



# HINDU RAJPUTANA ARCHITECTURAL FEATURES AND UNIQUE DEFENCE BATTLEMENT OF SILVER BALLS IN UNCONQUERABLE HISTORICAL CHURU FORT, THAR DESERT REGION, ARAVALLI TRACT, RAJASTHAN, INDIA

**Dr. H. D. DIWAN\*, Dr. D. SANYAL\*\*, Dr. NIRMITA MEHROTRA\*\*\***

**\*Technical officer, S.o.S. in Geology and Water Resource Management,  
Pt. Ravishankar Shukla University, Raipur, C.G.**

**\*\*Associate Professor Deptt. of Architecture, NIT, Raipur, C.G.**

**\*\*\*Professor and Head, Deptt. of Architecture and Planning,  
Gautam Buddha University, Greater Noida, India**

## ABSTRACT

The Architectural style and design of the Forts of Rajasthan exhibits as special and unique one related to regional historical Rajputana Traditions and customs. Each fort has its own history of Power, Prestige, War and Defensive Strategy. The Churu Fort of north Rajasthan is famous due to the past event of Battlement whereby the Silver Balls were fired from its ramparts, instead of Iron balls/shells. The civilian peoples were collected large quantity of silver metal to make shells. The Balls were fired on enemy attackers during war of 1814 AD and got victory. The aim of the study is multidisciplinary interpretation of Historical Rajputana Fortification, Defence strategy and Cultural Heritages of Rajasthan. Under methodology, the recent Satellite Imagery of the Churu Region has been interpreted, Fort precincts and Internal structures have been demarcated and correlated with historical events of the region available in the literatures. The study indicates that square shaped Defensive Hindu Fort is still intact, and construction was carried out adopting the Rajputana style of Fortification. The Merchant Havelis of city area reflects the wealth, power and prestige of Rajasthan. It needs conservation and some protective measures is necessary to preserve the Cultural and Religious Heritages (CRH) of the region.

KEY WORDS - RAJPUTANA ARCHITECTURE, HINDU CHURU FORT, SILVER BALL BATTLE, THAR DESERT, RAJASTHAN , CULTURAL HERITAGES.

## A. INTRODUCTION-

The city Churu lies in the Desert region of Rajasthan and very near to the Shifting Sand Dunes (SSD). Fig 1(a) It is a holy place of religious Sadhu/Monk of Nath Sect. The Churu Fort was built about 500 years ago in 1620 AD, at the centre of Town. It was founded by Churu jat of Jat clan. (1) The battle of 1871 is famous for utilization of Silver Cannon Balls instead of Iron Balls. The natural Landscape of the region is undulating plains and city

Churu is situated as an Oasis, amidst of Golden Sand Dunes (GSD) of Thar Desert. (12,13) The huge construction of Rajputana havelis of merchants e.g. Bagla Haveli and Surana Haveli with Fresco Paintings (FP) and Decorated Windows (DW) are major Architectural Feature (AF) reflects indigenous structure of the region. Many Hindu Temples religious places like Salasar dham of Salasar Balaji for devotees of Lord Hanuman located in Churu district and Rani Sati Temple in Eastern district Jhunjhunu. The Churu region was the part of Bikaner State before Independence of India in 1947. (4) It has a rich Traditional and cultural Heritages and Tal Chhapar Sanctuary became a bird sanctuary with Tropical Thorn Forest of Desert (TTFD) with grasses and shrubs locally known as Mothia grasses. It has been improved as grass land ecosystem, included in Tourist Centre of Rajasthan.

## **B. STUDYAREA- LOCATION AND ACCESSIBILITY-**

The study area Churu Fort is located in geographical longitude 74°05'E and latitude 28°30'N with ground elevation of 292m AMSL. Churu City is famous for Fort, Temples, Havelis, Sand Dunes and Forest Reserve sanctuary and it is the Head quarter of Churu district, North Rajasthan(1,2,5) Churu city is connected with Bikaner and Delhi, Jaipur through Delhi-Rewari-Bikaner route, Delhi-Churu-Bikaner, and Jaipur-Sikar-Churu. The road communication through NH52 connected to all major cities via Kaithal by all weather roads. At present, Churu district has eight Tehsils Churu, Sidhmukh, Sadulpur, Ratangarh, Sujangarh, Sardarsahar, Taranagar and Bidasar. The occupation is based on Animal husbandry and Hand Embroidery in both rural and urban habitats.

## **C. METHODOLOGY-**

Under methodology, the Remote Sensing Satellite Data product in form of Imagery have been utilized for the identification, demarcation of physical domain of the Fort region and surroundings. The interpretation has been carried out through Standard Interpretation Keys and correlated with the existing literatures regarding History, Architectural and Archaeological Facts of the region, presented in form of Tables and Maps properly cited and mentioned in references.

## **D. PHYSIOGRAPHY, CLIMATE, DRAINAGE- (ARAVALLI TRACT)**

The northern extension of Aravalli hills is located on the southern boundaries of Churu district. Aravallis trends NE-SW direction and raising the height of 500m AMSL. Major part of the study area is covered with sand alluviums. The low mounds and isolated hillocks of resistant rocks scattered in the district.

(a) **LANDSCAPE-** The landscape of Churu district shows undulating plains surrounded by desert Golden sands with shifting Dunes and oasis. The Sand Dunes shows regional trends of NE-SW or NNE-SSW directions. Both types of Sand Dunes occurs 1. Settled Sand Dunes 2. Shifting Sand Dunes. The general ground slope lies towards North or NW direction. Locally the sand dunes are known as Dhoras.

(b) **CLIMATE-** The dry climatic conditions prevailing in the region except rainy season. The mean annual rainfall received 270 mm per year. The area is included in the Thar Desert region (TDR). The min. and max. temperature of Churu vary from below freezing point (-1.0°C) in Nov. to (-0.46°C) during Dec. months. The highest temperature. ever recorded in 2019 high as 50.8°C in summer season. Long term average rainfall of district is 390.4mm/annum (IMD, Record) (6)

(c) **Drainage-** No major river system of perennial nature occurs in the district, only small streams of ephemeral nature found during rainy seasons. Water supplies through Canals fulfils the demand. The runoff of river Kantli flows only during period of high rainfall. This river enters in the S-E boundaries from Jhunjhunu district and disappeared near Rajgarh. The Landsat imagery studies indicates studies recent shifting of Kantli river course towards eastern direction and it was the probable river course of Saraswati Drainage lines. (CGWB report, 2018) (6)

## **E. LITHOLOGY AND TERRAIN CONDITIONS FOR FORTIFICATION-**

(a) **ROCK TYPES-** Geologically, the Churu district encompasses Archaean Crystalline, Bilara Limestone, Jodhpur sand stone, Nagaur Group of Rocks and Palna formations, overlain by quaternary Alluvium, Alluvial Sands and wind blown Aeolian sands. It includes Bikaner basin on western side and Sikar basin in eastern part belonging to Marwar Groups (Bhilwara and Nagaur) dissected by a longitudinal fault. It overlies by Palna sediments and Alluvial deposits, aeolian desert sands. The generalized succession of Geological Formations is given in the Map and Tables. (fig I(b), Table I). Around the Churu city the Quaternary sediments have been exposed. Some small hillocks as remnant of residual hills cropped out in desert region. Fig VII(a) The wind blown aeolian sands are concealed the top layer of region. Fig VIII Also in the western part of Tal Chhapar Sanctuary the older rock formations phyllite, slate, quartzites are exposed as a small mounds. The loose sediments and detritus mantles covered the area. The hard and compact older Archaean rocks had been found suitable and intact foundation for fortification of Churu Fort. (6,12) Since Fort area lies in the Eastern part of mega lineament (Fault zone) where the rocks of basement have been exposed due to upthrow side after weathering of sedimentary formations. It provides geotechnically a sound foundation area for construction of huge structure of Churu Fort. Also, the local stone blocks for construction material, available in nearby the Fort. It is evidenced by the fact the fortification precincts, Fort walls had been made with very thick, 6-8 meters thickness is common only due to availability of plentiful rock stone blocks.

(b) **Pedology-Soil Mantle-** The unconsolidated Quaternary formation alluvium sand and quaternary alluviums exposed on most part of the district. In the eastern part over burdens on the Granite crystallines and Jodhpur sand stone whereas on the west part it overlies the shale and Palna (S/st). The weathering and erosion process is prominent in the region and it generates desert soils, mostly light yellowish brown to yellowish in colour. Also, Calcareous sands with little clay occupied in southern part. The northern part is covered with sand dunes of aeolian origin. The saline soils are confined to low interdunal areas and fine textured soils occurs in depressions. The Tal Chhapar sanctuary lies in such flat Saline depressions in Sujangarh Tehsil and a tourist Centre lies in district. (7,8)

## **F. HISTORY-**

The Churu State and City was founded in 1620 AD by a Jat leader known as Rao Chuhru Ref.(3). The Churu district has extended over an area of 16830km<sup>2</sup> and it is included in Bikaner division. After Jat Rulings, the area had been captured by Rathore (Banirot) Rajputs. They were residents of Thailasar. In 1871, the area came under dominance of Bikaner. The Shekhawati (Taknet) fought alongside of Rathore to defend the Churu City Fort. It was famous for usage of Cannon Balls-shells made of Silver metal, In battle (1814AD) against Raja Surat Singh of Bikaner (5B). At present the descendants of the Taknets (Shekhawats) and Banirots (Rathores) are residents of Churu. Before Independence of India in 1947, it was a part of Bikaner State and district Churu established in 1948 AD. (3,4)

## **G. CHURU FORT AND SETTLEMENT-**

(a) **ARCHITECTURAL CHARACTERISTICS-** The typical Rajputana style of Architectural Design employed in construction of Fort, Bawli, Religious Hindu Monuments, Temples and Palaces reflects the Shekhawati decorative styles.(11,12) The Plan of the Churu Fort exhibits the square shaped, double layered precincts with the main entrance lies towards Western direction and opens in the settlement zone of City. Fig II&III Eastern part having the open spaces and passes roads from nearby localities around the Fort precincts. The Temples had been constructed in the southern part of Fort precincts. Major buildings and Gardens located on the southern and eastern flanks. Water Tanks, Bawli greeneries in eastern open spaces. The fortification had been utilized the stone blocks and clay mortar slurries.(1,5) The Fort region is occupied by alluvium and aeolian Deposits of Quaternary to Recent in age and these loose sediments and sand overlies on hard compact Archaean Basement. It provides the suitable intact and Rigid strong foundation for fortification. Due to plain ground the square shaped geometrical pattern of Fort Design became advantageous in terrain conditions. The Havelis of



merchants in settlement zone, shows Fresco paintings and Shekhawati pattern of construction. It attracts visitors and make wealthy reflections of contemporaneous society of Rajasthan. These Havelis are still found in good conditions. The decorative windows and elevated two or three storied Havelis of Churu represents the Town Planning of Aristocratic class of India. (FIG. IV, V, VI)

#### **(b) BATTLEMENT-**

The Churu Fort was rebuilt in 1694 by King Kushal Singh (5B) and repaired in 1738 AD. During King Shivji Singh reign in 1814 AD (5B) the enemies attackers brought their Army from Bikaner and they spread surrounding the Fort precincts of Churu i.e. Sieged the Fort and fired with Cannons. In balls were also fired from the Fort, but when cannon balls ended in the Fort the blacksmith made new shells but when it also lost after some time of continuous firing. There was no Iron in the stock of Fort. In such situations the wealthy Merchants and Civilians of Churu state brought the silver ornaments from their homes and given to goldsmith/ black smith of the Royal Arsenals. They were dedicated to the Reign and Churu state. (3,5)The silver balls were filled with Gun powder and fired on enemies. The enemies get soaked and removed the siege of Fort. The Churu fort become unconquerable due to civilian supports and integrity, honesty towards reign and King. A popular Folklore slogan proverb is famous in this event. "Chandi Gola Chalia, Churu Ri Taseer".....

### **H. TAL CHHAPPAR SANCTUARY AND TOURISM PROSPECTS-**

The Tal Chhapar Sanctuary is located in Sujangarh Tehsil, Churu District, at a distance of 85 kms from fort and city, in Churu- Nakha- Sujangarh State Highway. It lies in principal Arid zone and av. rain fall is about 300 mm annually Physiographically, it is on the fringe of Great Thar desert (GTD), exhibits a flat saline depression known as Tal at a ground height of 300 m. AMSL. It constitutes unique ecosystem in Thar desert flat plain Tract. The rain water collected in a depression zone forms a seasonal water pond like Wet land, due to low lying areas. The vegetation growth of Grass and Accacia, Prosopis appears as Savana zone. Geologically, the rock outcrops have been capped by wind blown sands and Aeolian deposits. On uplands and small mounds the Achaean Metamorphic rocks Slate and quartzites have been exposed on western side. During heavy rains in monsoon season the Sanctuary being flooded. The forest type of Sanctuary is included under Tropical Thorn Forest category (Champion& Seth) with GBIC sub group of Thorn Forests.(12,13)The Chhapar Sanctuary is mainly a refugee Centre of Black Bucks and also a home to a variety of Birds. The migratory birds includes Montages harrier, Marsh Harrier, Pale Harrier, Imperial eagle, Hawny eagle, Sparrow hack, Sky lark, Crested lark, Ring dove, Brown dove, Blue jay, Grey Shrike, Antelope Cervicarpa, Dic rurush, Morocerus etc. The typical grass is found in the Wetland known as locally Motha i.e. pearl, seed like pearl, eaten by the birds. Many schemes under Forest Department of state Govt. has been planned to improve soil and water conservation of Sanctuary water shed area.(7)

### **I. CONSERVATION AND MITIGATIVE MEASURES OF FORT AND MONUMENTS-**

The Fort precincts lies in the city urban settlement, most of the internal structures have been utilized by the Govt. offices, schools etc. It needs proper conservation to survive heritage structure. The negligence in the maintenance and repairing of stone structures creates dilapidated conditions in some sections. The encroachment is another severe problem in diminishing the originality. The cleanness and renovative work of monuments, palaces, temples, buildings is necessary. It can be carried out through public participation, awareness programmes, NGO's and local social and cultural organizations.(15,16,20)Also the promotive schemes is necessary to establish the Tourism Circuit including the nearby Chhapar Sanctuary and other destinations like Ratangarh, Rajaldesar etc. (2,8,10)For preservation of Monuments and proper Maintenance the advices of Architecture, Historians and skilled Archaeologist consultation may improve the Heritage structures. It needs long term schemes of conservation programmes.

## DISCUSSION AND CONCLUSION-

The Churu Fort lies in the Thar Desert Region of Rajasthan, built for Residential and Military Defence purposes in 1620AD by Churu Jat Clan. It is located in the Plainer ground level with 290m-AMSL elevation and surrounded by urban settlement of Churu city. The plan of Fort precincts exhibits square Geometical shape, double fortified walls of stone and Gateways on west directions. The battlement at the Fort defence through silver cannon balls was the unique event in historical wars. It prove the dignity and supports devotion of civilian peoples towards Reign or State and King. The major cities of Churu district like Ratangarh, Taranagar, Rajaldesar and Salasar has been rich in cultural Heritage, religious Heritages and Architectural Heritages. The Grand Havelis with Fresco paintings and Typical Shekhawati Architectural pattern enriches the prestige and cultural Heritages of the region. At present the encroachment, negligence of structures and environmental constraints hot summer and cold winter nights accelerates the decay of monuments Proper conservation practice is needed to survive the Heritage structures. The region can be developed as Tourist Circuit including nearby localities of historical importance and Tal Chhappar Sanctuary in the Plan since it is already connected major cities with all weather roads and state highways of Rajasthan.

**TABLE- I**

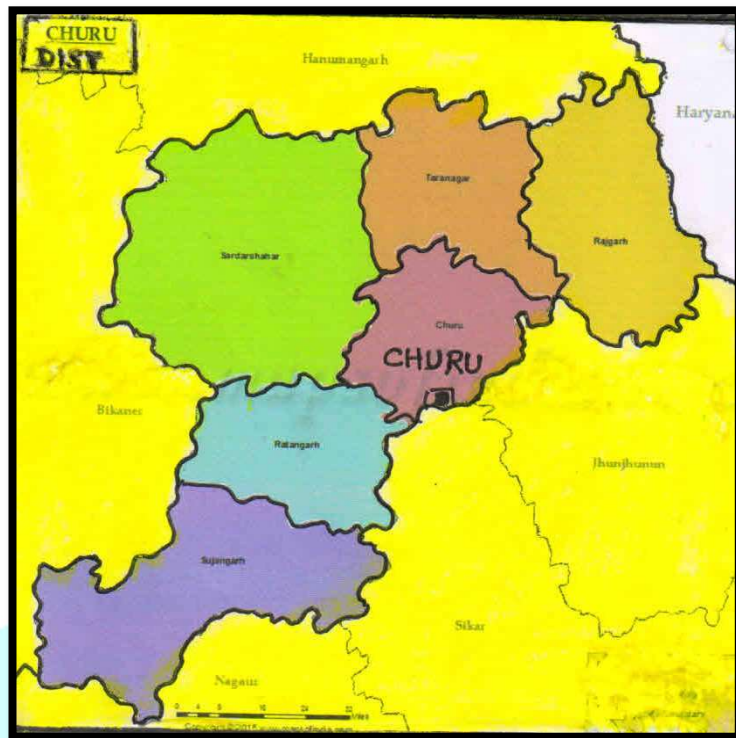
### GEOLOGICAL SUCCESSION OF CHURU (Generalized)

AGE/ERA	GP/FORMATION	LITHOLOGY
<b>Quaternary</b>	Alluvium and Aeolian sand -(young and older)	Fine to coarse grained sand, Gravel, Pebble, Clay Kankar Semi consolidated fine to coarse grained well sorted S/st, Gravels, intercalated clay beds
<b>Tertiary-(Eocene)</b>	Palna Formations-	
<b>-UNCONFORMITY-</b>		
<b>Precambrian</b>	NAGPUR GP. ROCKS- JODHPUR S/ST- BILARA L/ST-	Medium to fine Grained sand stone, silt, ferruginous shale Sand Stone and evaporates Associated with Gypsum anhydrite and Halite Crystalline beds
<b>-UNCONFORMITY-</b>		
<b>Archaean</b>	Basement-	Granitic Gneiss/Schist, Phyllite

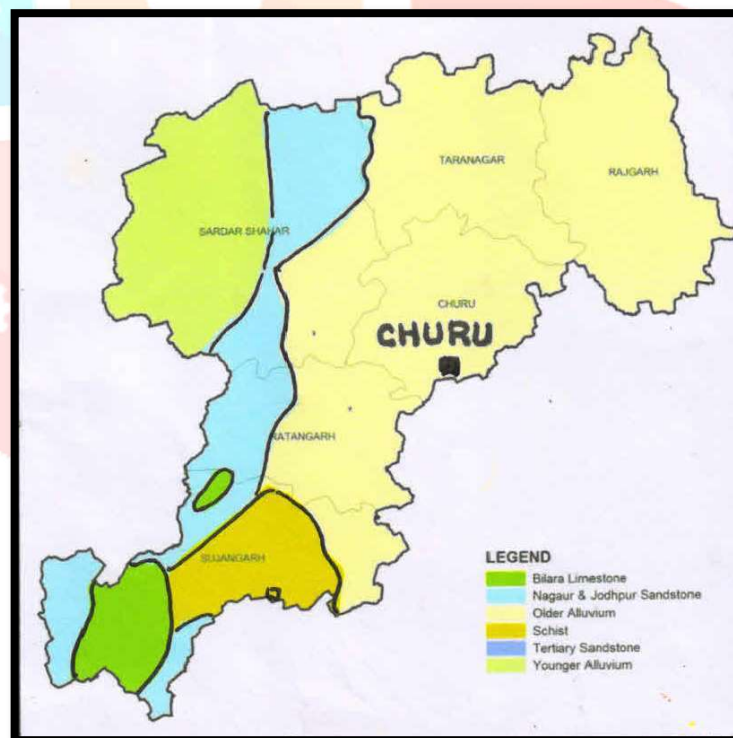
**TABLE- II**

### MAJOR ARCHITECTURAL CHARACTERISTICS OF CHURU FORT

S.No.	STRUCTURES/ FEATURES	ARCHITECTURAL CHARACTERISTICS
I.	FORT PRECINCTS AND BLDGS	TYPICAL RAJPUTANA ARCHITECTURE
II.	PALACE	CANOPIED WINDOWS AND ARCHED DOORS
III	MERCHANT HAVELIS	WITH FRESCO PAINTINGS, ELEVATED SHEKHAWATI STYLE DECORATIVE
IV	WATER POND/RESERVOIR / BAWLI	TRADITIONAL STYLE WITH STAIRS SURROUNDED BY PRECINCTS ARCHES DOORS DECORATIVE
V.	GATEWAYS	HIGH ARCHES, SPIKES DOORS, SPACIOUS ROOMS AT ENTRANCE



**FIG.I (a) CHURU FORT-LOCATION (RAJASTHAN)**



**FIG.I (b) CHURU FORT-LITHOLOGY**  
(Source: CGWB, 2018)





**FIG.II (a) CHURU FORT-FRONT VIEW**



**FIG.II (b) CHURU FORT - MAIN ENTRANCE  
(Rajputana Architecture)**





**FIG.III (a) CHURU FORT- SQUARE PRECINCTS-URBAN CENTRE (Rani Shakti Mandir, Mata Rani Bhatiya Temple, Gadhware Balaji, Gopal Mandir). ( Satellite Data 2020)**





FIG.III (b) CHURU FORT- INTERNAL STRUCTURES (Bldg. Str. Garden) Fw- Fort ,G-Gate, B-Bastion (Satellite Scene, 2020 AD)





**FIG.III(c) CHURU FORT- INTERNAL FEATURES (Pavilion, Court yard, Tower etc.)**  
(Satellite data 2020)



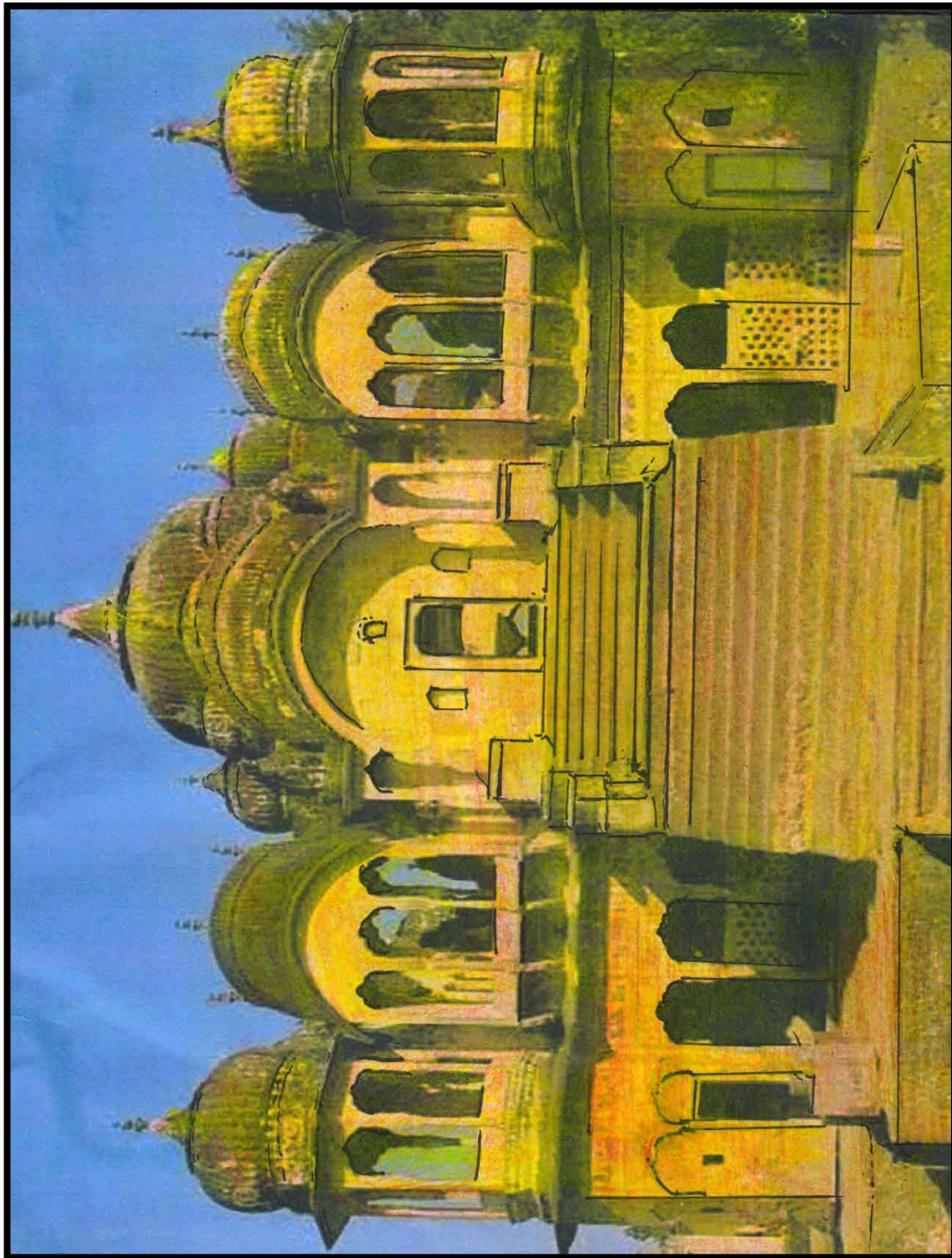


**FIG.IV (a) CHURU FORT- KOTHARI AND SURANA HAVELI ( Symmetrical Facades, Balconies, Triple Storied, Fresco Painted Walls, Elevated above Ground level)**



**FIG.IV (b) CHURU-MONUMENT AND POND OF SATI ( SETHANI KA JOUHAR) (Pillars, Doors Arches, Pavilion)**



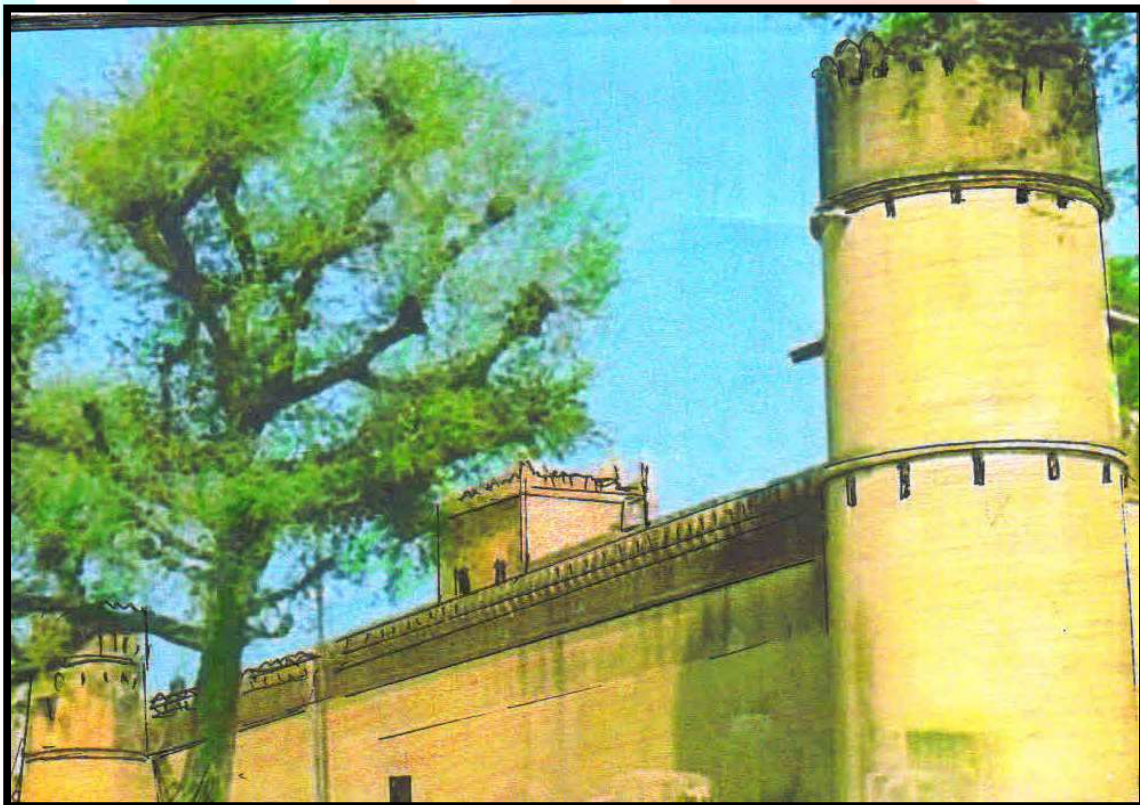


**FIG.V CHURU FORT- PANCHRATNA ARCHITECHTURAL STYLE**



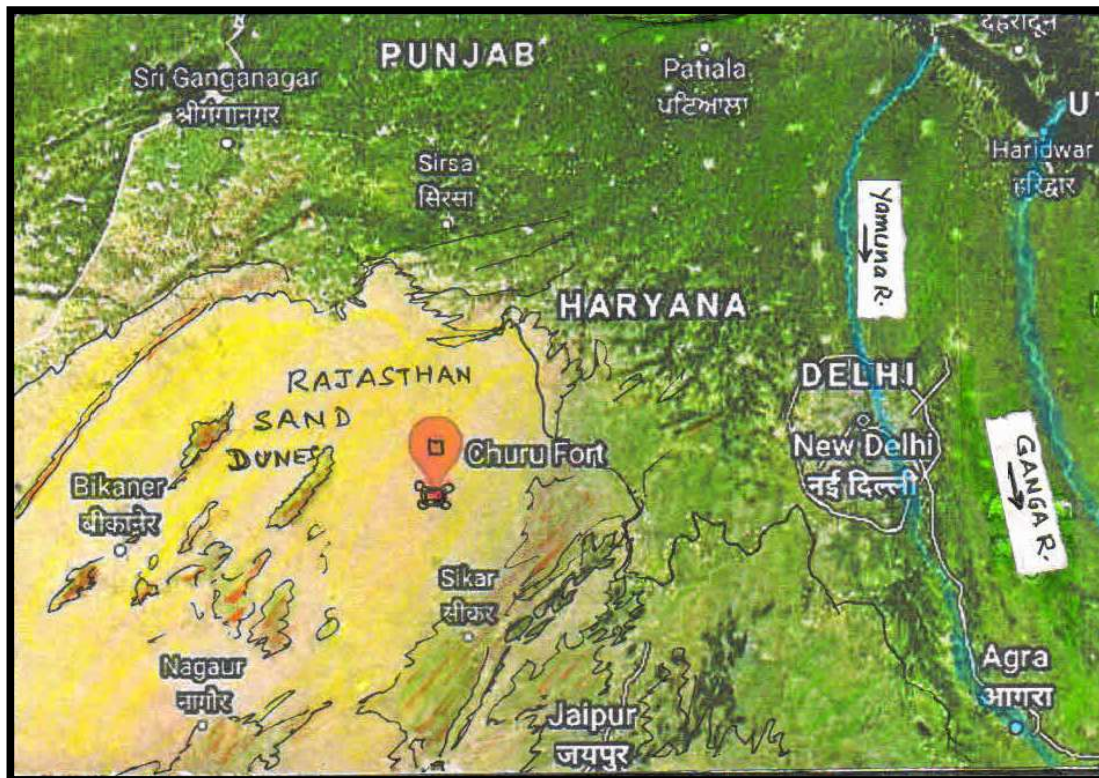


**FIG VI(a) CHURU FORT- BAWLI WATER TANK**



**FIG.VI(b) CHURU FORT- SURVELLIANCE TOWER, BASTION  
FORT PRECINCTS WALL(Source- Google,2021)**



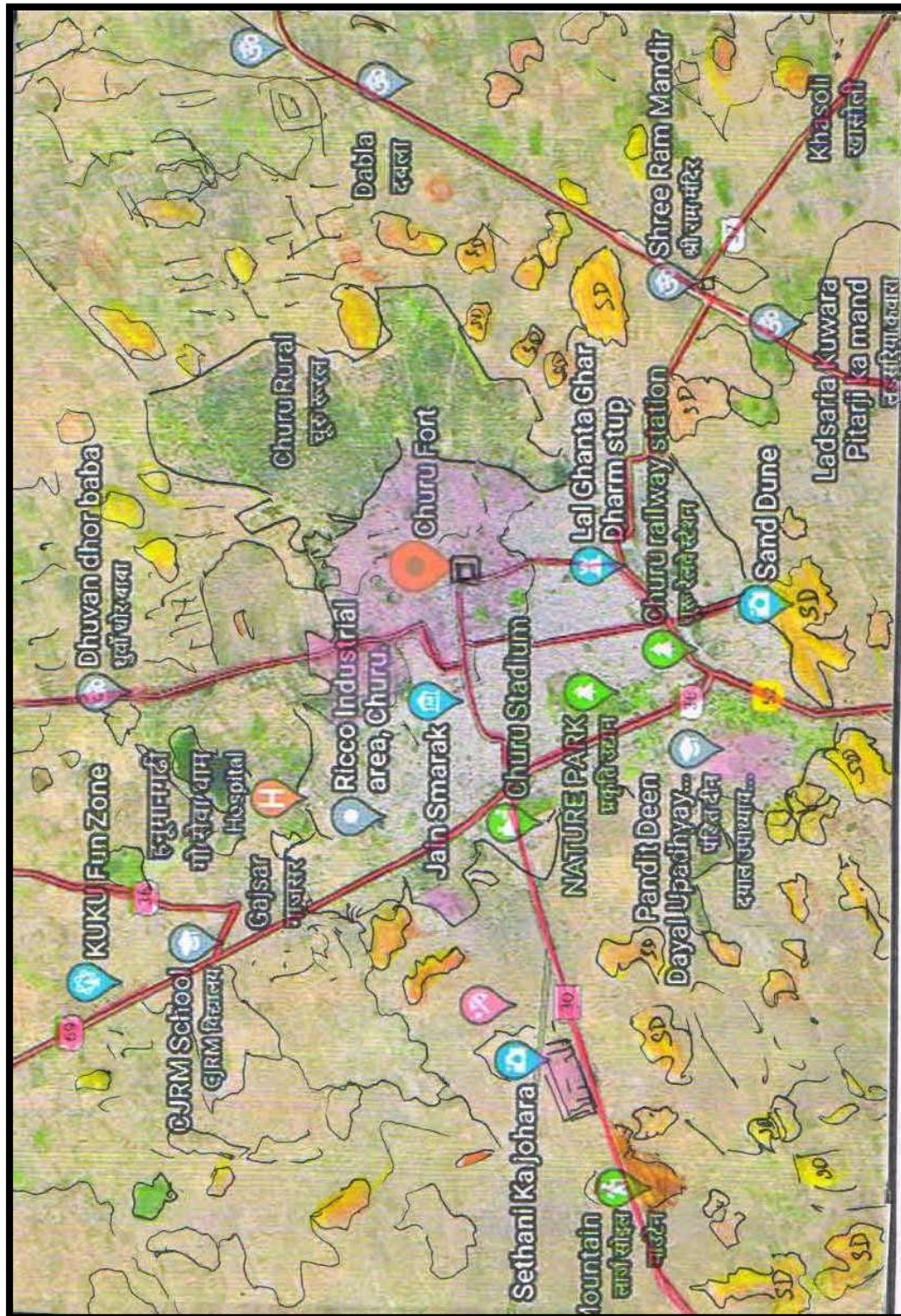


**FIG.VII (a) CHURU FORT – GREAT THAR DESERT,EXTENSION OF ARAVALLI RANGES.(REGIONAL VIEW) Satellite Data**



**FIG.VII(b) CHURU FORT- PRECINCTS WALLS(RUINED)**  
(Source: Google 2021)





**FIG.VIII CHURU FORT – TERRAIN CONDITIONS**  
**Landscape- Undulating plains, Alluvial sand Aeolian sands- Sand Dunes(SD)**  
**(Scanty Vegetation Thorny)**

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