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CREATION OF ATTRIBUTIVE DATA FOR THE INVENTORY AND THEMATIC LAYER OF HISTORICAL BUILDINGS

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Abstract: This article describes the key tasks of inventory work in the formation of regularly updated attributive data concerning the geographical location, legal status, quantitative and qualitative characteristics, and valuation of tangible cultural heritage objects. The study highlights the importance of creating comprehensive attribute information to support the registration, protection, monitoring, and management of historical and cultural heritage assets.

Keywords: tangible heritage, cultural heritage, building, structure, property, household (economic entity), registry, inventory, legal status, protection, historical, cultural, technical, economic indicators, territory, accounting, attribute data, system, quality, quantity, information, technology, monitoring, resources.

Introduction: According to Article 3 of the Law of the Republic of Uzbekistan “On the Protection and Use of Cultural Heritage Objects,” the following key concepts are applied in the study of cultural heritage objects [1]:

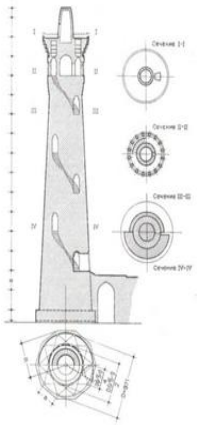






Figure 1. ***Figure 2.***

- ***Ensembles*** are groups of monuments, buildings, and structures located individually or collectively within a historically formed territory (Figure 1: General architectural form of tower-like buildings and structures; Figure 2: the Islam Khoja Minaret in the city of Khiva (14th century), with a height of 56.6 m and a diameter of 9.5 m), which are clearly distinguishable and possess historical, archaeological, architectural, aesthetic, or socio-cultural value due to their unity or relationship with the surrounding landscape. These may include public, administrative, religious, scientific, educational, defensive, palace, residential, commercial, industrial, and other significant structures associated with works of painting, sculpture, decorative and applied arts, and architecture. Ensembles also encompass the remains of historical layouts and settlements, as well as works of landscape architecture and garden art, including gardens, parks, boulevards, and recreational areas.

- ***Places of Interest*** are the joint creations of humans and nature, as well as territories possessing historical, archaeological, urban-planning, aesthetic, ethnological, or anthropological value. These include centers of traditional handicrafts, historic settlements or urban-planning centers, buildings and memorial sites associated with historical events (including military events), monuments, and the lives of prominent historical figures. They also encompass natural landscapes, as well as the cultural layers and remains of ancient cities, fortified towns (shahristans), settlements, residences, and sites used for ceremonial and ritual activities.

- ***Monuments*** are individual structures, buildings, and constructions possessing historical, scientific, artistic, or other cultural value (Figure 3: Tashkent Chimes (Kuranty), 9 May 1947, height 28.7 meters), together with associated works of painting, sculpture, and decorative-applied arts, as well as the historically formed territories connected with these structures.





Figure 3. ***Figure 4.***

They also include memorial houses, apartments, cemeteries, mausoleums, and individual graves (Figure 4: Gur-e Amir Mausoleum in Samarkand, 15th century), works of monumental art, objects of science and technology (including military equipment), materials related to anthropology, ethnography, numismatics, epigraphy, cartography, and photography, motion pictures, audio and video recordings, inscriptions on various media, works of literature and art, archival, manuscript, and graphic documents, ancient handwritten books, early printed books

produced by movable type, rare and unique editions, musical scores, sacred objects, memorial artifacts, stone sculptures, rock carvings, and archaeological monuments.

- ***Cultural heritage objects*** — tangible and intangible cultural heritage objects;
- ***Tangible cultural heritage objects*** — ensembles, monuments, and sites of historical, scientific, artistic, or special cultural value;
- ***Intangible cultural heritage objects*** — customs, folklore (oral traditions, dance, music, performing arts), as well as knowledge, skills, tools, artifacts, and cultural spaces associated with them and with folk artistic craftsmanship and applied arts, which possess historical, scientific, artistic, or special cultural value.

The significance of this study lies in the development of attribute data derived from the inventory of historical buildings and structures within the study area for the purpose of collecting, processing, and ensuring the timely provision of information required for the State Cadastre of Buildings and Structures, as well as for the formation of the corresponding thematic layer within the State Cadastre Geographic Information System (SCGIS) [2;3].

Research Methodology and Methods. The object of the research comprises the results of an inventory survey conducted on various categories of historical buildings and structures located within the study area. The subject of the study is the development of an inventory framework based on data reflecting the legal status, economic and management characteristics, and architectural–construction features of historical buildings and structures. To achieve the research objectives, a combination of methodological approaches was employed, including statistical analysis, field inventory surveys, data classification and systematization, as well as statistical validation of the reliability and accuracy of the obtained results.

Reliability and Discussion of Research Results. According to Article 4 of the Law, tangible cultural heritage objects are classified into the following categories:

- Nationally significant tangible cultural heritage objects possessing historical, scientific, architectural, artistic, and memorial value of exceptional importance for the history and culture of the entire country;
- Locally significant tangible cultural heritage objects possessing historical, scientific, architectural, artistic, and memorial value of particular importance for the history and culture of a specific region, district, or city.

Pursuant to Article 11 of the Law, the State Cadastre of Tangible Cultural Heritage Objects constitutes an integral component of the Unified System of State Cadastres. It comprises a continuously updated system of information and documentation concerning the geographical location, legal status, quantitative and qualitative characteristics, and valuation of tangible cultural heritage objects [2;3].

The maintenance of the State Cadastre of Tangible Cultural Heritage Objects includes the following activities:

- State registration of ownership rights and other legal rights related to tangible cultural heritage objects;

- Recording and accounting of the quantitative and qualitative characteristics of tangible cultural heritage objects;
- Quality and value assessment of tangible cultural heritage objects;
- Systematization, storage, and continuous updating of cadastral information;
- Preparation of reports on the condition and status of tangible cultural heritage objects;
- Submission of relevant information for inclusion in the Unified System of State Cadastres;
- Provision of cadastral information to users in accordance with the procedures established by legislation.

According to Article 23 of the Law, the ownership, use, and disposal of tangible cultural heritage objects shall be carried out with due consideration of the following requirements:

- The owner of a tangible cultural heritage object assumes responsibility for its preservation, recognizing that, in the event of its loss, the object cannot be replaced and taking into account its historical, cultural, and scientific significance.
- Owners (or holders) of land plots on which tangible cultural heritage objects are located may be assigned obligations related to the preservation of such objects, as well as other responsibilities established by legislation.
- The lease of a tangible cultural heritage object shall be implemented on the basis of a lease agreement, which must specify the requirements for the preservation and maintenance of the object.
- Tangible cultural heritage objects that are state-owned shall not be alienated from state ownership or privatized.

Cultural heritage objects may generally be classified into two broad categories:

1. Natural heritage objects;

2. Human-made heritage objects.

Cultural heritage objects include:

– Historical monuments;

– Archaeological monuments;

– Urban planning and architectural monuments.

These objects may occur in various forms:

Areal (spatial) forms:

- Buildings and structures;
- Fortified complexes, castles, and citadels.

Linear forms:

- Streets and historic streetscapes;
- Roads, rivers, and canals;
- Canal bridges and defensive structures.

Complex and collection-based forms:

- Sites containing diverse patterns, designs, and heritage elements;
- Museums, exhibition halls, and archives.

Based on their significance, cultural heritage objects may be classified as:

– ***Objects of world significance;***

– ***Objects of national significance;***

– ***Objects of regional significance;***

– ***Objects of local significance.***

Information on cultural heritage objects is recorded and maintained in the following formats:

1. Alphanumeric data;
2. Textual and written records;
3. Tabular data;
4. Cartographic and graphic representations.

In this regard, conducting inventories of historical territories, buildings, and structures within urban and rural settlements is of particular importance. The State Cadastre contains comprehensive information on all cultural heritage objects located within the territory of the Republic [2;3;4].

Accounting and valuation information jointly constitute the cadastral data of cultural heritage objects. This information is presented in alphabetical–numerical form (textual documents, tables, and registers) as well as in linear form (plans, schemes, sections, and dimensional drawings), and is stored in paper-based, magnetic, and other media formats (Tables 1–5).

For inventory surveys of buildings and structures in populated areas that are classified as historical cultural heritage objects, it is necessary to use the following indicators:

Based on historical territories:

- Information on the geographical location of cultural heritage objects;
- Accounting of quantitative and qualitative characteristics of cultural heritage objects;
- Quantitative and value-based assessment data.

Based on historical sources:

- For archaeological monuments:

– Dating information, including details on who conducted exploration and excavation works and when they were carried out;

– Storage location of the discovered materials.

- For historical monuments:

– Information on the history of origin;

– A brief description of events and individuals associated with the monument’s historical and cultural significance.

- For architectural and monumental art monuments:

– Information on the author, builder, and client (commissioner);

– Date of construction.

Table 1.

Generalized Table of Main Historical Buildings, Landmarks, and Historic Areas in Samarkand

№	Object / Area Name	Type	Area (ha)	Description
1	Registan Square	Architectural ensemble	1.5	The central historical complex of Samarkand consisting of the Ulugh Beg, Sher-Dor, and Tilla-Kari madrasahs.
2	Afrasiyab Settlement	Archaeological area	219	Ruins of ancient Samarkand dating back to the 7th century BCE.
3	Shah-i-Zinda Complex	Necropolis and Pilgrimage Site	2	Famous complex containing mausoleums from the Timurid period.
4	Bibi-Khanym Mosque	Mosque	1.2	Monumental congregational mosque built in the 14th–15th centuries.
5	Gur-e-Amir	Mausoleum	0.5	Mausoleum Burial place of Amir Timur and the Timurid dynasty.
6	Ulugh Beg Observatory	Scientific-historical monument	0.8	Renowned astronomical observatory built in the 15th century
7	Hazrat Khizr Mosque	Religious monument	0.4	One of the oldest mosques in Samarkand
8	Khoja Daniyar Mausoleum	Pilgrimage site	0.6	Sacred site visited by followers of different religions.
9	Historic Center of Samarkand	UNESCO heritage area	600	Listed by UNESCO as “Samarkand – Crossroads of Cultures.”

Table 2.

General Statistical Data for Samarkand Region and City

No.	Indicator	Number
1	Archaeological monuments	1,105
2	Architectural monuments	670
3	Places of Interest	37
4	Monumental objects	18
5	Memorial objects	21
Total	**Total tangible cultural heritage objects**	**1,851**
	Objects in the historic part of Samarkand	**513**

Table 3.
Inventory of Historical Areas and Monuments in Samarkand

№	Object Name	Category	Period	Location / Area	Condition
1	Registan Square	Architectural Ensemble	15th–17th centuries	Central Samarkand	State protected
2	Ulugh Beg Madrasah	Madrasah	1417–1420	Registan Ensemble	Restored
3	Sher-Dor Madrasah	Madrasah	17th century	Registan Ensemble	Well preserved
4	Tilla-Kari Madrasah	Madrasah and Mosque	17th century	Registan Ensemble	Tourist attraction
5	Shah-i-Zinda Complex	Necropolis	11th–15th centuries	Slope of Afrasiyab	Protected area
6	Bibi-Khanym Mosque	Congregational Mosque	14th–15th centuries	Old City	Reconstructed
7	Gur-e-Amir Mausoleum	Mausoleum	15th century	Central Area	UNESCO listed
8	Ulugh Beg Observatory	Scientific Structure	15th century	Kuhak Hill	Archaeological monument
9	Afrasiyab Settlement	Archaeological Area	7th century BCE	Northern Samarkand	State protected
10	Afrasiyab Museum	Museum	20th century	Afrasiyab Area	Active
11	Hazrat Khizr Mosque	Mosque	19th century (rebuilt)	Near Afrasiyab	Pilgrimage site
12	Khoja Daniyar Mausoleum	Mausoleum	Ancient period	Siab River Bank	International pilgrimage site

13	Rukhabad Mausoleum	Mausoleum	14th century	Central Part	Protected
14	Imam Bukhari Memorial Complex	Religious Complex	20th–21st centuries	Samarkand District	Pilgrimage center
15	Historic Center of Samarkand	Historic Area	Ancient	City Center	UNESCO World Heritage Site

Table 4.

Information on Historical Areas of Samarkand

Historical Area	Area	Main Objects
Registan Area	1.5 ha	Ensemble of Three Madrasahs
Afrasiyab Archaeological Area	219 ha	Ruins of the Ancient City
Shah-i-Zinda Area	2 ha	Mausoleum Complex
Historic Center of Samarkand	600 ha	UNESCO Heritage Area

Table 5.

Category	Number
Archaeological Monuments	1,100
Architectural Monuments	670
Places of Interest	37
Monumental Art Objects	18
Memorial Monuments	21
Total Cultural Heritage Objects	1,850

Cultural heritage buildings are surveyed and documented based on the indicators presented in Table 6.

According to the inventory data and location plans of cultural heritage buildings, the floor-by-floor internal plans of each object, cross-sections, and main façade drawings (front view), as well as internal and external dimensional measurements and records of structural components, are prepared in accordance with the procedures outlined in Section “4.4. Drawing of Floor Plans and Calculation of Dimensions of Buildings.”

The number of cultural heritage objects is recorded based on their actual condition and functional use.

The qualitative characteristics of cultural heritage objects include:

- dating information;

- technical condition;
- architectural decoration;
- artistic ornamentation.

The technical condition is assessed according to the following classification:

- good;
- satisfactory;
- poor;
- emergency condition.

The protection system includes the protection category (whether it is of national significance or local significance), as well as the date and registration number of the document by which it was placed under protection.

The assessment of cultural heritage objects, including the valuation of their worth, is carried out to determine their efficient use, calculate the amount of damage caused, establish insurance and rental payment rates, cover the costs of restoration and conservation, and conduct routine repairs.

The valuation of cultural heritage objects is carried out in accordance with the procedure approved by the Ministry of Culture of the Republic of Uzbekistan.

The State Cadastre includes both primary and current types of records, ensuring the continuous updating of cadastral information.

During the maintenance of the primary cadastre, an initial inventory of all types of cultural heritage objects is conducted, their quantity is recorded, and the boundaries of land plots are established in situ (based on land registration data).

In the current cadastre, all changes that occur to a cultural heritage object after the completion of the primary cadastral registration are entered into the consolidated cadastral file.

The computerized database of cadastral information on cultural heritage objects within districts and cities is compiled on the basis of data entered into the district and city State Register of Rights to Immovable Property and Transactions Related Thereto (Table 7).

Table 7.

ATTRIBUTES OF BUILDINGS AND STRUCTURES		
1. Legal status		
Name	1.01	**“Burkhoniddin Sagirdji Mausoleum”**
Certificate number regarding registration in the State Register	1.02	***SM 0269385 18.02.2017***
Date of registration in the State Register	1.03	***18.02.2017 No. 263-376-188***
When and by whom the document confirming the right was issued	1.04	***Resolution No. 663-Q of the Council of Ministers of the Republic of Uzbekistan dated October 1, 1982***

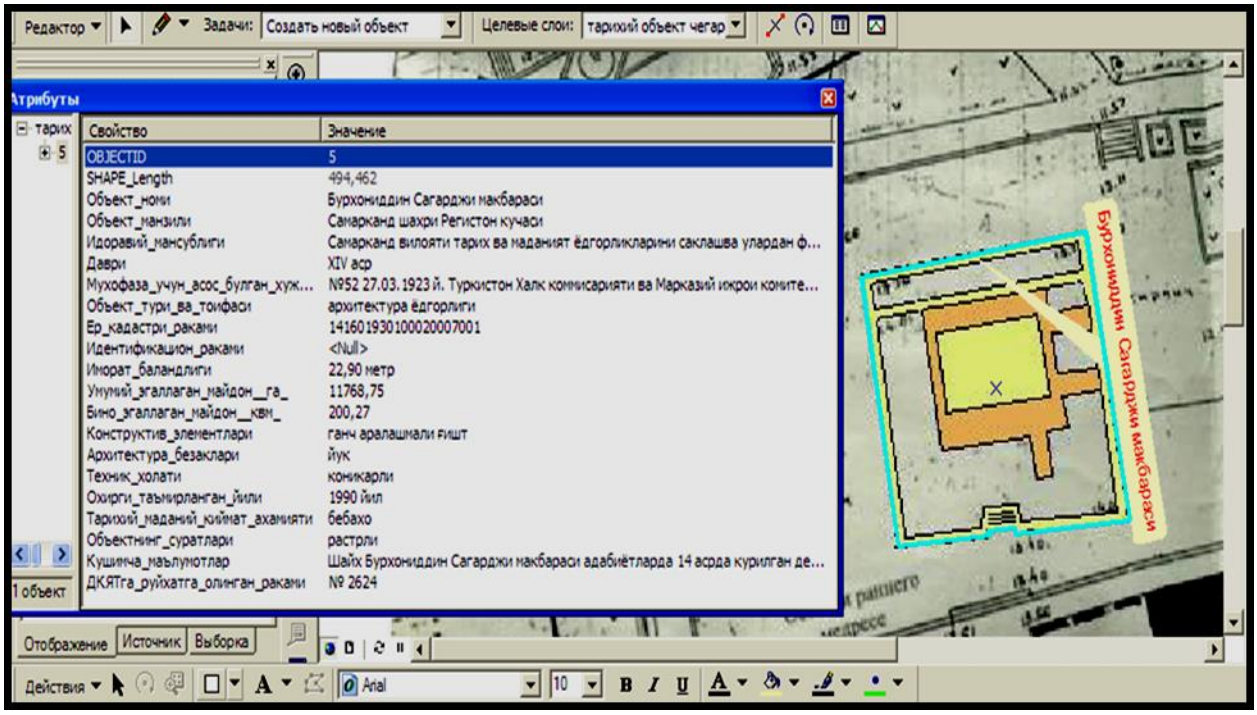
Type of right to the building/structure	1.05	***Economic management***
Cadastral number	1.06	***14:16:03:36:04:0773:004***
Information regarding the protection zone	1.07	***Under state protection***
Information regarding easements	1.08	***Not specified***
Information regarding restrictions and prohibitions on the right to the building/structure	1.09	***Conclusion No. 1 of the Expert Council of the State Inspectorate for the Protection of Cultural Heritage Objects of the Samarkand Region and their Use dated February 5, 2004***
Information regarding whether the building/structure or part of it has been leased	1.10	***Lease Agreement No. 4 dated December 31, 2005 of the Samarkand Region "Khunarmand" Association.***
Cadastral plan	1.11	**Scale 1:500**
Region	1.12	**Samarkand**
District	1.13	**-**
City	1.14	**Samarkand**
Settlement	1.15	**-**
Address	1.16	**Samarkand city, Registon street, house 41**
2. Legal Status of the Property		
Name and address of the owner, possessor, user, or lessee, whether a legal or natural person.	2.01	***State Inspectorate for the Protection and Use of Cultural Heritage Objects of the Samarkand Region,***
Administrative Subordination of the Object	2.02	***Ministry of Culture of the Republic of Uzbekistan***
Historical Information	2.03	***17th-century charitable facility***
Reconstruction and destruction that altered the original appearance of the cultural heritage object	2.04	***Aripov U.Kh. Temporary reinforcement of the monument structure, earthworks, and archaeological works. 1986.***
Repair works (general description, cost, time, author, location of document storage)	2.05	***Nurullaev I. Working project for the restoration of the Ruhobod Madrasah in the city of Samarkand. I-st stage. Archive of the Main Directorate for the Protection of Historical, Cultural, and Artistic Monuments. File 6446 / N 90.***
Typological Subordination	2.06	***Cultural heritage object***
Modern Usage	2.07	***Cultural heritage object-tourism-excursion***
Scientific-historical and artistic significance	2.08	***Historical, cultural heritage object;***

Main bibliography, archival sources, iconographic material	2.09	***1. Act on the survey of the technical condition of the Ruhobod Mausoleum, 1946. Archive of the Main Directorate for the Protection of Historical, Cultural, and Artistic Monuments. File 418 /, A 43. 2.Vinogradov A.N. Explanatory note to the measurements of the Ruhobod Mausoleum. Archive of the Main Directorate for the Protection of Historical, Cultural, and Artistic Monuments. File 459 / V 49. 3.Topographic survey taken in 1952.***
3. Architecture and Construction Status		
Technical condition	2.10	***Requires repair***
Total area of buildings and structures (ha)	2.11	***2269.1 sq.m***
Construction area (ha)	2.12	***2269.1 sq.m***
Protection system	2.13	***Under state protection***
Protection category	2.14	
Date and serial number of the document on acceptance for protection	2.15	***Resolution No. 585/25 of the People's Deputies Council of the Samarkand Region dated December 15, 1983;***
Boundaries of the protection zone	2.16	***Expert Council of the State Inspection for the Protection and Use of Cultural Heritage Objects of the Samarkand Region, Statement No. 4 dated February 7, 2004***
Ownership according to the balance sheet	2.17	***State Inspection for the Protection and Use of Cultural Heritage Objects of the Samarkand Region***
Installation date, presence of texts on the marble plaque	2.18	***2001, protection sign. – brief description of the object***
Architectural decoration	2.19	-
Artistic patterns	2.20	-
Technical condition: good, average, poor, emergency condition	3.01	**Requires repair**
Assessment time	3.02	**Not assessed**
Type of assessment	3.03	**Not assessed**
Date of assessment report	3.04	**Not assessed**
Value (thousand sum)	3.05	**Not assessed**
Economic or tax zone	3.06	**First zone**

After the attribute data of buildings and structures have been collected and registered, the building or structure is marked on the cadastral plan. The cadastral plan consists of a series of

maps and plans with scales ranging from 1:100 to 1:10,000, which must ensure that the location and main parameters of the registered objects are clearly represented in a graphical form [3;4], that is, displayed on the territory’s current land cadastral map.

The attribute data of buildings and structures, together with the land parcel on which the building is located, are represented on the territory’s current land cadastral map using a 1:2000-scale base cartographic map. This work is carried out in the ArcGIS 9.3 software environment [5;6] (Figure 5).



REFERENCES USED:

1. Law of the Republic of Uzbekistan “On State Cadastres,” dated 15 December 2000.
2. Resolution of the Cabinet of Ministers of the Republic of Uzbekistan No. 278 “On Maintaining the State Real Estate Cadastre in the Republic of Uzbekistan,” dated 2 June 1997.
3. Resolution No. 12 of the State Committee of the Republic of Uzbekistan on Land Resources, Geodesy, Cartography and State Cadastre, dated 12 September 2014, “On Approval of the Regulation on the Composition of State Cadastre Information Belonging to the Unified System of State Cadastres and the Procedure for Their Submission.”
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