

Research for Development

Adalberto Del Bo
Daniele Fabrizio Bignami *Editors*

Sustainable Social, Economic and Environmental Revitalization in Multan City

A Multidisciplinary
Italian–Pakistani Project

Fondazione
Politecnico
di Milano 

 Springer

Contents

Part I Overview on the Activities and on the Roots of the Multan Walled City Project	
1 Introduction and Approach: Sharing Culture and Knowledge of the Core of Multan	3
Adalberto Del Bo	
2 An International Multidisciplinary Cross-Cultural Cooperation Project of Urban Regeneration	17
Daniele F. Bignami	
Part II The Multan Walled City Project	
3 Territorial and Historical Framework of Multan: A Prosperous Land and an Inspiring Past Leading to a New Progress	33
Daniele F. Bignami	
4 Studies and Documentation on Tourism, Mapping of Historical Hot Spot in Multan Walled City	43
Vincenzo Donato, Alessandra Terenzi, and Samuele Camolese	
5 Microcredit System for Building Rehabilitation and Strengthening Arts and Crafts	57
Claudio Di Benedetto and Irene Bengo	
6 Strategic Analysis on the Multan Handicrafts	69
Giovanni Maria Conti and Anna Sara Zanolla Mancini	
7 Entrepreneurship Collaboration, New Business Models and Firm Creation: Enhancing Local Economical Network	87
Paolo Vercesi, Ion X. Monjas Kanpandegi, Riccardo Vecchiato, and Renato Pugno	

Editors

Adalberto Del Bo
Department of Architecture,
Built Environment and
Construction Engineering
Politecnico di Milano
Milan, Italy

Daniele Fabrizio Bignami
Project Development Department
Fondazione Politecnico di Milano
Milan, Italy

ISBN 978-3-319-02116-4

ISBN 978-3-319-02117-1 (eBook)

DOI 10.1007/978-3-319-02117-1

Springer Cham Heidelberg New York Dordrecht London

Library of Congress Control Number: 2013957699

© Springer International Publishing Switzerland 2014

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed. Exempted from this legal reservation are brief excerpts in connection with reviews or scholarly analysis or material supplied specifically for the purpose of being entered and executed on a computer system, for exclusive use by the purchaser of the work. Duplication of this publication or parts thereof is permitted only under the provisions of the Copyright Law of the Publisher's location, in its current version, and permission for use must always be obtained from Springer. Permissions for use may be obtained through RightsLink at the Copyright Clearance Center. Violations are liable to prosecution under the respective Copyright Law.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

While the advice and information in this book are believed to be true and accurate at the date of publication, neither the authors nor the editors nor the publisher can accept any legal responsibility for any errors or omissions that may be made. The publisher makes no warranty, express or implied, with respect to the material contained herein.

Printed on acid-free paper

Springer is part of Springer Science+Business Media (www.springer.com)

8 Remote Sensing Urban Analysis	101
Marco Gianinetto, Gabriele Candiani, Andrea Marchesi, Marco Rusmini, Francesco Rota Nodari, Pieralberto Maianti, Federico Frassy, and Giorgio Dalla Via	
9 Ground Survey: An Integrated Survey for Urban and Architectural Heritage Conservation and Management	113
Franco Guzzetti, Nelly Cattaneo, Grazia Tucci, Lidia Fiorini, and Alessandro Conti	
10 Energy Problems Analysis	125
Tiziana Poli, Riccardo Paolini, Andrea Giovanni Mainini, Giorgio Pansa, Enrico De Angelis, and Matteo Fiori	
11 Air Quality Measurements at Multan, Pakistan	137
Elisa Vuillermoz, Paolo Cristofanelli, Davide Putero, Gianpietro Verza, Marcello Alborghetti, Maria Teresa Melis, Ghulam Rasul, Luca Listo, and Paolo Bonasoni	
12 Water and Sanitation in Multan, Pakistan	149
Andrea Soncini, Daniele Bocchiola, Renzo Rosso, Stefania Meucci, Francesca Pala, and Giorgio Valé	
13 The Walled City of Multan: Characters of the Settlement Structure and GIS as an Instrument of Urban Analysis	163
Francesco Bruno	
14 Two Design Proposal For Haram Gate and Sarafa Bazaar	181
Stefano Perego	
15 Designing the Master Plan for the Pilot Area in Multan Walled City	189
Maria Vittoria Cardinale	
16 Traffic Analysis and Solutions	199
Vincenzo Donato, Samuele Camolese, and Alessandra Terenzi	
17 Guidelines for the Walled City of Multan: Knowledge, Conservation, and Relationship Ancient/New for a Sustainable Rehabilitation	211
Maurizio Boriani, Mariacristina Giambruno, and Sonia Pistidda	
18 Conservation Actions for Wooden Building Elements in Multan	225
Francesco Augelli, Roberta Mastropirro, Letizia Ronchi, and Christian Amigoni	
19 The Conservation Project of Haram Gate: Material Authenticity and Recognizability of the Project	241
Mariacristina Giambruno, Sonia Pistidda, Christian Amigoni, Andrea Garzulino, and Matteo Tasinato	

- 20 Pakistan-Italian Resource Centre and the Enhancement of Multan Walled City** 255
Eleonora Bersani, Ermes Invernizzi, and Michele Locatelli
- 21 Italian Collaboration Programme for Training and Capacity Building** 267
Lorenzo Maffioli, Paola Esena, and Emanuela Colombo
- 22 An Architectural Analysis of the Walled City: A “Pilot Experiment” of Collaboration with the Building and Architectural Engineering Department of Bahauddin Zakariya University** 281
Daniele Beacco

Chapter 20

Pakistan-Italian Resource Centre and the Enhancement of Multan Walled City

Eleonora Bersani, Ermes Invernizzi, and Michele Locatelli

Abstract The Pakistan-Italian Resource Centre is a facility that will be tasked to promote the cultural, economic and social development of the city of Multan. It supports the exchange of knowledge and increasing the productive sectors through relations, trade and finance between Pakistan and other countries, Italy in particular. It will also become the ideal forum for activities aimed at enhancing the urban fabric of Multan and at the same time constitute a sort of commercial/business hub to promote the economy of the Walled City and its surrounding productive land. The Resource Centre can become the portal of the city of Multan and its territory in the next Expo, event that will take place in Milan in 2015. The project area is located within the Pilot Area, near the Darbar of Musa Pak Shaheed, between Sarafa Bazaar and Musa Pak Complex, in a strategic place to the enhancement of the inner city. The symbolic, historic and cultural importance of Musa Pak Complex makes it one of the most significant and representative areas of the historical core of Multan. This chapter illustrates the design project of the Resource Centre building at Abdali Road, in a outside of the Walled City area. The project includes the design of the new Resource Centre building (a *nearly zero-energy building*), the connected restoration of the historical Dar Bar building (Musafir Khana) and the redevelopment of the courtyard.

20.1 Introduction

The Pakistan-Italian Resource Centre is a documentation centre, research and training located in the Walled City, and it has to contribute, through its presence and its activities, to the enhancement of the inner city.

E. Bersani (✉) • E. Invernizzi • M. Locatelli

DASU – POLITECNICO DI MILANO- Dipartimento di Architettura e Studi Urbani
(Department of Architecture and Urban Studies of Politecnico di Milano), Via Bonardi 3,
20133 Milano, Italy
e-mail: eleonora.bersani@polimi.it

It aims to support the development of the city of Multan within a broader interest of cooperation between the two countries, Italy and Pakistan. Between Italy and Pakistan (and in particular the region of Multan) there are significant common interests and synergies. The new Resource Centre can become also the portal of the city of Multan and its territory in event “Expo Milano 2015—*Feeding the planet, energy for life.*”

The Resource Centre in the Walled City area will be located between the Sarafa Bazaar (Gold Market) and the Musa Pak Complex, in an area characterized by several Holy Sites including the Shrine of Musa Pak Shaheed, the mosque of Musa Pak Shaheed (also called Masjid Ghausia), the Tomb of Hamin Gillani, the Darbar of Musa Pak Shaheed and Khana Gillani. The symbolic, historic and cultural importance of Musa Pak Complex makes it one of the most significant and representative of the historical core of Multan.

The Musa Pak Complex has an intricate genesis. If in general it is true that historical events were the protagonists of the conformation of the places, then perhaps it is useful to try to reconstruct the events that led Musa Pak Complex to its present state and in particular to try to reconstruct the events of the period in which the greatest changes have occurred and the Shrine of Musa Pak Shaheed was built.¹ The basic elements of the original urban form are the Shrine of the Saint (connected with the Mosque), the empty space and the Darbar (gate). So, according to history, the beginning of the eleventh (AH)/seventeenth (AD) century, the Musa Pak Complex is reorganized in clear composition, set according to an east–west axis:

- To the east was the gateway to the sacred area, the building of Darbar Musa Pak, designed to accommodate the pilgrims. The door is a key element in the definition of place in general and especially for a holy place.
- The centre was an open space, the real pivot around which the whole complex of Musa Pak was organized. It allowed the direct visual relationship between the

¹ We know that the body of Hazrat Musa Pak Shaheed was initially buried in Uch Sharif. He was transported to Multan and buried in the current tomb in 1025/1616, a few years after his death, according to M. Aulad Ali Gilani in the year 1001/1592 or in 1010/1601 (Gilani 1963, p. 246). It was then that the established habit was to build mosques near shrines. In fact, the Mosque of Musa Pak Shaheed (also called Masjid Ghausia) is located adjacent to the tomb, to the north. Some sources believe that previously there was already another mosque, built at Khanqah Gilani. An engraving on stone in Persian, partly preserved and belonging to the temple complex, mentions the following: Ta'amir Shaikh Hamid bin Shaikh Jeelani Shanzdeh 1005/1596. Some believe that this inscription belonged to the ancient mosque. Others argue for the hypothesis that this inscription is connected with the construction of the new mosque and shrine (Masjid Ghausia) and this leads to suppose that the period of construction of the shrine and of the complex of Musa Pak is prior to the date of burial of the holy man in Multan. Regardless of the two hypotheses, however, it is confirmed by numerous texts (Haq 1972, p. 175) that the mausoleum and the construction of the new mosque are roughly contemporaries and they were placed in front of the Darbar, beyond the open space laid to the south of the Khana Gillani.

various monumental buildings; in particular it was organized around the longitudinal axis (east–west) that united the complex and the Darbar Shrine of Musa Pak Shaheed.

- To the west stood the shrine of Musa Pak Shaheed, in longitudinal position. An entrance was to open towards the court and the axis forming the Darbar and a second entrance facing north, towards the mosque.

This space system was completed to the north of the building curtain and in particular from the porch of Khanqah Gilani, also part of the sacred place.

The elements of the original structure are still visible in the urban fabric of the city even if the subsequent transformations of the city fabric have changed the relationships between the monuments of Musa Pak Complex. In particular, in the courtyard originally the Darbar and the Shrine of the Saint were connected by a clearly comprehensive axis that integrated the two parts in a single monumental building with the built curtain to the north, in completing the courtyard, further contributing to the holistic reading of the sacred complex.

The southern side of the courtyard over time has changed and expanded. Buildings and facilities progressively occupied the open space. In fact, this space occupation of the court does not make more legible the explicit relation between the Shrine and Darbar and contributes to the loss of unit value originally assigned to the monument. In particular, the Darbar building, separated from the evident link with the Tomb and the Mosque, is undergoing a gradual loss of the original religious and symbolic value and it is subject to erosion by the functions related to the neighbouring Sarafa Bazar, as evidenced by the presence of shops and business premises on the ground floor of the door.

We learned that a next demolition of the buildings placed between the door and the tomb is foreseen. It's a brave choice and to some extent necessary in order to permit the reading of the original relationship between the monuments.

To enhance the Musa Pak Complex the planned demolitions are not enough. It must be accompanied by a redevelopment project of the area that may trace relationships between the component parts, define the functions and give importance to the open space around which monuments articulate, a place where a community comes together and is recognized.

The design of the new Resource Centre is an opportunity to reorganize the central courtyard of Musa Pak Complex. Its shape, recognizing the importance of the complex and the court, aligns the axes of the main monuments and the court itself by helping to give a made figure to that portion of public space.

This solution would allow:

- (a) To put a stop to private commercial functions related to the Bazaar, which have eroded over time the space and has changed the shape of Darbar itself and of that of Musa Pak Complex.
- (b) To have a showcase of the Resource Centre on Sarafa Bazaar contributing to the perception of the Resource Centre building as an element belonging both to

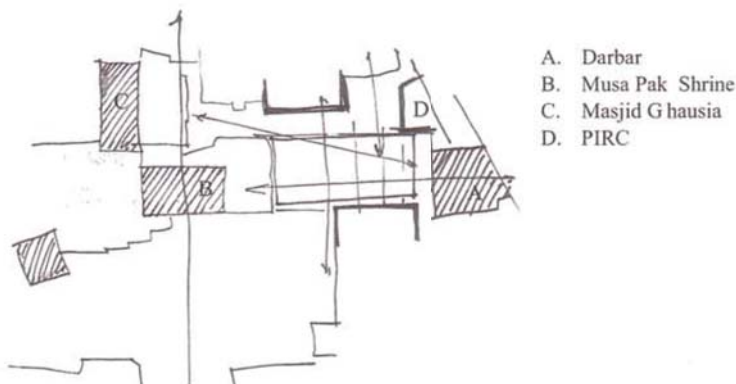


Fig. 20.1 The reorganization of Musa Pak Courtyard. (a) Darbar, (b) Musa Pak Shrine, (c) Masjid Ghausia, (d) PIRC

the complex of Musa Pak and to the rest of the Walled City. It is essential that the role of associated element to the economy of the city should be emphasized along with its belonging to the urban fabric.

- (c) To enhance the space of great architectural value of the inner courtyard of the Darbar (Fig. 20.1).

The project of the P.I.R.C. in Musa Pak Complex is organized into three parts:

1. The *restoration of the historic building of Darbar*, preserving its destination of Khanqah and Musafir Khana. The restoration of the Darbar is an integral part of the implementation of the P.I.R.C. not only because the historic building and the construction of new building are closely related but mostly because the restoration may be a visible and concrete example of the function of the role and mission of the Resource Centre.
2. The construction of the building to house the exhibition space, offices and training provided inside the *Resource Centre*.
3. The redevelopment of the open space of *Musa Pak Courtyard* to return identity and value to open space and monuments that make up the Musa Pak Complex.

20.2 The Musa Pak Complex Darbar Restoration

The restoration of historical building of Darbar is a necessary and urgent work in order to preserve the sacred and historical value of the compound and to allow the continuity of the destinations of Khanqah and Musafir Khana, particularly significant functions in terms of cultural, social and religious, both for the local community and for pilgrims coming from outside of the town. It is a building that, in

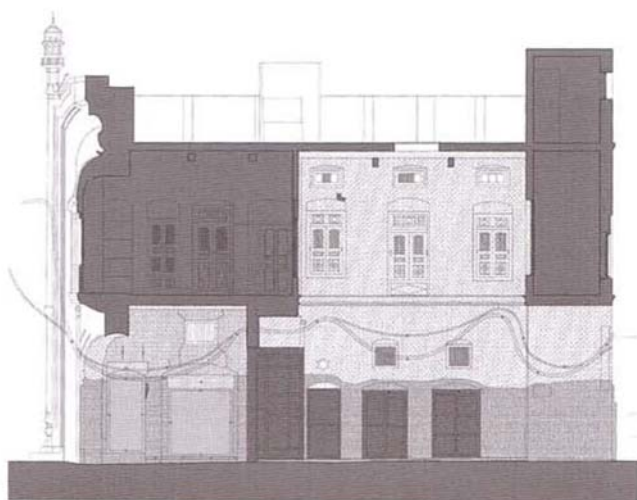


Fig. 20.2 Musa Pak Darbar survey: section

addition to being recognized as an integral part of the sacred place, has a significant historical and architectural value. Its upper floor is used as Khanqah and as Musafir Khana to accommodate pilgrims in spiritual retreat that come to visit the holy places of Musa Pak Complex especially during the Urs festivities. The current configuration of the building is the result of several layers that have occurred over time. In particular, the upper level comply in its current form due to a series of interventions towards the beginning of XX which are joint to an older artefact and adapted at the early seventeenth century, when the current urban system was configured. From the construction point of view, the building has brick bearing walls and floors with supporting parts in wood, with completion in terracotta tiles or timber elements (Fig. 20.2). The facade towards Sarafa Bazaar, with interventions from the turn of the last century, is greatly adorned: in addition to the rich decorations and to portions of Multani tile leads, the facade has an interesting *jharoka*, whose static conditions are particularly precarious.

From the point of view of functions, the building houses on the ground floor stores, shops and some rooms with beds, while the first floor is used almost entirely as Musafir Khana. The intervention has been designed in adherence to the international principles and conventions of restoration: reversibility (ability to roll back the changes made), compatibility between old and new, reduced operation and readability of new interventions; the intervention will not in any way alter the morpho-typological and historical character of the building, the modifications must be easily reversible without any damage to the existing and appropriate attention will be paid to new materials and innovative technologies for energy savings. The intervention consists mainly of the conservation works on the

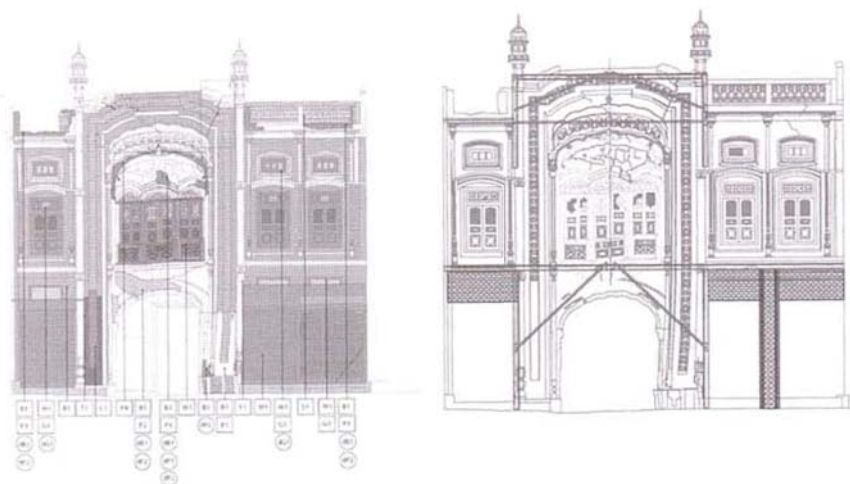


Fig. 20.3 Musa Pak Darbar building: Sarafa Bazar front survey and diagram of structural intervention

existing building to ensure the integrity of the historical construction, besides consolidation and reinforcement works to guarantee durability and integrity of the building. The project primarily aims to restore a state of structural safety of the building, conducted according to the principle “as close as possible to the original function so as to ensure a minimum intervention and minimum loss of cultural value” (Feilden and Jokilehto 1998, p. 90). The authenticity of monuments, buildings and structures is integrally linked to the temporal narrative embedded in their fabric. An understanding of the chronological development of a building, of its multiple and complex structural, spatial and decorative layers is an essential act to conserve its authenticity.

The model of the building structures showed that the main causes of functional-static instability of the fabric of Darbar (mainly the collapse of the structures of the bow window and a consequent profound injury of the bricks forming the hemi cupola coverage) are related to the lack of the lower portion of the far right column, probably removed during the formation of the shop on the ground floor (Fig. 20.3).

20.3 The Pakistan-Italian Resource Centre Building

The building of the P.I.R.C. is one of the most visible concrete expressions of project activities named “Italy for Multan” within the Walled City. The new building will house the project’s activities more closely related to the development

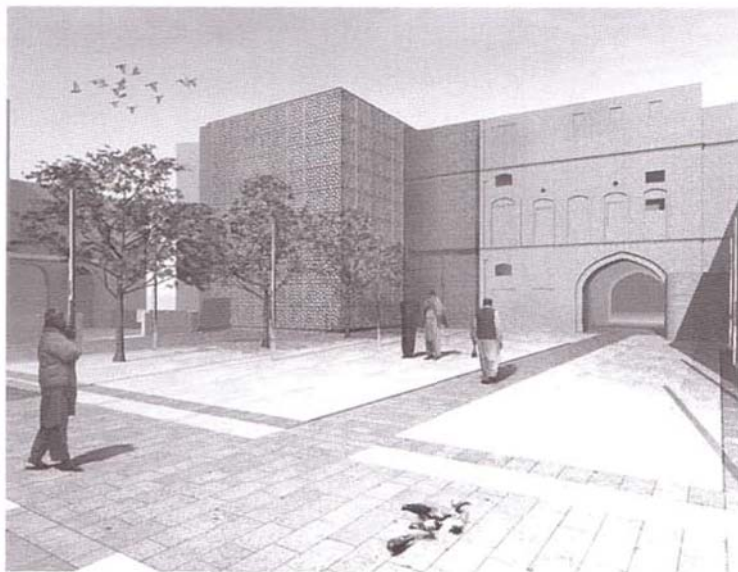


Fig. 20.4 View of the P.I.R.C building from Musa Pak Courtyard

of the Walled City, constituting a point of contact with the population of the city centre. In particular, we provide the necessary offices to branches and activities to enhance the historic fabric of the centre of Multan (microcredit, capacity building, etc.) and a room to host training courses (Figs. 20.4–20.7).

The new project in the site of the Resource Centre, also for its specific function within the historic fabric of the city, is part of the building culture tradition to find contemporary design solutions and environmentally sustainable energy.

In the wise old buildings, water, wind and *jalis* were used and combined to ensure the residents a living quality. This is witnessed by some magnificent examples of historic architecture in Multan and in Pakistan. The new building is presented as a large three-dimensional *jali* that faces the public space of Musa Pak Complex. The building uses water, natural ventilation and shading/mechanics to ensure a well microclimate. In particular we are studying a system natural refreshment, very simple in principle, but which can be calculated very carefully to give efficient responses and may reduce energy consumption and easy operation/maintenance. It is based on the principle of water evaporation, resulting in reduced temperature, a principle used in ancient times in many homes in hot countries between India and Europe which is now carefully restored to bioclimatic architecture (evaporative cooling). The construction details of the refreshment system in ceramic material is designed and developed in partnership with the Institute of Blue Pottery Development of Multan.

On the use of sun shields (*jali*)—traditionally made of wood (or stone) and known in the West as *Mashrabiya*s—the architectural culture between India and the

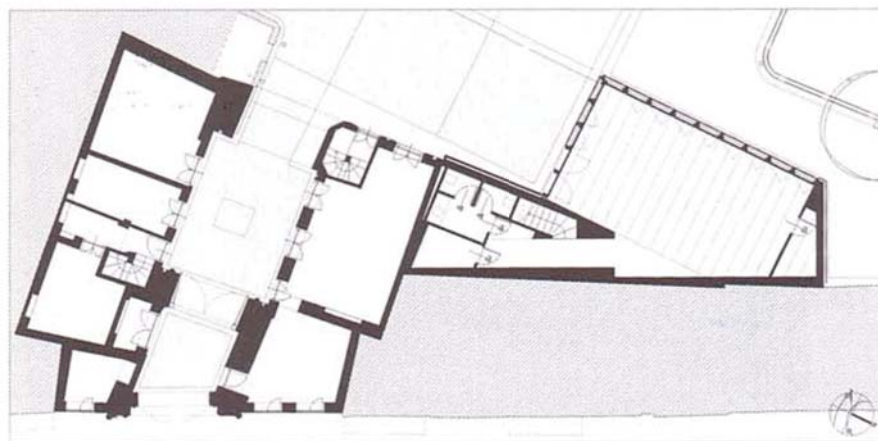


Fig. 20.5 Ground level: the Musa Pak Courtyard Darbar and P.I.R.C building planimetric drawing

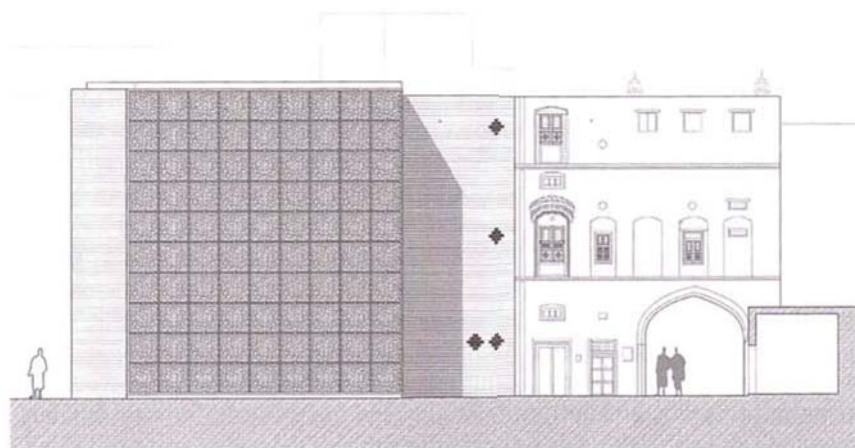


Fig. 20.6 Front from the Musa Pak Courtyard

Mediterranean has produced a way of making architecture: the refinement of the light that passes through elements of the section and is thus diffused and softened, the ability to control ventilation, the formation of a particular relationship between interior and exterior and the elegance of the artefacts are elements of jalis that belong to a unique cultural–architectural heritage.

According to Hassan Fathy (1986) the jalis is not only the symbol and emblem of a tradition and a cultural identity but also a fantastic invention that performs many essential functions in climatic order. The coverage will be equipped with photovoltaic system able to make the building self-sufficient from the point of view of energy.

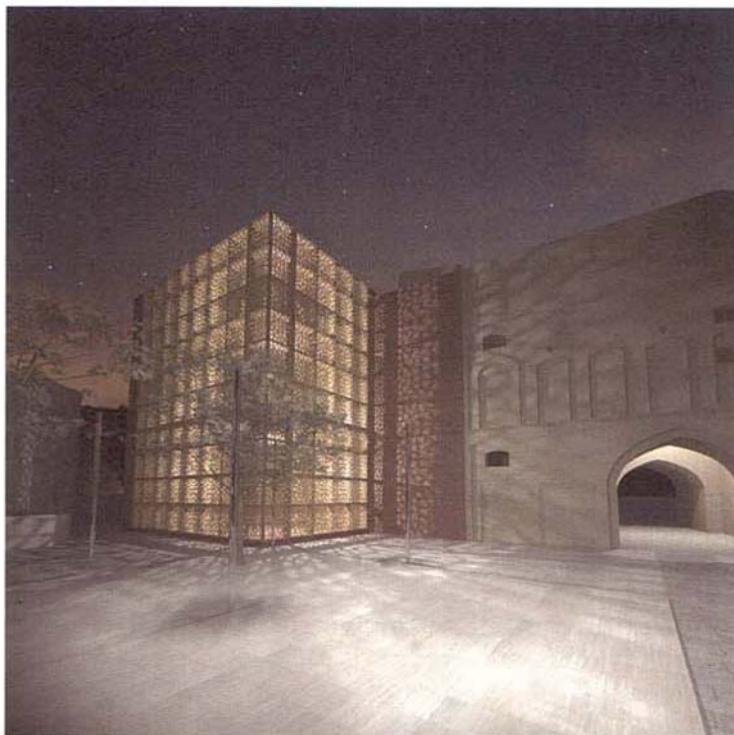


Fig. 20.7 View of the P.I.R.C building from Musa Pak Courtyard by night

The new building that will be formed has a pseudo-trapezoidal plan with dimensions of approximately $12 \times 8 \text{ m}^2$ and a growth in height of 12 m. It is developed for three storeys starting from ground level and has an entire wooden structure; the exception is presented by the back wall already existing and in stone material.

The structure of the facade is made of a grid with wooden pillars, size $\text{cm.}26 \times \text{cm.}13$, arranged along the whole front of the building. The vertical structures (pillars) are placed every $\text{cm.}110$, while the horizontal structures (the beams size $\text{cm.}13 \times \text{cm.}13$) have a variable pitch according to the windows.

20.4 Musa Pak Complex Courtyard Design

Musa Pak Courtyard is an urban area of aggregation of the most important part of the walled city. The municipality that has envisaged the demolition of buildings between the door and the tomb has indeed understood the need to structure the best

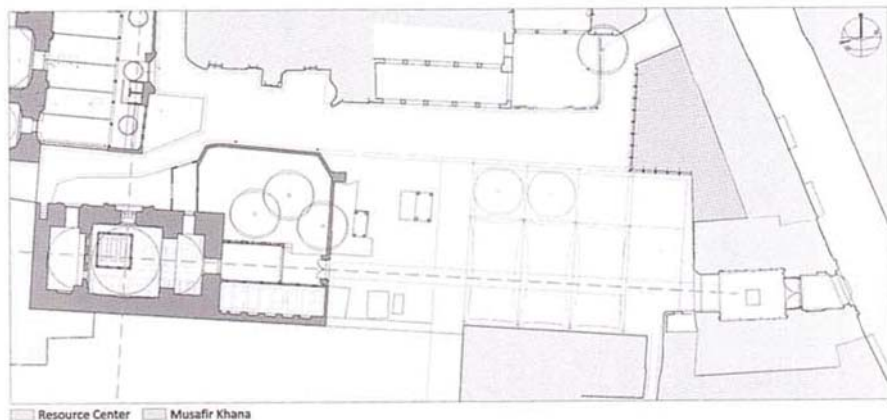


Fig. 20.8 Musa Pak Courtyard design: planimetric drawing

value that returns an empty space to monuments and at the same time is an urban space that can accommodate people visiting during events and religious events periodically held.

The design of the courtyard reconstructs the relationship between the buildings that make up the Musa Pak Complex and in particular shows the original relationship between the gate of the complex (now used as Musafir Khana) and the tomb of the saint.

The paving stone builds a geometric design based on the repetition of the shape of the square, which is used to give prominence to an urban space and to reconstruct the relationship between the entrance of the tomb of the saint and the function of the door. The presence of trees and of the supporting elements of the tents is used to improve the microclimate of open spaces which contribute significantly to reducing temperatures during hot weather (Figs. 20.8 and 20.9).

20.5 The P.I.R.C. in Abdali Road

Finally we were asked to design a “Resource Centre” in a different place, indicated by Pakistan authorities, on Abdali Road. The area is located outside the Walled City, with easy accessibility and proximity to an important structure connected to business. The project reconstructs the street frontage on Abdali Road, aligning the body of the building at the Ramada Hotel and forming an internal courtyard (Figs. 20.10 and 20.11). The building has an entrance area/showroom and a conference room that can be transformed into a unique area for exhibitions and events. Upstairs are the offices and meeting rooms. In the courtyard there is a small garden with trees and an area reserved for parking.

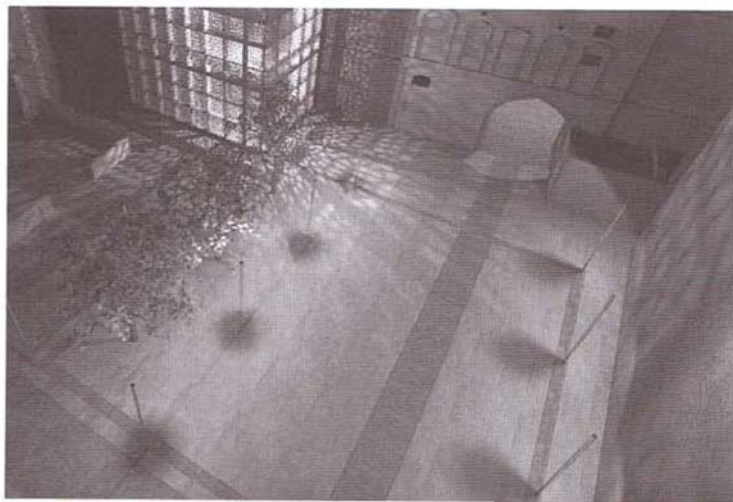


Fig. 20.9 Musa Pak Courtyard design: view

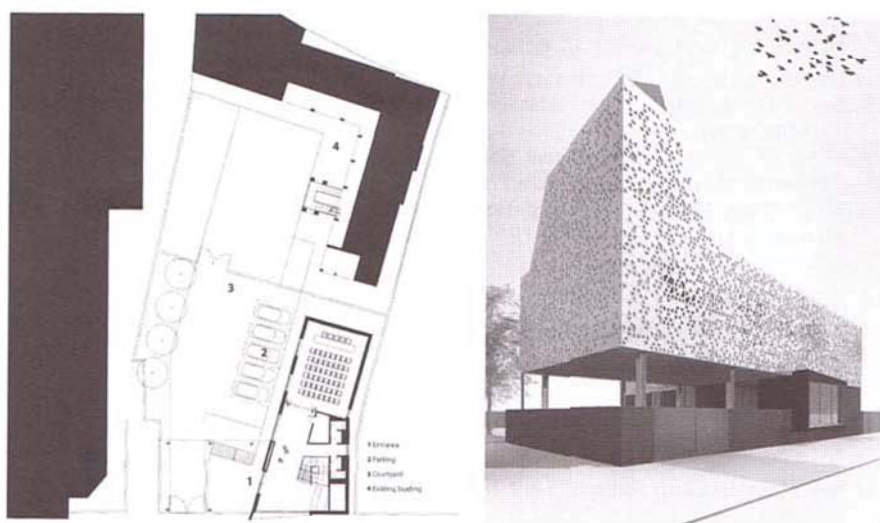


Fig. 20.10 P.I.R.C. at Abdali Road: planimetric drawing view from the street

The context is different from the Walled City. We choose to use architectural solutions and techniques totally different from the previous project. The tradition of Multan of ceramic tiles is declined to make a contemporary skin; the ventilation towers are used to facilitate the movement of internal air and also figuratively to recall the particulars of local building traditions.

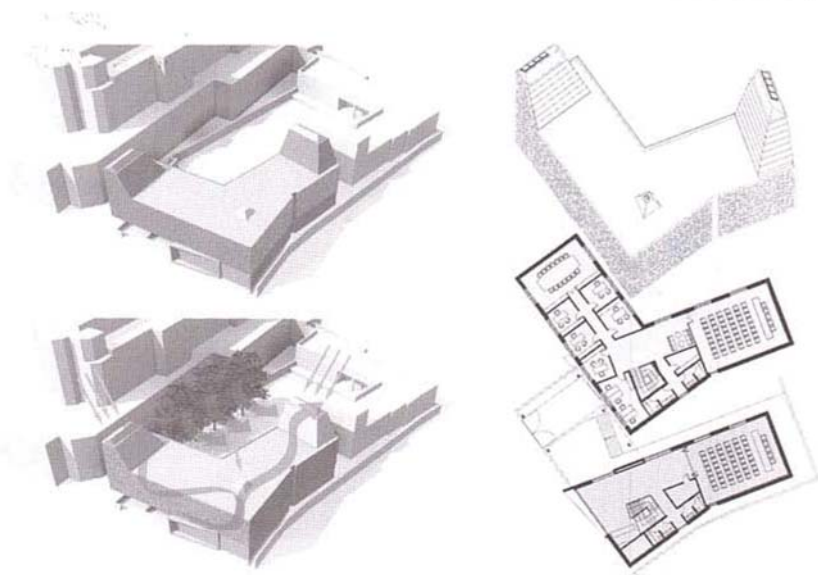


Fig. 20.11 P.I.R.C. at Abdali Road: iconic shape and climatic strategies and layout of the building

References

- Feilden BM, Jokilehto J (1998) Management guidelines for world cultural heritage sites. ICCROM, Rome
- Gilani SMAA (1963) Auliya-yi Multan. S'ang-i Mail Publications, Lahore, p 238, 246
- Haq, SI (1972) Arz-e-Multan. Multan, p.175
- Hassan F (1986) Natural energy and vernacular architecture, principles and examples with reference to hot arid climates. The University of Chicago Press, London

Research for Development

Adalberto Del Bo · Daniele Fabrizio Bignami *Editors*

Sustainable Social, Economic and Environmental Revitalization in Multan City

A Multidisciplinary Italian–Pakistani Project

This book describes the six months intensive initial activities undertaken within a motivating multidisciplinary project to achieve sustainable social, economic, and environmental revitalization in the historic core of Multan City, Pakistan. The project is managed by Fondazione Politecnico di Milano within the framework of the “Pakistan-Italian Debt for Development Swap Agreement” and has five components: a livelihood improvement program, a living conditions improvement program, revitalization of physical assets, establishment of a Pakistan-Italian resource centre in Multan, and an Italian collaboration program for training and capacity building. All aspects are covered in this book, which provides a comprehensive account of progress in this excellent example of cross-cultural cooperation between a Western and an Eastern country in regenerating an historic populated site.

Business/Economics

ISBN 978-3-319-02116-4



► springer.com

