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Beyond Bars and Boundaries: Architecture as a Catalyst for Juvenile Reform and Reintegration in Pakistan

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ABSTRACT

In the 21st century, where the world unnoticeably suffers from the technological advancements, architecture is the powerhouse of the solutions; from physical to mental, and from psychological to criminological. Criminologically, people of all ages commit crimes which lead them to be taken to correction centers. However, correction centers in South Asia are far away from international standards. Pakistan, in specific, has the worst correction centers. Instead of becoming socially amicable, the criminals on the release from jails and detain centers, become more problematic to the societies. Furthermore, for juveniles, these centres are either non-existent or, if they exist, are the hubs for turning minor criminals into major criminals. No education, skill, and training are imparted to theses minors. This research is an attempt to provide an outline to make the juvenile correction centers as ideal places to learn, to transform, and to change the way they look at the world. In the design, among others, academic blocks would help the juveniles with academia, the vocational training areas would give them skills and expertise, the residential units would give them safer world to live in, and the sports complex will be helpful in acquiring sportsmanship and discipline. Upon first entry into such correction centers, juvenile will be a criminal; but, upon leaving, the juvenile will be no more a criminal but an asset to the nation.

Introduction

The issue of juvenile delinquency around the world is a tremendous ordeal to whether the society is willing to be just, compassionate, and secure tomorrow. This is a problem which is not only based on the criminal activities but it is also a tremendous failure by the social systems to protect and mentor their young ones (Bhatti & Ghufraan, 2020). This has a spillover effect that damages families, relationships and breeds poverty and violence. Modern juvenile justice systems across the world depend on the philosophical principle of rehabilitation instead of retribution as young criminals are essentially flexible personalities whose course can be changed with a suitable intervention. The most critical aspect of this intervention is the detention environment. But the practical side of rehabilitation usually comes to the rescue of this idealistic notion: resource inadequacies, absence of special treatment programmes, and, above all, physical conditions that are hostile to recovery and development (Mukhtar et al., 2024). These institutions, often designed after adult prisons, do not pay attention to deep psychological and emotional needs of adolescents at the critical point of their development. This paper, therefore, not only examines juvenile detention as a problem of penal interest, but also in the combined perspectives of architectural design and environmental psychology with the final goal of imagining the institutions as agents of rehabilitation and leading to a successful social reintegration.

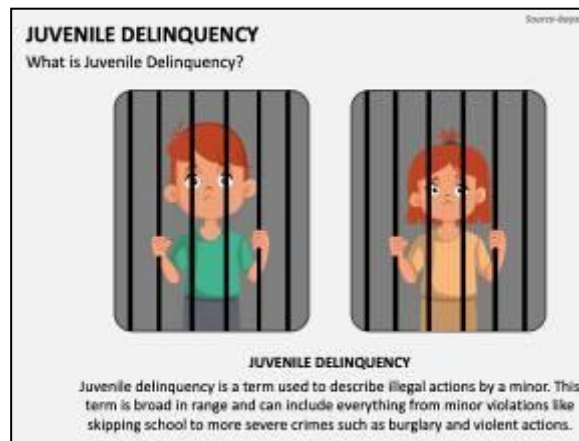


Figure 01: Juvenile Delinquency

This is an especially pressing problem in Pakistan, which is determined by a complicated combination of socio-economic stress factors and the failures of the system. There is also a large number of juvenile offenders in the country, and getting accurate data is hard because of underreporting, poor enforcement of the law, and stigmas towards them (Justice Project Pakistan, 2021). In Pakistan, socioeconomic aspects of poverty, lack of access to good education, impacts of broken families and exposure to violence are the deep-rooted drivers of juvenile crime. This is compounded by the fact that most of their justice systems have adopted a tendency to resort to punitive action and incarceration facilities that are perennially overstaffed and under-funded (UNODC, 2022). This is best observed in the province of Khyber Pakhtunkhwa (KPK), where the state of affairs in juvenile detention centers is said to be worse and lacking the rehabilitative spirit that is promoted by international standards. This brings about a great contradiction as such institutions are not the places of reform, but in most cases cause further psychological damage. As UNICEF (2023) proves, living circumstances in the juvenile prison facilities directly dictate the state of mind of young prisoners, their behavioral tendencies, and further opportunities to social reintegration of such youths. Even the design of such spaces including its prioritisation on security

and control can contribute to the worsening of the trauma and making the developmental processes of positive change impossible.

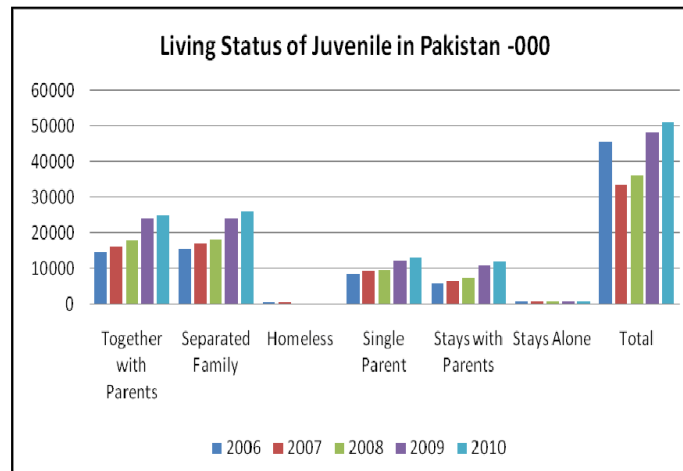


Figure 02: Juvenile Status of Pakistan 2010

Thus, there is an immediate and unquestionable necessity of special interventions that would focus on the peculiarities of vulnerability of juvenile offenders, who tend to come to the system with the records of trauma and educational gaps and with serious problems with socialization. An increasing body of literature has shown that therapeutically-oriented physical environments which are well-planned can be active participants in the rehabilitation process. According to Antenuvial-Lewis (2017) the latter facilities can provide considerable benefits in terms of the reduction of recidivism, as well as in the promotion of a healthy behavioral change. The aspect of architecture itself becomes a major determinant, beyond housing, that provides the holistic space of change. This includes the planned construction of specialized learning institutions, secure and free therapeutic rooms, and recreational premises that promote skill learning and good socialization. This is a critical gap through which the current thesis fits and suggests the establishment of a juvenile correctional facility in Khyber Pakhtunkhwa. The center will be developed in such a way that it will combine the international best practices in rehabilitation and be made sensitive and responsive towards the local social, cultural, and climatic environment, to change the notion of detention into a reform and renewal process.

Hence there was a dire need to take forward the research exploration based on the problem statement set forth below:

Problem Statement

The Pakistani juvenile justice system is inherently unprepared to respond to the needs of young offenders in that it works within a certain paradigm where punishment is valued more than rehabilitation thus continuing to perpetuate the cycle of crime and social marginality. The juvenile offenders who tend to be victims of circumstance due to poverty, broken families and lack of education are often exposed to a psychologically harmful and developmentally debilitating detention environment. The essence of the issue is the nature of the architectural and functioning of the extant detention centers, which is predetermined by overpopulation, an acute shortage of specific correctional infrastructure, and a critical lack of integrated educational and vocational services, as well as psychological therapy (UNODC, 2022; UNICEF, 2023). These facilities, in line with their adult counterparts, establish isolation and control inmates that do not recognise emotional and developmental requirements of adolescents. This punishment strategy does not only

not solve the cause of criminal behavior but also destroys any possibility of correction. Therefore, these youths are usually discharged without skills, emotional stability, or even support system to fit back to the community, resulting in extremely high recidivism and subsequent injury to themselves and society. The issue is also exacerbated by the social stigma and ineffective legal assistance, which leaves such young people in a circle where they have few chances to improve their future (Justice Project Pakistan, 2021). The urgent and unheeded physical aspects require a radical redesign of the physical spaces of juvenile detention in Pakistan, to turn them into living, therapeutic spaces that promote personal development, healing as well as equipping them to positively reintegrate into the community.

Based on the above problem statement, two major research objectives were set forth as stated below:

1. To examine and integrate the particular psychological, educational, social requirements of the juvenile offenders in Khyber Pakhtunkhwa, Pakistan, and to transform the requirements into a question of evidence-based design principles in the architecture and programs of a rehabilitative center.
2. To come up with an overall architectural prototype of a juvenile correctional facility in KPK that will balance the requirement to operate (security) with the rehabilitative need to be autonomous, community-oriented, and normal.

The significance of the research exploration lies with its timely need in the current context and socio-economic crisis of Pakistan. The implications of this study are much more far-reaching than the direct aim of planning one facility; it assumes the idea of architecture as a strong tool of the social policy and sustainable development in Pakistan. This research offers an alternative to the existing, unsuccessful paradigm of punitive detention by developing a feasible architectural design of a rehabilitative juvenile facility. Its main future importance is in the fact that it may directly lead to the breaking of intergenerational cycle of crime and recidivism. The project is expected to convert young offenders into productive and contributing members of the society by providing an environment in which they can heal, learn and acquire pro-social skills. This will have a direct impact on improving the safety of the population and the economic cost of recidivism and recidivism.

Moreover, this analysis can be used as the advocacy tool of critical importance, as well as a guideline to be followed by the policymakers, justice officials, and architects in Pakistan and the analogous situations. It shows that there exist not only possibilities of humane and effective alternatives but also necessity of a just society. The study is in line with the United Nations Sustainable Development Goals (SDGs), especially SDG 4 (Quality Education) since it incorporates education and vocational training as the main part of its design, and SDG 16 (Peace, Justice, and Strong Institutions) since it facilitates effective, accountable, and inclusive institutions on all levels. The realization of these global objectives through the architectural practice makes the project emblematic of how sustainable development may be pursued by focusing on specific context-dependent intervention.

Lastly, the study makes its contribution to the developing discourse of therapeutic surroundings and humanitarian architecture. It leads to the creation of new knowledge about the ways of spatial design calibration that should support the psychological development of adolescents in a safe environment, which is a niche area that has not yet been researched extensively in the Global South. The results and the resultant architectural prototype may be used in upcoming projects including the refurbishment of the current facilities, as well as the design of new ones and establish a new precedent in which Pakistan and other countries envision and redesign spaces as places of

juvenile justice. Basically this study is not merely a construction of a correctional facility; it is the preparation of a more compassionate, efficient, and progressive justice system that will invest in its youngest vulnerable population to guarantee a more stable and successful future of everyone.

Literature Review

The Justification of Juvenile Delinquency and the Justice System.

The concepts of this research are based on the accurate sociological and legal definitions. Within the framework of Pakistan, one legal definition of a child is provided by The Juvenile Justice System Act (2015) that defines a child as a person under the age of 18 years, and one of the main categories is that of a child in conflict with the law. Sociologically, juvenile delinquency represents a spectrum of antisocial and disapproved activities and violations of social norms, including minor, such as truancy and loitering, and more serious types of offenses. These actions are usually associated with the negative attitude towards society (Study on the causes of juvenile delinquency and its prevention by the community, 2021). The response of the institutions to such delinquency is organized in the form of certain kinds of correction centers (Tariq et al., 2024). Observation Homes are used to temporarily receive juveniles awaiting the conclusion of an inquiry, and Special Homes are to be used to receive juveniles over longer periods and rehabilitate them, requiring separate residential facilities (12 and under, 13-15, and 16-18) to cater to the developmental needs of a particular group. This legal and institutional structure forms the ground basis of having knowledge about the population and the mechanism in place to handle them.



Figure 03: Current challenges

Etiology and Risk Factors of Juvenile Delinquency.

The etiology of juvenile delinquency is multifactorial because it is a complex combination of individual, family, social, and economic factors that leads to delinquency and not in-hereditary criminal tendencies. The concept of adolescence is in itself a phase of major physical, psychological, and social shift in which lack of liberty and chance can create rebellious tendencies. The family is one of the most important factors; dysfunctional family structure, parental neglect, divorce, and the lack of guidance are significant reasons that lead youth toward committing a crime (Study on the causes of juvenile delinquency and its prevention by the community, 2021). Children in the poorer regions might see crime as an option to make a living or even succeed economically (Bhatti et al., 2024). This is enhanced by the environmental factors like moving to

urban slums whereby there is greater exposure to the undesirable environment and illegal activities like drug trafficking. Moreover, peer pressure is very strong and the adolescents tend to align to the deviant behaviours as ways of staying in a group. Exposure to violence in the home or neighborhood and getting exposed to schools that are mediocre in their discipline and lack of structure can also be listed as other important contributory factors because they lead to aggressive coping and defensive responses or rebelliousness in students respectively.

Development and History of Juvenile Justice.

Rehabilitative models of juvenile justice have developed all over the world, as a global trend towards rehabilitation. In the past children were readily punished as severely as adults, both in prison and even to death. The 19th century also witnessed the rise of reform movements that proposed the concept of rehabilitation, and this resulted in the creation of specific juvenile justice system. The result of such an international trend was that the UN Convention on the Rights of the Child (1989) introduced a preference against detention in favor of social reintegration. Pakistan was also influenced by these international norms later on, in 2000, the Juvenile Justice System Ordinance was enacted, a historic law that allowed the protection of children who were in detention and emphasized on rehabilitation. The existing system is regulated by such acts as the Juvenile Justice Act, 2000 (and its amendments), which establish special Juvenile Justice Boards (JJBs) as the only authorities to refer to the cases in order to make sure that the procedures are child-sensitive. The most important legal requirements are a requirement to hand a juvenile who was apprehended to a Special Juvenile Police Unit and bring them before a JJB within 24 hours, and a lenient policy on bail, which would require release except in the case of concrete safety risks. The exploitation of children to commit crime is also criminalized in the Act and the punishment has been provided to use juveniles to beg or subject them to cruelty.

The Pakistani Situation: Facts, Profiles and Systemic Problems.

Juvenile delinquency is becoming a major and escalating problem in Pakistan and is enhanced by institutional inefficiencies. Although there is limited exact information, it is estimated that there are roughly 1,400 juvenile detainees in the country with approximately 90% awaiting trial and only two borstals to rehabilitate the juveniles hence the extensive incarceration of the juveniles into adult prisons. A certain profile of juvenile offenders in the Khyber Pakhtunkhwa (KPK) shows that 72 percent are aged between 15-18 years with theft (36) and murder (32) being the most frequent crimes. Most of them (70 percent) are literate and only 45.71 percent have attended upper-primary education level, which means that there is a close connection between low education levels and delinquency. KPK facilities, including the boys-only facility in Peshawar and the girls observation home in Abbottabad, find it hard to cope with these realities. The fundamental issues affecting juvenile detention centers in the country are deep-seated, such as extreme overcrowding that creates restriction of personal support and spreads hostility, lack of mental health care access to a large population due to widespread trauma and depression and anxiety, and severe shortage of educational and vocational training, which impedes effective reintegration (Overcoming challenges in the juvenile justice system, n.d.).

Juvenile rehabilitation Architectural Imperative.

Physical setting of juvenile detention centers is a very important, but mostly neglected, part of the rehabilitation process. These institutions accommodate the youngsters with complicated histories, emotional unbalances, mental requirements, and trauma (Bhatti et al., 2024). Institutions that are created as usual tend to increase the negative effects, anxiety, aggression, and isolation. Consequently, architecture should be carefully utilized to establish the environments that would

promote security and personal growth and recovery. This balance requires major architectural details. They consist of the spatial provision of adjustable and natural light to promote mental health; an acoustic treatment of sound to minimize anxiety-inducing noise levels; and restful color schemes (blues, greens, earth colors) to make the environment restful (Zahra et al., 2025). Moreover, safe and durable textures and materials, evident organization of space, allowing easy movement and supervision, as well as the use of natural elements (biophilic design) in the form of plants and access to the outdoors are all confirmed to reduce stress and improve mental health (design-guideline-JDF, n.d.).

Design Principles and Standards of a Rehabilitative Facility.

The development of an efficient juvenile facility lies mostly in setting up stringent requirements and the human-based design process. The Indian standards which offer a localized reference material require that the Observation and Special homes be home like and not similar to the jail. They stipulate the minimum spatial requirements (e.g., 40 sq. ft. per juvenile in dormitories, 300 sq. ft. classrooms of 25 juveniles) and require proper facilities to allow education, vocational training, recreation, and medical care, such as monthly check-ups. The design process itself should start with the intensive study of need, which will center on the safety, security, and management priorities which will provide the protection of both the youth and the staff. The facilities of the center should be eco-friendly where open spaces are provided with plenty of natural light, clear view to the outside and the accessibility to the outdoor so that one does not feel trapped. Another design-focused factor is staffing efficiency as more staff-to-residents ratios (like 1:8 to 1:12) were necessary than in adult facilities to provide meaningful contact and oversight. Finally, effective facility design is not a simple construction of aesthetically appealing areas but a combination of practical knowledge of day-to-day programs, security measures, and positive management techniques to lead the young criminals in the path of positive rehabilitation.

Case Studies & Analysis



Figure 04: Multiple Case studies

Comparative study of Sonoma County Juvenile Center (USA) and Boone County Juvenile Justice Center (USA) shows that there are 2 high-resource, purpose built models that focus on a holistic and programmatic approach of rehabilitation. The main strength of the Sonoma Center is the

intervention strategy that is well planned and graded. It is not only a detention centre, but it is also an integrated campus, that provides temporary residential services, comprehensive therapy (including individual, group, and family therapy to address such problems as substance abuse and sexual assault), and a strong educational system in its own Hood Mountain School, which leads to local junior colleges. More importantly, its aftercare intervention, which lasts 6-14 months after release, covers the critical transition period that is not given much consideration in juvenile justice, thus greatly lowering recidivism. The Boone County Center on the other hand, is a good example of efficiency in operations with its architectural design. The design is based on the approach of making the most out of visibility to the staff, and does not require a huge number of personnel, this is important in terms of cost-effectiveness. The program of the facility is organized in a specific, consecutive order detention, evaluation, short care, and placement, so that every juvenile has a different time spent in the facility based on his/her legal and psychological status. Nevertheless, the two models work with budgets, staff-to-resident ratios, and access to the community resources (such as theatre field trips and college connections) that are even much way beyond the present fiscal and infrastructural conditions of KPK, Pakistan. What they have learned to bring to Peshawar is not the fact that they are duplicated but the principles behind it needs to be considered to create comprehensive educational-therapeutic programs and that the post-release aftercare is of paramount importance, and it is possible that the intelligent design can help increase the level of security and rehabilitation and possibly even reduce the operational cost.

Regional Models Lessons: Adaptive Reuse and Purpose-Built Deficiencies.

A closer look at the facilities in South Asia is a more immediately relevant, albeit broadly cautionary, outlook on Peshawar. The Government Juvenile Home of Boys in Vellimadukunnu in India, serves as a good example of gaffes of adaptive reuse. It is located in a former old-age house, which has several, unstable access points, lacks specific areas where they can recreate and pursue vocational education, and has grossly poor overcrowding in their dormitories. It is not designed with its merits of good natural light and ventilation, or even is situated to allow natural isolation. The intention to present the age-specific benefits of intentionality in architecture is vividly portrayed in the juxtaposition between the purpose-built Government Juvenile Home for Girls on the same campus, also productive of 200 juveniles, and the purpose-built Government Juvenile Home for Boys on the same property, with 400 juveniles. Equally, the Juvenile Home for Boys in Saidabad, Hyderabad, even though it has a more articulated program, including vocational training and educational rooms, demonstrates systemic failures in operations. These are poor hygiene, ill treatment by the staff, deficiency of mental health counseling and the usurping of recreational space by other security forces (CRPF). Such a cross-comparative analysis of these regional models brings about a very important lesson to Peshawar: a new facility is not enough. A successful center should be built with the intention of bringing in secure perimeters, sufficient activity spaces both as regards education and recreation and most importantly, should be accompanied with effective operational guidelines that will see personnel trained in rehabilitative rather than punitive methods and the space developed should be utilized accordingly.

Placing the Local Reality: Peshawar central jail and design synthesis into context.

The Juvenile Division of Peshawar Central Jail is the present situation of poor quality in KPK. Its presence in an adult prison facility, against legal requirements of separations, instantly goes against juvenile justice requirements in international standards and places the youths in destructive environments. The identified challenges are overcrowding, resource constraints, lack of psychological services, and social stigma, which are a symptom of the containment approach as opposed to transformation. Its limited professional training (carpentry, tailoring) is a good starting

point that is obviously insufficient. Combinations of the worldwide and regional conclusions of a proposed Peshawar center produce a self-evident assortment of design and operational principles. The center will have to borrow a program-based approach with a robust aftercare element, a gradual approach (Sonoma, Boone). Architecturally, it ought to follow the appearance of Boone County, which is staff exposure and operational effectiveness and aim to include the intentional zoning of the Hyderabad home, which is administration, education, housing, and recreation. Importantly, it should not repeat the mistakes of Vellimadukunnu (adaptive reuse, lack of security) and Hyder (poor operational maintenance). The architecture should be secure in nature but not carceral where natural lighting, ventilation, and open spaces should be used to generate a therapeutic environment. In the case of Peshawar, such a hybrid is necessary: fiscally and contextually conscious, learning about local errors, but aiming towards the rehabilitative ideal of global best practice, such that Peshawar finally ends up with a facility that is both safe and transformative.

Synthesis of Expert Interviews: Juvenile Detention as a Human Dimension.

The interaction with the psychologist highlights how deep the mental health crisis of incarcerated juveniles is, as they often appear to have anxiety, depression, PTSD, and anger problems due to the presuming trauma and the other stressors of being imprisoned. The professional categorically says that the physical environment is an active stimulus in either aggravating or reducing these ailments. An aggressive and hopeless situation is aggravated by a prison-like atmosphere and a school center design, with enough natural lighting, open spaces, such as courtyards, and places of positive social interaction, can significantly decrease stress and support the progress of the therapeutic process. Cognitive Behavioral Therapy (CBT) and group counselling recommendation requires the construction of individual, serene and private areas in which the one-on-one and group sessions will be conducted. This interview offers the human justification of the need to go beyond a purely punitive architectural language, stating that even the very structure of the building should be thought of as a healing device. The identified findings require an architectural solution which focuses on sensorial wellbeing by means of biophilic design, natural accessibility and the development of a normalized, not institutional ambience to facilitate the psychological rehabilitation process.

Front Line Realities and Security Hardships.

The interview with the jail officer also presents a ground level perspective of tough operations and infrastructure conditions with the current Pakistani facilities. The main problems found are discipline, conflict prevention, and effective rehabilitation programs which are grossly influenced by the current circumstances of the overcrowding, inadequate ventilation, and lack of recreational facilities. This is proven through the fact that the officer recognized that juveniles usually come into the picture in fearful, aggressive, or rebellious times, and this points to the assessment of the psychologist to a stabilizing environment by the intake. More importantly, the officer mentions that there is a change of philosophy, whereby, the officer tries to apply counseling and reward, rather than harsh punishment, but this is compromised by the poor infrastructure in place. The security training measures suggested, such as cameras, restricted areas, and professional personnel, are in line with the effective visibility model of Boone County. This interview is a strong witness that improved physical infrastructure cannot be considered a luxury, but it is a necessity that can help to enhance day-to-day work, make the staff safer, and rehabilitation efforts possible. It claims that it should be designed to control safety by technological and architectural means instead of pure restrictive power to make safe an environment in which constructive interaction can take place.

Legal Structures and Systems of Systemic Fallacies in Juvenile Justice.

The scope of the interview with the advocate indicates the legal scaffolding that would safeguard juveniles in Pakistan, mainly in a form of Juvenile Justice System Act (JJSA) 2018, which ensures legal assistance, absence of inhumane punishment, and the right to rehabilitation and education. This law system requires a different system that is not the adult justice which is aimed at reform and does not allow severe punishments against the minor. The findings of the advocate however expose a considerable gap in the implementation of such programs wherein most of the detainees are jailed on minor crimes that are related to poverty and illiteracy. This signifies that there is a failure in the system in terms of diversion and early intervention. The programmatic and architectural brief of a new center is directly informed by the recommended reforms, which are stricter law enforcement, more diversion programs and better reintegration programs. Its structure must aid in the legal procedures (e.g., the Juvenile Justice Board hearings are held in the dedicated and child-friendly rooms), favor the diversionary activities.

Research Methodology

Site Selection & Contextual Analysis

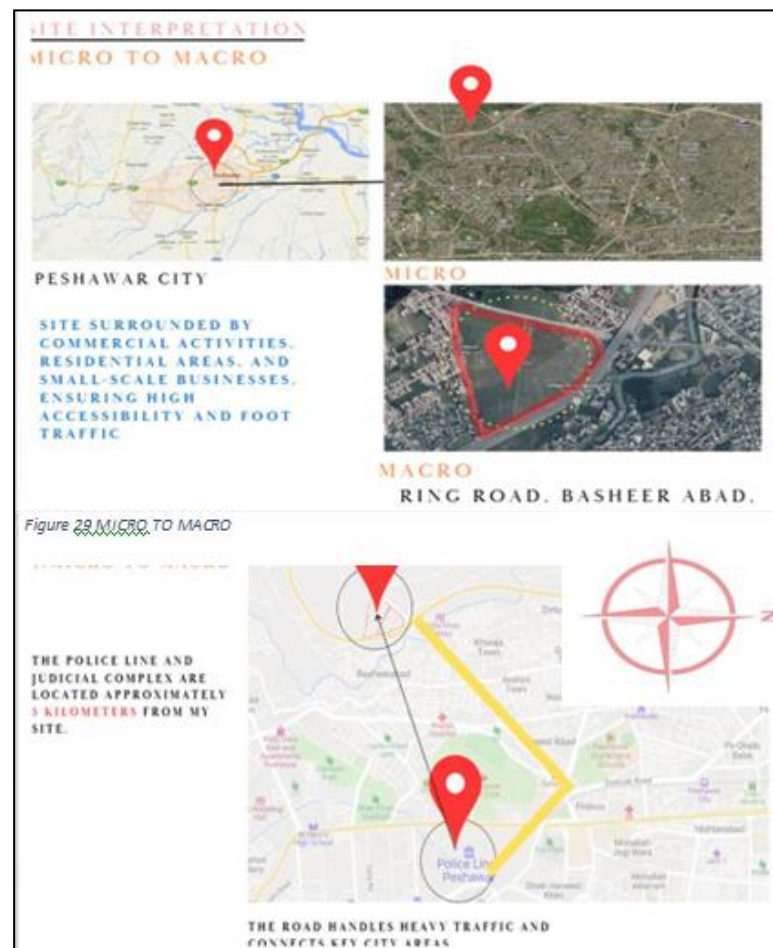


Figure 05: Site Context

Particularly the location chosen on Jamrud Road, opposite to the Bacha Khan Markaz, is a paradigm shift in the philosophy of juvenile detention, where the central theme is isolated punishment, and the new theme is integrated rehabilitation. The site selection criteria underlines

great significance of accessibility, community linkages, and availability of much needed services—all of which are extensively fulfilled by this site. Its location (in a distance of about 5 kilometers) to major centers such as the Judicial Complex, Police Line, and Peshawar University is not just a convenience but a source of strength. This connectivity will guarantee that the facility will be integrated into the legal, security, and educational ecosystems of the city, enabling it to transfer the court to other destinations with ease, work in concert with the law enforcement agencies, and any future academic relations towards the vocational and educational programs. This is supplemented by the mixed-use environment of commercial, residential and institutional neighborhoods that surround it and is important in terms of social reintegration, an antidote to the stigmatizing isolation of traditional prisons. The location along a major road such as Jamrud Road, as well as the convenient access of the site to both the staff and the family and service providers, is crucial in ensuring the efficiency of the operations of the facility, including the preservation of the family and community connections that have been shown to lead to lower recidivism. On an urban level, establishing a rehabilitation facility in a developing urban centre is an indicator of a forward-looking civic investment and makes the juvenile facility a central feature of the developing urban environment, as opposed to a marginal, peripheral consideration.

Climatic and Environmental Responsibility to a Healing Environment.

The physical and climatic conditions in the site are giving it a strong base upon which to create a facility that will actively contribute to the well-being of the occupants. Hot and semi-arid climate of Peshawar where the summer temperature is between 30-40 C and the winters mild ensures that a certain architectural reaction is required, and this site can easily offer it. The topography of the 5-acre plot is primarily flat and provides a tremendous master planning flexibility that will permit strategically locating buildings, safe outdoor recreational areas, and therapeutic green areas without the complexities and expensive nature of considerable land grading. It is important to analyze the sun direction and the wind direction and so the building can be made to optimize the northern light to full daylighting in classrooms and workshops to avoid glare and minimizing the harsh sunlight and western sun to reduce cooling demands. Natural cross ventilation can make use of the winds that prevail and enhance the indoor air quality and thermal comfort which is an important factor of sustainability of energy. Moreover, the current drainage plan which effectively directs water through a culvert beneath the adjacent flyover, alleviates the risk of flooding and offers a good base point when it comes to incorporating sustainable water management systems e.g. harvesting rainwater that may be used to irrigate the current green lawns within the premises. This present vegetation is a natural resource, which contributes to a direct feeling of relief and a foundation of the biophilic approach of design that involves the inclusion of nature in the everyday lives of juveniles to decrease stress and help them recover mentally.

Although the location of the site has great potential, its urban setting also has certain issues associated with noise, sensory overload, and security that also need to be wisely resolved with the help of architectural design. The noise of the Ring Road and other commercial lands near the building is becoming a threat to the peaceful atmosphere needed in the therapy and educational process. This requires the architectural treatment of certain buildings that include the systemic positioning of acoustic barriers, the development of closed building forms that face a protected inner yard and the application of sound-preventive materials to safe interior areas against hearing pollution. One more important design parameter, the necessity to maintain the balance between the openness and the safety, can be identified with the help of the "sensory" analysis of views to and through the site. The architecture should take care of sight lines such that the facility does not seem like an imposing fortress whereas at the same time the citizens should be assured of privacy and safety of the juveniles inside the facility. This can be done by the use of controlled access points,

stratified perimeters (e.g. soft landscaping up to secure fences) as well as the prudent location of both opaque and transparent surfaces. More importantly, the assured supply of all the key utilities available in the location (water, electricity, sewage, etc.) is a decisive element that will remove a significant obstacle on the infrastructural level, and resources will be dedicated to construction and program development instead of the supply of the most basic services. Conclusively, the Jamrud Road location is not only a piece of land available, but a strategically located, well networked and physically feasible canvas. The real potential of being the most suitable alternative will be achieved by an architectural design that skilfully uses its deep strength and skillfully addresses its urban issues to develop a safe, therapeutic, and transformational experience in juvenile rehabilitation in Peshawar.

Analysis of Juvenile Data in context of Pakistan

The history of juvenile justice in Pakistan as outlined by the legislative timeline shows that there was gradual yet decisive change to the acknowledgement of the unique requirements of the young offender, and culminating in the historic Juvenile Justice System Act (JJSA) of 2018. This legislative process started out paying attention to procedural isolation, but has over time shifted to requiring rehabilitation and reintegration. There is however an overall lack of connection between this original legislative intent and the reality on the ground, and the national prison population numbers of 2023 provide a stark example of this issue.

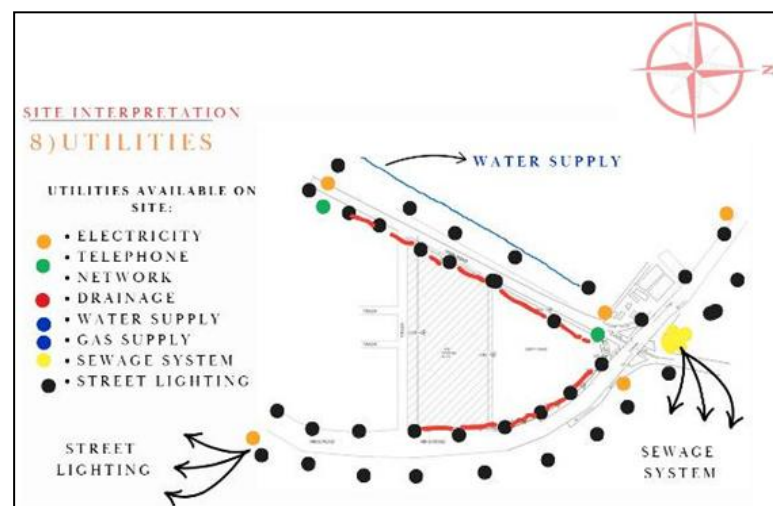


Figure 06: Site Utilities Detail

The failure in the system is most pronounced in Khyber Pakhtunkhwa (KP) (358 juveniles are incarcerated) and Punjab (745) because; in Punjab, 81% of the juvenile detainees are held in regular prisons rather than in specific Borstal Institutions or Juvenile Reformatory Centres. This goes against the non-custodial nature and the rehabilitative spirit of the JJSA 2018 directly. This issue is further made worse with harsh overcrowding where KP prisons are only at 107.4 percent capacity and Punjab at a critical 159 percent capacity. This congestion is not a single problem but a side effect of a criminal justice system that is clogged with under-trial groups, comprising 78 percent of KP and 72 percent of the entire population of Punjab. This places the juvenile who legally should be innocent until proven guilty in the conditions of punitive detention that automatically place a rehabilitation possibility as nonexistent, which places a huge rift between policy and practice that this new facility must attempt to close.

The Socio-Economic Drivers and Institutional Response of Profile of a Juvenile Offender in Peshawar.

The demographic and crime-specific data of Peshawar would give a critical micro-level insight of the population that a new juvenile facility would cater to. The distribution of crimes indicates that property crimes (40 percent) and drug-related crimes (25 percent) are most common and this fact significantly indicates the socio-economic deprivation as a major cause of delinquency. It is supported by the statistics of school dropout and illiteracy level, which indicates a very distinct dependency between the deficiency of education and the incarceration in the justice system. The age group statistics which reveal that 72 percent of the offenders are aged 15-18 years old highlights the fact that they are adolescents at a critical age and are very much impressionable and in need of positive guidance and skills training. This is further contextualized by the area distribution map that indicates that juvenile offenders are mostly born in certain, probably disadvantaged, urban and semi-urban areas in and around Peshawar. The institutional response as observed in the daily and Sunday schedule/timetable provided by Center Jail Peshawar, has made an admirable effort of giving a structure, integrating education, vocational training, prayer and recreation. The fact that there are special days (Sports Days, Cultural Days, Legal Awareness Sessions, and others) suggests the understanding of the necessity of the holistic interaction. But even the fact that such schedule is realized in the environment of a central jail with all its limitation and security-first policy severely limits its effectiveness. Congratulating successes, like educational accomplishment or mastery of a vocation talent, is a wonderful move, but not likely to fulfill its objectives in a congested and cash-strapped custodial environment.

A Blueprint on Reform: Programmatic Needs Synthesis to a rehabilitative facility.

The information all offers an effective plan of how a new, purpose-built juvenile facility should be designed in Peshawar. The prevailing daily activities and special occasions at Center Jail Peshawar will provide a base upon which this can be expanded on in a more specific, therapeutic setting. The offered program generation is no longer the basic custody but instead the active approach to the root of the problem. As an example, the behavior management aspect such as inclusion of non-violent martial arts directly addresses the problems of aggression and inadequacy in impulse control as found in the psychological profile of most offenders. The long list of career training options, including carpentry and car-related skills, digital media, the development of e-sports, and robotics, is crucial. The programs should not be developed as elementary efforts but rather as serious means of economic independence, which can directly solve the poverty and deprivation that cause property and drug crimes. The In-house Diner and the Entrepreneurship and Financial Literacy programs are the most innovative, where the practical life skills and the business acumen is taught. This programmatic intervention together with the educational assistance required to fight illiteracy and the legal awareness training to enable the juvenile with rights awareness forms a complete rehabilitation model. Hence the synthesis of this information is that of a facility architecturally designed to accommodate this manifold mission, that of not only providing secure housing, but also stretchable workshops, high-tech studios, peaceful spaces of therapy and art, and vibrant recreational spaces, all that is geared towards changing the life careers of the youth of Peshawar, of being criminal to becoming contributing.

Design Evolution

Concept Development: Philosophic and Ideological Underpinnings: Punishment to The Nexus of Renewal.

The principle underpinning this Juvenile Correction Centre is an intellectual and long-awaited break with the old carceral approaches in that it quite literally promotes itself as a reformative environment as opposed to a punitive one. The philosophy that is the focus, which is known as The Nexus of Renewal, is not just a catchphrase but a design motivator that aims at establishing a space in which change is engineered in terms of architecture. This methodology is fundamentally based on the fact that the physical environment is an actor in rehabilitation which is directly contrary to the psychologically harmful impacts of the traditional detention facilities which tend to increase the trauma, aggression, and recidivism. One of the fundamental principles of this philosophy is the use of biophilic and therapeutic design that would help to restore juveniles to a state of harmony with nature so that it could encourage mental and emotional rehabilitation. It is a highly advanced appreciation of the fact that well being is linked with environmental connectivity but its efficacy depends on a careful implementation that does not merely entail the incorporation of plants. Another important pillar is the idea of the normalcy based on therapeutic and responsive spaces, which questions the sterility of the institutions of the usual prisons. The design also seeks to minimize the stigmatization and institutionalization of prisoners hence helping them integrate into the society in the future by proposing spaces that look more like educational campuses or therapeutic communities. Such humanistic strategy radically reinvents the role of the architecture as the instrument of control and repression to the source of support and empowerment, as the building itself becomes a member of the rehabilitative process. This is supported conceptually by the flowchart which depicts a very clear pathway of intake through the various rehabilitative processes (education, therapy, vocational training) to the ultimate outcome, reintegration, so that each spatial choice has a premeditated result in the path of the juvenile.



Figure 07: Inclusive Design Approaches

Spatial Organization and Programmatic Zoning: Security, Function and Dignity.

The translation of the gist philosophy of architecture is achieved in the form of a highly elaborate spatial and programmatic approach that carefully strikes a balance between the opposing requirements of security, rehabilitation and psychological well-being. The design brief provides a clear zoning approach where functions- residential, educational, therapeutic, recreational and administrative are separated so as to achieve efficiency in operations and controlled circulation. It is not just an organizational process but a very important way of designing specific environmental realms that meet various needs of the rehabilitative process. As an example, the residential units are designed as the 4-6 juvenile Semi-Private Sleeping Pods, which is a major enhancement to dehumanizing, large-scale dormitories. The design option is a direct reaction to the requirement to have personal space, small groups, and a sense of ownership that is vital in inculcating responsibility and minimizing conflict. The focus on natural ventilation and acoustic insulation also attests to the fact that the occupants of the building were given a lot of attention on their sensory wellness, which is not always considered in the design of institutions. The sensory gardens, therapy rooms, and art studios proposed as part of the project as the so-called Psychological and Emotional Healing Spaces are especially important. They go beyond mere counseling to provide multi-sensory and non-verbal healing channels because of the fact that trauma and recovery vary. One of the major innovations is the method of security, in which the supporters recommend passive means of security, including changing levels, landscaping of barriers, and controlled views rather than high walls. This security with dignity is a radical idea which tries to keep the safety without the establishment of a fortress-like ambience that reminds the juveniles constantly about their imprisonment. The biggest problem of this strategy is, however, its success and in this case a very delicate design is needed in such a way that these underlining obstacles will be as efficient as the traditional ones but they do not create an impression of oppression.

The Materiality, Technology, and Architectural Language: Integrating Sustainability and Innovation into the Fabric.

The selected approach to architecture, which is "Modern and Contextual Minimalism," and the material palette identified are part of the achievement of the philosophical and functional objectives of the project. Clean geometries, exposed concrete, natural wood, and huge glazing give the effect of a dignified yet uplifting aesthetics that intentionally shuns the visual discourse of punishment. This material sincerity adds to a relaxing non-institutional environment. The rational choice of material, concrete polished to be resistant or bricks with holes to allow sound control and ventilation or wooden material to make the building warm demonstrates a conscious attempt to combine functionality with psychological utility. The technology is integrated in two aspects; sustainability as well as security. Implementation of green technologies such as solar panels, rainwater collection and passive cooling can make the facility consistent with the international sustainable development objectives besides acting as an important learning source to the inmates regarding environmental conservation. Security-wise, the suggested RFID access control and covert CCTV application can be discussed as a shift towards more or less visible panoptic model of surveillance, which can be a less threatening practice than typical security practices, but also comes with critical ethical issues concerning constant surveillance that the design brief fails to tackle with any scrutiny. The Adaptive Design Technologies (such as modular construction and movable partitions) is a futuristic concept that will enable the facility to develop in relation to the changing pedagogical and therapeutic requirements, which will guarantee its permanence. The thorough explanation of minor details - the welcoming reception area, family visitation areas, and so on - prove that the process of designing the complex was thorough and human-centered, with

each detail, such as a personal storage locker or shading of an outdoor courtyard, being carefully designed to enhance the overall mission of the complex, renewal and reintegration, and therefore the whole complex is a coherent, effective instrument of social change.

Proposed Building Program

Table 01: Building Program

JUVENILE DORMITORY RESIDENTIAL UNIT	31642.685 SQUARE FT.	ADMINISTRATION	27858.221 SQUARE FT
HOUSING OBSERVATION HOME AND SPECIAL HOME	31642.685 SQUARE FT.	HEALTH CARE...	27858.221 SQUARE
LIBRARY AND COMPUTER LABS SMART STUDIOS AND WORK SHOPS	27858.221 SQUARE FT	MASJID	46941.591 SQUARE FT.
EDUCATIONAL	27858.221 SQUARE	CANTEEN -SHOPS AND RECREATION	23635.674 SQUARE FT

Table 02: Dormitories Sizes & Details

Dormitory type	Occupancy	Standard size (sqm)	Standard size (sqft)
Small dormitory	2–4 juveniles	12–18 sqm	129–194 sqft
Medium dormitory	6–8 juveniles	25–35 sqm	269–377 sqft
Large dormitory	10–15 juveniles	40–50 sqm	431–538 sqft

Space	Standard Size (sqm)	Standard Size (sqft)
Common Living Area	10–20 sqm per dorm	108–215 sqft
Study/Quiet Room	10–15 sqm	108–161 sqft
Washroom/Toilet Block	4–6 sqm per unit	43–65 sqft

Proposed Design



Figure 08: Proposed Master Plan



Figure 09: Proposed Juvenile Center



Figure 10: Proposed Recreation Unit

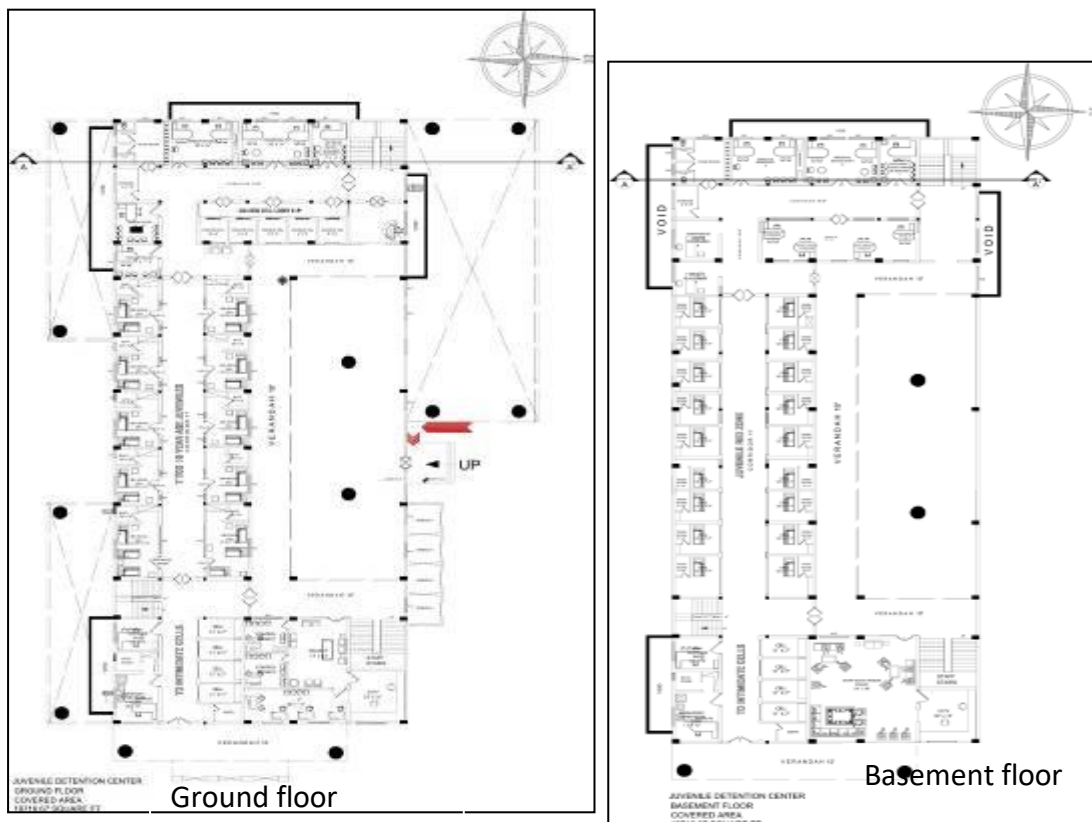


Figure 11: Proposed Floor Plans

Research Findings

This study confirms through its findings that the current juvenile justice system in Khyber Pakhtunkhwa especially in Peshawar is deeply weak and counterproductive to rehabilitation. The inquiry indicates severe incongruence between the progressive purpose of the Juvenile Justice System Act (JJSA) 2018 and the punitive fact of detention, where young people are usually incarcerated in overcrowded adult prisons, which contributes to the increased risks of trauma and recidivism. The analysis of data revealed a clear representative of the juvenile offender in Peshawar: mostly male youths with social-economically disadvantaged backgrounds, involved in committing mostly property and drug-related offences, and characterized by a high rate of school dropouts. The holistic model of Sonoma County and the deprived cases of the regions were essential examples relevant in terms of comparative case studies. They all confirmed that effective rehabilitation is directly correlated with the quality of the architecture of a facility namely its capabilities to balance the dignity with the security, to combine nature, and to offer strong and purpose-oriented spaces to education, vocational training and psychological therapy. The site selection procedure established that a site within the urban structure of Peshawar and close to the judicial, educational and communal facilities are necessary in providing contact with families, delivery of services as well as eventual reintegration in society, which is far more than the remote prison model.

Research Conclusions

The exploration and design of a school and rehabilitation center for autistic children presented in Conclusively, the study has postulated that architecture is neither a box nor an inactive agent in the rehabilitation of juvenile offenders. The traditional, disciplinary incarceration approach has proven to be futile and has resulted in the need to change the paradigm to a therapeutic and transformative setting. The proposed Juvenile Correction Center in Peshawar which is proposed as a Nexus of Renewal will integrate the findings of the research to a logical architectural response. It brings the principles of rehabilitation to realistic design solutions: the use of biophilic design and natural light to maintain the psychological well-being of residents, instead of active security, passive action, and barrier landscaping, and the design of flexible areas to support education, development of vocational skills, and therapy based on the needs of the identified population of the local juvenile population. In the end, this project can prove that a well-thought-out, humanitarian, and complex facility is a valuable investment. It is a life-saving solution to the cycle of crime, ensuring respect of constitutional and international rights of children, and creating safer and more productive societies by leading vulnerable children on the way of positive contribution and successful reintegration in the community.

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