy in nature which are presented in special websites such as seeds.
- Follow displays of international designers and their websites.
- Websites that present the best accredited coordinated colors by the best design and animation companies (Disney – DreamWorks – Warner bros – EA Apple – Microsoft Color hunt_ Canva- etc.).
- Practice and experiment through computer programs (Adobe Photoshop & Adobe Illustrator), it is shown in the application of coordinated collections.
- The coordination process contributes to conveying the visual content to the recipient in a better and more effective way, as ideas and topics have been transmitted throughout history through visual forms and visual images thousands of years ago, and the visual image is considered more effective on the viewer as it reflects realistic or material things inspired by reality, and visual arts These are the arts that focus on producing creative works of art that, when tasting, need a sense of sight according to the different media used. Where we always notice changing the medium with the harmonious gives a different vision that is more attractive and visually impactful to the recipient. (Elnahas.M 2020) This is illustrated by the research applications of harmonic groups.

Secondly: Applied Study***3- Third axis: applied analytical study under the light of concept of environmental design and coordinated collections, and designs of textile designers for hotels and resorts in the protectorate.***

The art of textile printing (printed furnishing fabrics for touristic textiles and hangings) for coordinated collections of environmental designs with harmony with smart lighting units that have visual effect, is considered a tool that contributes in optical communication and realization of creating a mental image that directly affects tourists and visitors of the protectorate during the short amount of time that the tourist spends at the resort or the hotel, it also affects the taste of the touristic facility and makes it appear with a sophisticated look that reflects the identity if the environment and the protectorate with its cultural and natural heritage that is considered the trademark for environmental tourism of the place and elevates the attraction factor and its tourism industry, which is the main aim for this study. It is also considered as a free art gallery for users of the protectorate to enjoy optical arts and spread culture of effective visual sensibility in particularly during the evening time with the presence of secured, environmental smart lighting that improve quality of life at night and day with a more harmonious presence of technology.

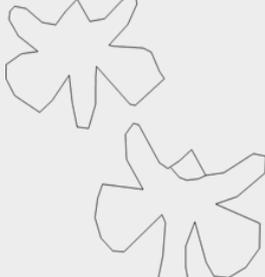
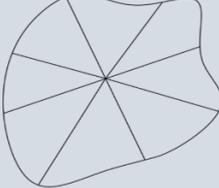
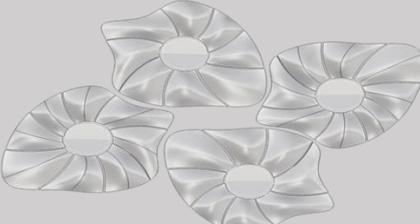
That's why it is better to create designs with high level of accuracy and uniqueness, and choice of the perfect colors that suit the place, which have been applied on several rooms (bedrooms- relaxation areas- dining rooms- lobbies- massage rooms- toilets).

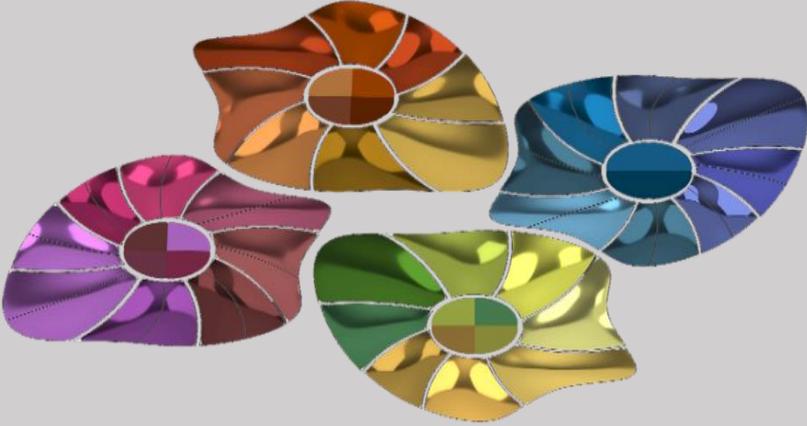
That's how designs of coordinated collections are considered of the important means of design that put the customer at ease when picking up designs that are used in one pace, as it is used for the purpose of linkage. It is possible to formulate coordinated collections through multiple shapes and it can be controlled through use of same color collection and formation elements with variation of distribution ways and sizes([Hamod. M, Shaheen. A 2017](#)).

Designer of textile printing has aesthetical and technological experience of the age and an eager personality for his/her environment and society and the significance of textile industries and their decoration in local and touristic markets as an industrial product as it demands uniqueness and individuality for attraction and competition. It is clarified through the applied experiment of the research on one of graduation projects for students of (textile track) for the student Maali Ghazwany in designing a coordinated collection using modern techniques of computer and its effective role in design of coordinated collections as it is included at all stages of design innovation starting from drawing then linear analysis then primary treatment of the idea then picking up the suitable color collection then final employment and realization of connection whether through color or using same elements. The following is an analytical applied study for coordinated collections for printed furnishing textiles and the surrounding smart lighting units that carry the unique style of the protectorate of Farasan to develop interior spaces of hotels and resorts there to elevate the tourism industry.

Creative ideas for coordinated collections:

Table 3: *coordinated collection no. 1.*

			<p>Source of the design: Balsam flower which is one of plants in Farasan protectorate</p>
<p>Linear analysis</p>		<p>Balsam plant</p>	<p>Linear analysis</p>
			<p>Primary ideas</p>
			<p>Artistic analysis</p>

	<p>Executive design</p>
	<p>Color description</p>
<p>Same color group was used in coordinated collection 1 of natural heritage in Farasan protectorate. (Yellow, blue, purple, green) that suit the environment and realize attraction.</p>	
<p>Coordinated collection 1: Same elements of balsam plant unit was used with the same color collection for lighting units and textiles surrounding it in the floor with change of unit's size and coordinated use of less transparent printed carpets and use of positive and negative with lighting units.</p>	<p>Employment Role of the coordinated collection in realization of aesthetical and functional.</p>
	
<p><i>Coordinated collection 1-1: In dining rooms of hotels and resorts. It links smart lighting units to surrounding furniture of carpet and couch in aesthetical harmon</i></p>	

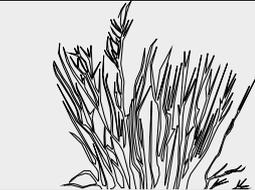
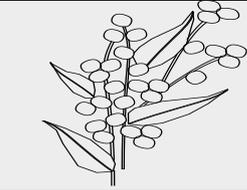
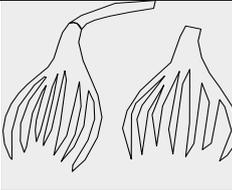
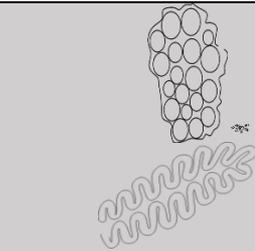


Coordinated collection 1-2

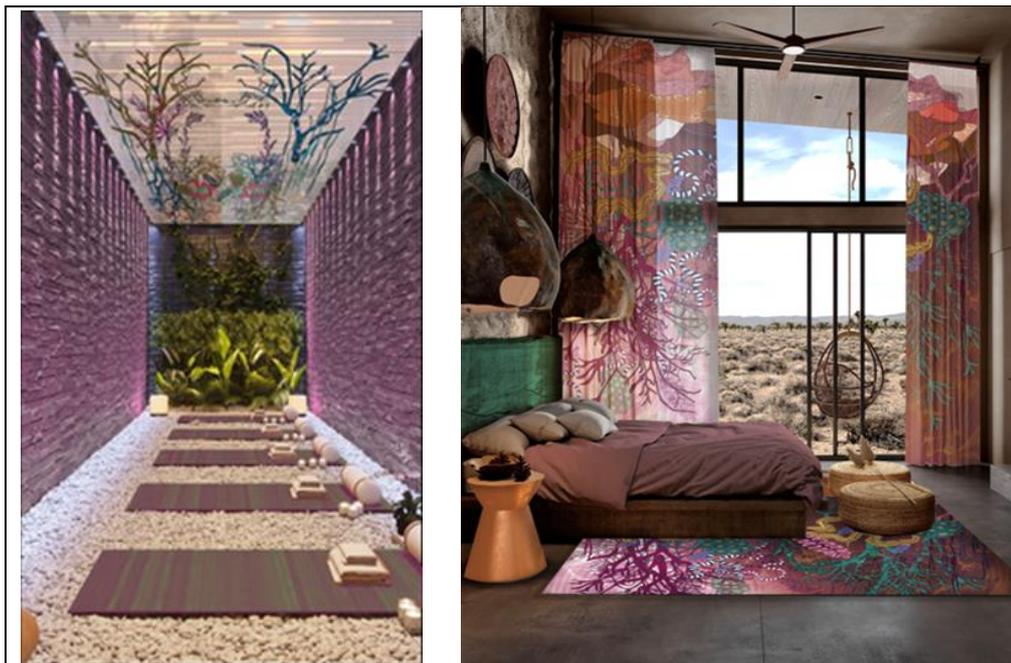
Inspired from Balsam plant in bedrooms which realize effective visual connection among lighting units, hangings and curtains of the same room to create soothing and comfy atmosphere that carry the identity of Farasan heritage (realize aesthetical and functional values).

Used techniques: 3D ecofriendly printing on recycled polyester materials with ecofriendly smart lighting units that create comfy secured atmosphere for users that enhance luxury and improve the relation with the environment in addition to computer techniques in design processing.

Table 4: coordinated collection 2

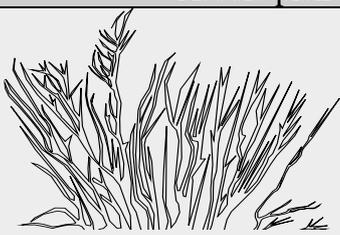
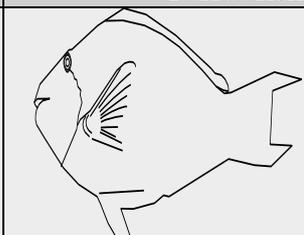
				Source of design: Plants of Farasan protectorate
Christi plant	Ruby dock plant	Ziziphus spina-	Dandelion flower	
				Linear analysis
				Primary ideas

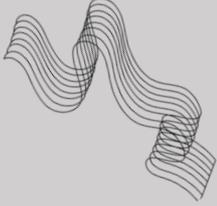
	<p>Artistic analysis</p>
	<p>Executive design</p>
	<p>Color description</p>
	<p>Color mirrors</p>
<p>Coordinated collection 2: the environmental design is inspired from elements of natural heritage of the mentioned plants, to enhance the biological diversity and rare natural life. Same color collection was used (blue- shades of green- white- fuchsia), inspired from heritage of the protectorate, soothing colors that create relaxation with roots and smooth shapes pf trees, computer processing added texture and transparency to connect smart lighting units with printed furnishing textiles in the same room .</p> <p>Materials and techniques: 3D ecofriendly printing on recycled polyester materials, and unwoven fabrics with ecofriendly smart lighting units that create comfy secured atmosphere for users that enhance luxury.</p>	
<p>Employment Role of the coordinated collection in realization of aesthetical and functional.</p>	



Suggested employment for coordinated collection 2: Massage rooms on the right and bedrooms on the left. Environmental design elements were used in hangings of ceilings with large size in the massage room, they were linked together through linear conversional design in the floor of same colors of the design with printed carpets with recycled materials to realize comfort for users and link them with the atmosphere created by smart lighting that provides lovable visual comfort, Same design elements and color groups in bedrooms with printed furnishing textiles of curtains and carpets and they were linked through visual effect with high potentials in an atmosphere that creates exciting and organized environment that provides comfort, luxury and beauty. (Coordinated collection) realizes functional, expressive and aesthetical role that affects spaces and creates comfortable atmosphere for users of the protectorate, it also has psychological effect on the tourist.

Table 5: coordinated collection 3:

			Design source: Biological diversity for Farasan protectorate
Acacia plant	Parrot fish	Mangrove tree	
			Linear analysis

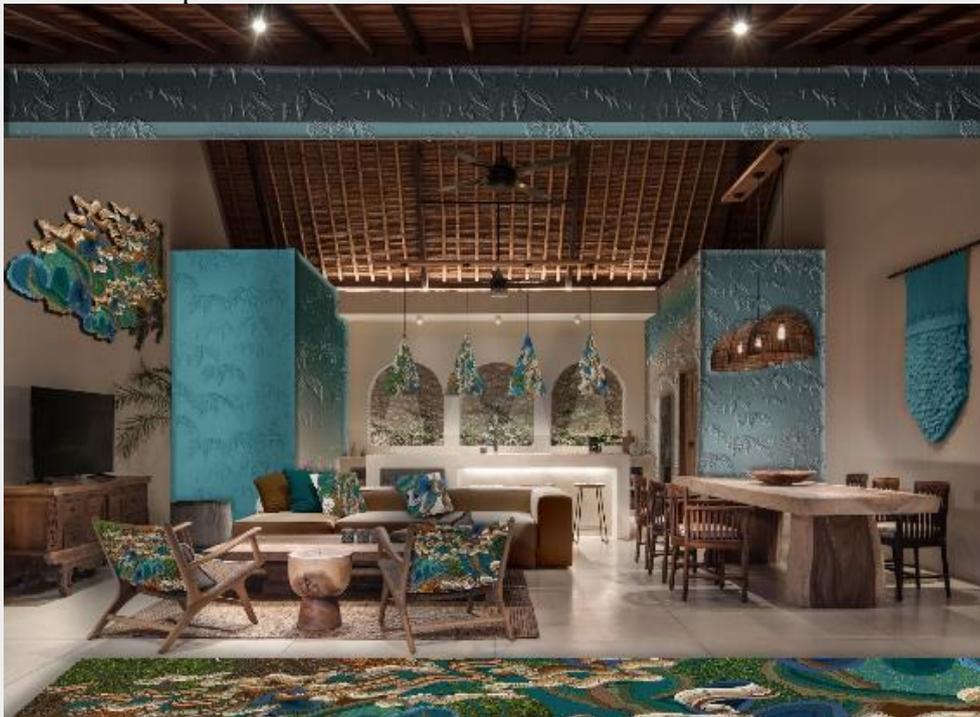
			<p>Primary ideas</p>
			<p>Artistic analysis</p>
			<p>Color description</p>
			<p>Color mirrors</p>
<p>Coordinated collection 3: the environmental design is inspired from the same elements of the protectorate that were mentioned above. Same color collection inspired from parrot fish (rainbow and pearly colors with the distinctive green of the mangrove tree. The color collection was calm and turquoise and pure such as the water of the protectorate and parrot fish to reflect psychological soothing effects that create a mental image that directly affect users” minds and creates comfort with its distinguished style</p>			<p>Employment Role of the coordinated collection in realization of aesthetical and functional.</p>

of the environment identity as an ecofriendly touristic destination that elevate factor of attraction and tourism industry.

Materials and techniques: Ecofriendly digital printing, smart lighting, hand tuft technique, semi- manual with coordinates (3-2) between carpets and hangings of the ceiling.



Employment of coordinated collection (3-1) lobbies of some recovery resorts in the protectorate.



Employment of collection (3-2) dining rooms for some resort that depended on changing size of the unit in the furniture with lighting units and

coordination of walls with one color.



Employment of collection (3-3) massage room for one resort in the protectorate



Employment of collection (3-4) in bathrooms Coordinated collection 3 building for lighting units and surrounding furniture was based on change the size of the unit with coordinated one color of the original design, (3-3) the use of positive and negative for the background with change of sizes of units that are linked by same colors and same elements for the same room.

Conclusion

Use of integration for coordinated collections of environmental design for natural protectorate and smart lighting units gives a distinguished, unique style that fits purposes that carry functional and aesthetical values, which leave a direct impact inside the mind of the tourist and elevate attraction factor and tourism industry and achievement of comfort and luxury as it creates a comfortable environment for users. The study showed the potentials of designer of textile printing and his/her experience to create best coordinated collections and alternatives through computer applications and techniques of textile printing. 3 original design ideas were innovated, 9 coordinated collections of the basic design were created that carry unique identity and style of the protectorate and culture and heritage of the area. Coordinated collections are considered one of design means that makes it easy for clients to pick up best designs that can be used in one place and realize visual connection and add a distinctive style that enhance luxury for humans and improve life quality day and night with harmonious presence of technology.

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