



Warehousing Assessment

Health Department, Government of Khyber Pakhtunkhwa



June 2018

This publication was produced for review by the United States Agency for International Development. It was prepared by Chemonics International Inc. under Global Health Supply Chain Program - Procurement and Supply Management (GHSC-PSM) Contract No. AID-OAA-I-15- 00004 and Task Orders 03 Contract No. AID-OAA-TO-15-00010 and 04 Contract No. AID-OAA-TO-16-00018.

Recommended citation: USAID Global Health Supply Chain – Procurement and Supply Management Single Award IDIQ. 2016. USAID GHSC-PSM Warehousing Assessment for Health Department, Khyber Pakhtunkhwa

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ACRONYMS

DOH	Department of Health
USAID	United States Agency for International Development
GHSC-PSM	Global Health Supply Chain Program– Procurement and Supply Management
KP	Khyber Pakhtunkhwa
MNCH	Maternal, Neonatal and Child Health
TA	Technical Assistance

BACKGROUND

USAID Global Health Supply Chain Program – Procurement and Supply Management (GHSC-PSM) project is providing technical assistance (TA) to Department of Health (DOH), Government of Khyber Pakhtunkhwa (KP) for improving maternal, neonatal and child health (MNCH) indicators through various supply chain initiatives in the province. The long-term Khyber Pakhtunkhwa Public Health Forecasting and Supply Chain Strategy (2017-22) envisions long term end to end supply chain solutions for DOH which includes warehousing and distribution roadmap that could instill cost effective, efficient and integrated storage mechanisms with adequate storage at provincial and sub-provincial levels, enabling the government to adopt best international practices for inventory management and deliver quality products at the last mile.

As part of the strategy, series of consultations on KP warehousing need assessment were held between technical experts of DOH KP and GHSC-PSM Project. These discussions weighed various options that the Department could adopt to address warehousing issues. It was further discussed in both meetings of Provincial Steering Committee held on November 16, 2017 ([Annexure 1: Minutes of the Meeting; Provincial Supply Chain Steering Committee](#)) and February 20, 2018 ([Annexure 2: Minutes of the Meeting; Quarterly Review Meeting of Provincial Supply Chain Steering Committee](#)). It was agreed that for determining the storage and space requirements for DOH KP, two districts (one most populous and one less populous) will be piloted for the assessment and on the basis of the data, both technical and financial warehousing storage needs of the province will be determined. In pursuance to the meeting action point, DOH KP nominated Mardan and Tank districts through official notification ([Annexure 3: Nomination of districts for determining storage and space requirements for KP](#)). Technical experts from GHSC- PSM team visited both districts and in coordination with officials of Mardan and Tank districts carried out data collection and data analysis, on the basis of which report has been developed.

In a meeting held on June 6, 2018, at Director General Health Services (DGHS) office, Peshawar, GHSC – PSM team presented two models for KP warehousing assessment i.e. provincial/ regional warehouses and district warehouses. Provincial and regional warehouse model was unanimously accepted by DGHS, KP and team with guidance to factor in working for 32 districts of province following the FATA-KP merger. In consonance with meeting decision, GHSC – PSM team worked on aligning the report with DOH KP guidance.



Figure 1:Meeting on KP warehouse assessment, June 6, 2018

This report takes into account technical and financial requirements for establishing warehouse per international best practices

STUDY OBJECTIVES

The overall objective of the assessment was to determine storage and space requirements for integrated warehousing needs at provincial, regional and district levels as enunciated in the Khyber Pakhtunkhwa Public Health Forecasting and Supply Chain Strategy (2017-22).

METHODOLOGY

The storage need assessment was based upon:

1. DEVELOPMENT OF DATA ACQUISITION TOOL

As a first step towards initiation of assessment, the project warehousing team developed a data acquisition format in consultation with the DOH, Khyber Pakhtunkhwa and shared it with the department.

Table 1: Data Acquisition Format

Medicine Flow Data Acquisition tool											
S.No.	Product	Take unit as carton (Outer Carton)	Syrup/Medicine	Manufacturer	Per outer Carton volume			Per carton Qty	Temperature Requirement	Total Quantity received in July- 2015 to june 2016	Total Quantity received in July 2016 to june 2017
					Length (cm)	Width (cm)	Height (cm)				
1											
2											
3											
4											
5											

Equipment Flow Data Acquisition tool							
S.No.	Equipment Name	Manufacturer	Per equipment volume			Total received in July- 2015 to June 2016	Total received in July 2016 to June 2017
			Length (cm)	Width (cm)	Height (cm)		
1							
2							
3							
4							
5							

2. DATA ACQUISITION

The Project warehousing technical team visited two DOH nominated districts i.e. Mardan and Tank on March 22 and 26, 2018, respectively. Using the tool, data was collected pertaining to the list of all medicine and equipment along with supplier contact information, and volume of supplies (medicines & equipment) that were distributed to all districts in the last few years.

3. DATA ANALYSIS

Based on data acquired from two districts of Tank and Mardan, detailed analysis accounting for twenty-five years storage requirements were done ([Annexure 4: Analysis of Tank and Mardan districts](#)). Detailed analysis was culminated on the basis of district population as per census 2017-18. The storage requirements of two districts were translated for other districts taking into account estimated needs of each district based upon population. Warehouses proposed are pre-fabricated warehouse. The current storage needs were calculated and incrementally increased by 3% annually to

determine storage needs for next 25 years. The table below depicts the proposed 25 years' space requirement of two districts

Table 2: Proposed 25 years space requirement of Mardan and Tank districts

District	Number of pallets proposed	Rack area of one loaded pallet (Sq.Ft.)	Total net land required for 1 Rack with 5 level stacking with total of 10 pallets on rack (Sq.Ft)	Area add on for Aisle 100% of racking area, medical equipment, loading/unloading (Sq.Ft)	Total Sq.Ft	Total (Cubic Ft)
Mardan	1,589	32	5,085	10,170	15,254	533,904
Tank	620	32	1,984	3,968	5,952	208,320

The table below shows the summary of cost requirements based on 25 years space requirements for two districts. (**Annexure 5: Detailed cost estimations for two districts Mardan & Tank**)

Table 3: Summary of cost requirements for Mardan and Tank districts

Districts	25 Year Requirement (Amount in PKR)							
	Starter and Add-on Unit	Foundation Work of Shed	Pre - Engineering Building Supply and Installations	Material Handling Equipment (including High Reach Trucks)	Cost of Plastic Pallets	Cost PKR (Boundary wall, Gates, Security operators, Shades, Hard Surface, Fire fighting equipment, Electrical and Plumbing works, Stand by generators, WMS implementation, IT & Office equipment & operations)	Total Cost	Total Cost (In millions)
Mardan	12,275,025	20,593,440	49,424,256	4,500,000	7,945,000	8,000,000	102,737,721	103
Tank	4,789,500	8,035,200	19,284,480	4,500,000	3,100,000	8,000,000	47,709,180	48

PROPOSED MODEL – PROVINCIAL AND REGIONAL WAREHOUSES

The proposed model caters for technical and financial requirements for one provincial and five regional warehouses as depicted in figure 2:

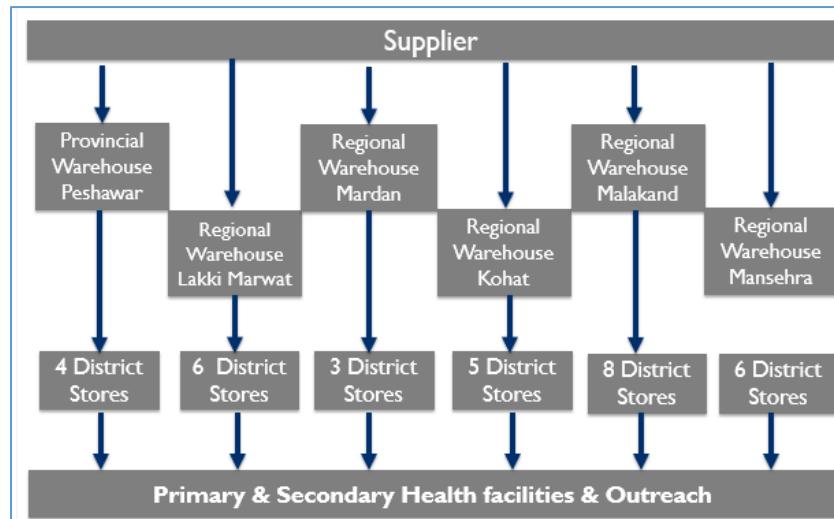


Figure 2: Warehousing Proposed Model

Following provincial and regional warehouses are being proposed:

1. **Provincial Warehouse Peshawar (4 districts):** Peshawar, Charsadda, Mohmand, Khyber
2. **Regional Warehouse Lakki Marwat (6 districts):** Lakki Marwat, Bannu, DI Khan, Tank, South Waziristan, North Waziristan
3. **Regional Warehouse Mardan (3 districts):** Mardan, Nowshera, Swabi
4. **Regional Warehouse Kohat (5 districts):** Kohat, Karak, Kurram (Upper & Lower), Orakzai, Hangu
5. **Regional Warehouse Malakand (8 districts):** Malakand, Dir Lower, Dir Upper, Chitral, Buner, Swat, Shangla, Bajour
6. **Regional Warehouse Mansehra (6 districts):** Mansehra, Haripur, Abbottabad, Battagram, Kohistan, Torghar

Technical Considerations:

Technical considerations have been done based on 25 years futuristic requirements for DOH, KP. Table below reflects the futuristic provincial and regional warehouse storage requirements. The number of pallets and space requirements have been worked out based on population of dependent districts. Layout plan for provincial warehouse can be accessed at **Annexure 6**. Detailed working for computing technical requirements is present at **Annexure 7**.

Table 4: DOH KP futuristic provincial and regional warehousing space requirements

District	Number of pallets proposed	Rack area of one loaded pallet (Sq.Ft.)	Total net land required for 1 Rack with 5 level stacking with total of 10 pallets on rack (Sq.Ft)	Area add on for Aisle 100% of racking area, medical equipment, loading/unloading (Sq.Ft)	Total Sq.Ft	Total (Cubic Ft)
Provincial Warehouse Peshawar (4)	8,010	32	25,633	51,265	76,898	2,691,432
Regional Warehouse Malakand (8)	9,440	32	30,209	60,417	90,626	3,171,913
Regional Warehouse Lakki Marwat (6)	5,876	32	18,802	37,603	56,405	1,974,180
Regional Warehouse Mardan (3)	4,622	32	14,789	29,579	44,368	1,552,892
Regional Warehouse Kohat (5)	5,040	32	16,127	32,254	48,381	1,693,321
Regional Warehouse Mansehra (6)	4,808	32	15,386	30,772	46,159	1,615,553
Total	37,796		120,946	241,891	362,837	12,699,291

Financial Requirements:

The table below shows the summary of cost requirements based on current and 25 years space requirements for provincial and regional warehouses (*Annexure 8: Detailed futuristic cost estimations*)

Table 5: Summary of cost requirements for provincial/regional warehouses

Warehouses	Starter & Add on Unit	Foundation Work of Shed	Pre - Engineering Building Supply and Installations	Material Handling Equipment (including High Reach Trucks)	Cost of Plastic Pallets	Miscellaneous Cost*	Amount in PKR	
							Total Cost	Total Cost (million)
Provincial Warehouse Peshawar (4)	61,878,916	103,812,394	249,149,747	4,500,000	40,051,078	50,000,000	509,392,135	509
Regional Warehouse Malakand (8)	72,925,681	122,345,220	293,628,529	4,500,000	47,201,088	50,000,000	590,600,518	591
Regional Warehouse Lakkhi Marwat (6)	45,388,503	76,146,925	182,752,620	4,500,000	29,377,672	50,000,000	388,165,720	388
Regional Warehouse Mardan (3)	35,702,649	59,897,260	143,753,424	4,500,000	23,108,511	50,000,000	316,961,845	317
Regional Warehouse Kohat (5)	38,931,267	65,313,815	156,753,156	4,500,000	25,198,231	50,000,000	340,696,470	341
Regional Warehouse Mansehra (6)	37,143,296	62,314,191	149,554,057	4,500,000	24,040,969	50,000,000	327,552,513	328
Grand Total							2,473,369,200	2,473
*Miscellaneous Cost included cost of Boundary wall, Gates, Security operators, Shades, Hard Surface, Fire fighting equipment, Electrical and Plumbing works, Stand by generators, WMS implementation, IT & Office equipment & operations)								

Province 25 years requirement in terms of area and cost for establishment of provincial/regional warehouses is summarized in table below:

Table 6: Summary of storage space and cost requirement for 25 years

Warehouses	25 years Requirement	
	Total Sq ft.*	Total Cost (PKR in million)
Provincial Warehouse Peshawar (4)	86,898	509
Regional Warehouse Malakand (8)	100,626	591
Regional Warehouse Lakkhi Marwat (6)	66,405	388
Regional Warehouse Mardan (3)	54,368	317
Regional Warehouse Kohat (5)	58,381	341
Regional Warehouse Mansehra (6)	56,159	328
Total	422,837	2,473

*Inclusive of 10,000 Sq.ft for trucks parking, administrative area etc

WAY FORWARD

The Project will provide additional TA to DOH for development of PC-1 based upon approved option. The DOH will have to look after the financing and also decide upon the administrative structure in case option-1 is adopted.

ANNEXURES

ANNEXURE- 1: MINUTES OF MEETING OF FIRST PROVINCIAL SUPPLY CHAIN STEERING COMMITTEE

KP Public Health Forecasting & Supply Chain Strategy Activities (2017-18)	First Steering Committee Meeting (November 16, 2017)		Second Steering Committee Meeting (February 20, 2018)		
	Discussions	Agreed Action Points	Updates and Discussions	Agreed Action Points	Responsibility
2. Determine Transportation Needs and Resources including Outsourcing	<p>requirements for integrated warehousing and transportation needs at provincial and regional levels as proposed in the strategy. Outcomes of the warehousing and health commodities transportation assessment and gaps identification will lead the DOH and PWD KP for preparation of a separate PC-I for financing to meet the costs of storage, space, transportation of health commodities and human resource needs.</p>	<p>determine costs for infrastructure, equipment, operations and human resource and share the report for implementation</p> <p>ii. In light of recommendations of the warehousing and transportation need assessment, DOH will lead on preparation of separate PC-I as per structure and mechanism, proposed in the Strategy.</p> <p>iii. GHSC-PSM project will provide technical support in preparation of the PC-I</p> <p>iv. DOH and PWD will identify relevant officials as TWG from within and outside their departments to assist in preparation of the PC-I. DOH will notify the Warehousing TWG.</p> <p>v. DOH and PWD will also seek opportunities to obtain financing through Development Partners e.g. UNICEF, UNFPA, USAID, DFID,</p>	<p>January 09, 2018 at Peshawar. 20% of data has been received from the suppliers.</p> <p>As a follow-up of aforesaid meeting, GHSC-PSM devised a proposed warehouse racking and pallet system costed plan that was presented in the meeting</p>	<p>acquired, based on which warehousing assessment will be accomplished</p> <p>ii. Warehousing PC-I will be developed based on assessment results</p> <p>iii. GHSC-PSM will provide technical assistance to DOH KP in developing a costed distribution plan from CW&S directly to LHSs and CMWs and will share Sindh distribution models with DOH KP for reference</p> <p>iv. GHSC-PSM will also assist DOH KP in developing a one year costed distribution plan for tracer MNCH products</p> <p>v. Inter donor conference on determining warehousing needs for next 30-40 years will be organized by DOH KP</p> <p>vi. Follow-up meetings with DOH and PWD will be arranged on assessing immediate transportation requirements including engagement of Third</p>	<p>DOH: Director, Procurement Cell and Director, Implementation</p> <p>PWD: Director, Administration</p> <p>GHSC-PSM: Director, System Strengthening & Field Operations</p> <p>Timeline: For Assessment: 2-3 months For PC-I: 2-3 months (after assessment)</p>

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ANNEXURE- 2: MINUTES OF MEETING OF FIRST QUARTERLY REVIEW MEETING OF PROVINCIAL SUPPLY CHAIN STEERING COMMITTEE

KP Public Health Forecasting & Supply Chain Strategy Activities (2017-18)	First Steering Committee Meeting (November 16, 2017)		Second Steering Committee Meeting (February 20, 2018)		
	Discussions	Agreed Action Points	Updates and Discussions	Agreed Action Points	Responsibility
	<p>regard will be issued by the DGHS Office, KP. Following will be members:</p> <p>DOH:</p> <ul style="list-style-type: none"> i. Director, Procurement Cell, In Chair ii. Prov. Coordinator, LHW Program iii. Prov. Coordinator, MCH Program iv. Director EPI v. Director Nutrition vi. Director Curative vii. DD Procurement MCC <p>PWD:</p> <ul style="list-style-type: none"> viii. Director Technical ix. Director Administration <p>Partners:</p> <ul style="list-style-type: none"> x. GHSC-PSM Technical Representative xi. TRF+ Technical Representative xii. WHO Planning Officer xiii. UNICEF Representative xiv. UNFPA Representative 	<p>quantification modules of FP and MNCH commodities indicated in the KP Strategy; and</p> <p>iii. First meeting of the TWG will be called by the DGHS Office after coordination with all stakeholders. GHSC-PSM project will provide technical and logistics support.</p>		<p>basis of scientific parameters. FASP TWG will determine MNCH products to be integrated with LMIS</p> <p>iii. GHSC-PSM will give orientation on FASP module during next FASP TWG meeting</p>	GHSC-PSM: Director, Quantification, Forecasting and Procurement Timeline: 1-2 months
1. Determine Storage and Space Requirements of Provincial and District Stores	<p>It was discussed and agreed that first detailed assessment will be conducted of the storage and space</p>	<p>i. GHSC-PSM project will assist the DOH and PWD KP in carrying out the assessment and</p>	<p>Data collection tools for storage and space requirement assessment were finalized in the kick off meeting, held on</p>	<p>i. In order to expedite the process, data from two districts of Peshawar and Nowshera will be</p>	DOH, PWD, and PSM Focal Persons:

3

KP Public Health Forecasting & Supply Chain Strategy Activities (2017-18)	First Steering Committee Meeting (November 16, 2017)		Second Steering Committee Meeting (February 20, 2018)		
	Discussions	Agreed Action Points	Updates and Discussions	Agreed Action Points	Responsibility
2. Determine Transportation Needs and Resources including Outsourcing	requirements for integrated warehousing and transportation needs at provincial and regional levels as proposed in the strategy. Outcomes of the warehousing and health commodities transportation assessment and gaps identification will lead the DOH and PWD KP for preparation of a separate PC-1 for financing to meet the costs of storage, space, transportation of health commodities and human resource needs.	<p>ii. determine costs for infrastructure, equipment, operations and human resource and share the report for implementation</p> <p>iii. In light of recommendations of the warehousing and transportation need assessment, DOH will lead on preparation of separate PC-1 as per structure and mechanism, proposed in the Strategy.</p> <p>iv. GHSC-PSM project will provide technical support in preparation of the PC-I</p> <p>v. DOH and PWD will identify relevant officials as TWG from within and outside their departments to assist in preparation of the PC-I. DOH will notify the Warehousing TWG.</p> <p>v. DOH and PWD will also seek opportunities to obtain financing through Development Partners e.g. UNICEF, UNFPA, USAID, DFID,</p>	<p>January 09, 2018 at Peshawar. 20% of data has been received from the suppliers.</p> <p>As a follow-up of aforesaid meeting, GHSC-PSM devised a proposed warehouse racking and pallet system costed plan that was presented in the meeting</p>	<p>ii. acquired, based on which warehousing assessment will be accomplished</p> <p>iii. Warehousing PC-I will be developed based on assessment results</p> <p>iv. GHSC-PSM will provide technical assistance to DOH KP in developing a costed distribution plan from CW&S directly to LHSs and CMWs and will share Sindh distribution models with DOH KP for reference</p> <p>v. GHSC-PSM will also assist DOH KP in developing a one year costed distribution plan for tracer MNCH products</p> <p>v. Inter donor conference on determining warehousing needs for next 30-40 years will be organized by DOH KP</p> <p>vi. Follow-up meetings with DOH and PWD will be arranged on assessing immediate transportation requirements including engagement of Third</p>	<p>DOH: Director, Procurement Cell and Director, Implementation</p> <p>PWD: Director, Administration</p> <p>GHSC-PSM: Director, System Strengthening & Field Operations</p> <p>Timeline: For Assessment: 2-3 months For PC-I: 2-3 months (after assessment)</p>

ANNEXURE- 3: NOMINATION OF DISTRICTS FOR DETERMINING STORAGE AND SPACE REQUIREMENTS FOR KP



DIRECTORATE GENERAL HEALTH SERVICES KHYBER PAKHTUNKHWA PESHAWAR

*All communications should be addressed to the Director General Health Services Peshawar and not to any official by name.
E-Mail Address: dghealthkp2014@gmail.com, Office Ph# 091-9210289, Exchange# 091-9210187, 9210196, Fax # 091-9210290*

No. 831 - 37 / DGHS

Dated 16/03/2018

To,

- 1) The District Health Officer Mardan
- 2) The District Health Officer Tank

Subject: DETERMINING STORAGE AND SPACE REQUIREMENTS OF DISTRICT STORES OF KHYBER PAKHTUNKHWA

With the vision to ensure uninterrupted supplies of health commodities to prevent suffering, save lives and create a bright future for the people of Khyber Pakhtunkhwa, department has approved Khyber Pakhtunkhwa Public Health Forecasting and Supply Chain Strategy. Determining the storage and space requirements of district stores is one of the agreed activity to identify the storage and space requirements for integrated warehousing and transportation needs at provincial and regional levels as proposed in the strategy.

In this context, the GHSC-PSM team will be visiting your district Mardan on **Thursday, March 22, 2018 at 9:00 AM** and district Tank on **Monday, March 26, 2018 at 9:00 AM** to collect data of health commodities and supplies procured and supplied through DHO Office since 2016. The data collection format is also attached with the letter for better understanding and the same will be finalized on visit.

You are hereby intimated to direct your staff to cooperate and provide the relevant information.


**Director General Health Service,
Khyber Pakhtunkhwa, Peshawar.**

Cc:

- 1) Secretary, Health Department, Government of Khyber Pakhtunkhwa.
- 2) Director Procurement, DGHS Office, Khyber Pakhtunkhwa.
- 3) Activity Manager, Health Office, USAID Pakistan, Islamabad.
- 4) Country Director, USAID Global Health Supply Chain Program, Islamabad
- 5) Supply Chain Team Lead-KP, USAID Global Health Supply Chain Program.

ANNEXURE- 4: ANALYSIS OF TANK AND MARDAN DISTRICTS

District Mardan supplies space calculation spreadsheet based on 25 years supplies increment of @ rate of 3 % each year

#	Products	Outer carton size				An estimated yearly stock of district	3 % added on each year of 15 years (total 75%)	Total 25 years estimated Qty	Total # of Cartons	Product total CBM	Per loaded pallet CBM	Product required pallets based on 25 years supplies increment	
		Length (cm)	Width (cm)	Height (cm)	Product carton CBM								
1	Syp Metronidazole 200mg, 60ml	45	23	24	0.02	100	152,600	114,450	267,050	2,671	66.3	2.1	32
2	Syp Citrazine 5mg, 60ml	45	23	24	0.02	100	110,250	82,688	192,938	1,929	47.9	2.1	23
3	Syp Amoxicillin 125mg, 60ml	50	25	24	0.03	100	317,581	238,186	555,767	5,558	166.7	2.1	79
4	Surgical Blade 15, 23, 24	7	5	3	0.00	100	219	164	383	4	0.0	2.1	0
5	Adhesive Tape 7.5cm x 5m	38	32	26	0.03	90	40,460	30,345	70,805	787	24.9	2.1	12
6	ORS	53	50	14	0.04	600	349,125	261,844	610,969	1,018	37.8	2.1	18
7	Tab. Acetylsalicylic Acid 300mg	45	38	30	0.05	18,000	507,500	380,625	888,125	49	2.5	2.1	1
8	X Ray Film 8x10	17	24	28	0.01	500	609	457	1,066	2	0.0	2.1	1
9	X Ray Film 10x12	17	29	34	0.02	500	6,419	4,814	11,233	22	0.4	2.1	1
10	X Ray Film 12x15	17	34	38	0.02	500	40	30	70	0	0.0	2.1	1
11	X Ray Developer	60	60	34	0.12	10	14,282	10,711	24,993	2,499	305.9	2.1	146
12	X Ray Fixer Loczl	60	60	34	0.12	10	284	213	496	50	6.1	2.1	3
13	Cap. Doxicilline 100mg	32	24	10	0.01	1,500	2,592,450	1,944,338	4,536,788	3,025	23.2	2.1	11
14	Inj. Magnesium Sulphate	15	47	21	0.01	500	341	256	597	1	0.0	2.1	1
15	Inj. Oxytocine	15	47	21	0.01	500	1,750	1,313	3,063	6	0.1	2.1	1
16	Syp. Ibuprofen, 200mg, 90ml	44	33	13	0.02	48	172,858	129,644	302,502	6,302	119.0	2.1	57
17	Syp. Paracetamol, 60ml	44	24	23	0.02	100	444,061	333,046	777,106	7,771	188.7	2.1	90
18	Syp. Ferrous sulphate and Folic Acid, 120ml	44	33	13	0.02	48	141,183	105,887	247,070	5,147	97.2	2.1	46
19	Tab. Albendazole, 200mg	48	25	20	0.02	720	236,250	177,188	413,438	574	13.8	2.1	7
20	Syp. Albendazole, 10ml	34	18	22	0.01	150	121,559	91,169	212,727	1,418	19.1	2.1	9
21	Tab. Dimenhydramine, 50mg	47	26	20	0.02	12,000	745,325	558,994	1,304,319	109	2.7	2.1	1
22	Syp Aceylline 120ml	44	33	14	0.02	48	149,450	112,088	261,538	5,449	110.8	2.1	53
23	Tab. Ibuprofen 400mg	46	30	41	0.06	10,250	1,023,750	767,813	1,791,563	175	9.9	2.1	5
24	Inj. Ceftriroxone, 1g	28	30	23	0.02	300	7,875	5,906	13,781	46	0.9	2.1	1
25	Inj. Dexamethasone 1cc	32	20	25	0.02	1,500	624,531	468,398	1,092,930	729	11.7	2.1	6
26	Pyodine Solution 450ml	40	30	19	0.02	20	51,272	38,454	89,725	4,486	102.3	2.1	49
27	Inj Diclofenac Sodium, 75mg	32	43	41	0.06	2,000	309,803	232,352	542,154	271	15.3	2.1	7
28	Tab Amlodipine, 5mg	30	30	26	0.02	4,200	359,993	269,994	629,987	150	3.5	2.1	2
29	Tab Atenolol, 50mg	28	28	25	0.02	4,200	183,750	137,813	321,563	77	1.5	2.1	1
30	Tab Ciprofloxicine, 500mg	30	30	26	0.02	2,100	1,067,290	800,468	1,867,758	889	20.8	2.1	10
31	Cap. Floxatine 20mg	44	32	30	0.04	11,500	43,750	32,813	76,563	7	0.3	2.1	1
32	Cap Omeprazole, 20mg	44	32	30	0.04	11,500	918,750	689,063	1,607,813	140	5.9	2.1	3
33	Tab Amoxicilline + Clavulanic Acid 625mg	48	28	37	0.05	1,800	188,981	141,736	330,716	184	9.1	2.1	4

#	Products	Outer carton size				An estimated yearly stock of district	3 % added on each year of 15 years (total 75%)	Total 25 years estimated Qty	Total # of Cartons	Product total CBM	Per loaded pallet CBM	Product required pallets based on 25 years supplies increment	
		Length (cm)	Width (cm)	Height (cm)	Product carton CBM								
34	Safiviolet 2/0 catgut 24mm	38	38	30	0.04	1,080	95,375	71,531	166,906	155	6.7	2.1	3
35	Safiviolet 2/0 catgut 40mm	38	38	30	0.04	1,080	17,077	12,807	29,884	28	1.2	2.1	1
36	Safiviolet 2/0 catgut 430mm	38	38	30	0.04	1,080	8,265	6,199	14,464	13	0.6	2.1	1
37	Disposable Syringe 5CC	62	42	58	0.15	2,400	2,133,880	1,600,410	3,734,290	1,556	235.0	2.1	112
38	Bucket Plastic 12 ltr	38	38	93	0.13	24	683	512	1,194	50	6.7	2.1	3
39	Sweep Liquid 1ltr	28	21	23	0.01	12	683	512	1,194	100	1.3	2.1	1
40	Mops	12	12	120	0.02	6	683	512	1,194	199	3.4	2.1	2
41	Brooms, 50KG	60	62	124	0.46	50	4,200	3,150	7,350	147	67.8	2.1	32
42	Inf. Ringer Lactate 1000ml	42	40	23	0.04	20	350	263	613	31	1.2	2.1	1
43	Cotrimoxazole Vaginal Cream with Applicator	35	27	25	0.02	180	86,545	64,908	151,453	841	19.9	2.1	9
44	Tab Glabinclamide, 5mg	17	49	26	0.02	8,000	66,500	49,875	116,375	15	0.3	2.1	1
45	Tab Metformine, 500mg	17	49	26	0.02	8,000	43,750	32,813	76,563	10	0.2	2.1	1
46	Tab Drotavarine 40mg	27	35	47	0.04	5,600	588,000	441,000	1,029,000	184	8.2	2.1	4
47	Inj Lignocaine 10ml	22	44	22	0.02	400	91,000	68,250	159,250	398	8.5	2.1	4
48	Nilstate 30ml Drops	29	19	23	0.01	50	80,500	60,375	140,875	2,818	35.7	2.1	17
49	Disposable Gloves	56	28	34	0.05	400	21,000	15,750	36,750	92	4.9	2.1	2
50	Tab Ciprofloxicine, 250mg	45	33	29	0.04	8,000	420,000	315,000	735,000	92	4.0	2.1	2
51	Tab Levofloxacin, 250mg	45	33	29	0.04	8,000	536,655	402,491	939,146	117	5.1	2.1	2
52	Tab Amlodipine, 10mg	17	49	26	0.02	8,000	245,000	183,750	428,750	54	1.2	2.1	1
53	Tab Levofloxacin, 500mg	42	34	21	0.03	2,000	1,002,750	752,063	1,754,813	877	26.3	2.1	13
54	Inj Hydrocortisone, 100mg	52	34	17	0.03	200	17,103	12,827	29,930	150	4.5	2.1	2
55	Inj Ceftriaxone 1g	30	30	29	0.03	144	48,825	36,619	85,444	593	15.5	2.1	7
56	Inj Ceftriaxone 500mg	30	30	29	0.03	144	9,625	7,219	16,844	117	3.1	2.1	1
57	Syp Cephradine 250mg/5ml	57	27	27	0.04	100	32,200	24,150	56,350	564	23.4	2.1	11
58	Inj Hydrocortisone, 250mg	32	48	19	0.03	220	22,685	17,014	39,699	180	5.3	2.1	3
59	Syp Clarithromycine, 250 mg	34	27	25	0.02	46	10,500	7,875	18,375	399	9.2	2.1	4
60	IV Set	57	44	36	0.09	600	55,370	41,528	96,898	161	14.6	2.1	7
61	Syp Mebandazole 100mg	20	25	49	0.02	120	14,000	10,500	24,500	204	5.0	2.1	2
62	Tab Metronidazole 400mg	44	31	28	0.04	864	931,875	698,906	1,630,781	1,887	72.1	2.1	34
63	Inj Oxytocine	15	47	21	0.01	500	97,650	73,238	170,888	342	5.1	2.1	2
64	Safe delivery Kit	34	25	7	0.01	1	33,793	25,344	59,137	59,137	351.9	2.1	168
66	Tab Furosamide 40mg	27	35	47	0.04	5,600	15,750	11,813	27,563	5	0.2	2.1	1
67	Tab Alprazolam 0.25mg	17	49	26	0.02	8,000	31,500	23,625	55,125	7	0.1	2.1	1
68	Tobramycin eye drops	17	33	12	0.01	50	1,400	1,050	2,450	49	0.3	2.1	1
69	Cream Hydrocortisone, 10g	35	27	25	0.02	180	7,000	5,250	12,250	68	1.6	2.1	1
70	Tab. Meloxicame 15mg	54	34	22	0.04	12,000	17,500	13,125	30,625	3	0.1	2.1	1
71	Inj Cephadrine 1g + Dist Water 5cc	28	30	23	0.02	300	10,500	7,875	18,375	61	1.2	2.1	1
72	Tab Glimipride 2mg	54	34	22	0.04	12,000	35,000	26,250	61,250	5	0.2	2.1	1
73	Tab Glimipride 5mg	54	34	22	0.04	12,000	156,100	117,075	273,175	23	0.9	2.1	1
74	Inj Ciprofloxacin, 200mg, 100ml	45	39	14	0.02	80	24,675	18,506	43,181	540	13.3	2.1	6
75	Tab Salbutamol 4mg	29	29	25	0.02	1,050	140,000	105,000	245,000	233	4.9	2.1	2
76	Tab Salbutamol 2mg	29	29	25	0.02	1,050	8,750	6,563	15,313	15	0.3	2.1	1

#	Products	Outer carton size				An estimated yearly stock of district	3 % added on each year of 15 years (total 75%)	Total 25 years estimated Qty	Total # of Cartons	Product total CBM	Per loaded pallet CBM	Product required pallets based on 25 years supplies increment	
		Length (cm)	Width (cm)	Height (cm)	Product carton CBM								
77	Inj Levofloxacin, 500mg, 100ml	29	24	29	0.02	50	2,013	1,509	3,522	70	1.4	2.1	1
78	Inj Dextrose 5%, 1000ml	42	40	23	0.04	20	2,888	2,166	5,053	253	9.8	2.1	5
79	Tab Cetirizine 10mg	17	49	26	0.02	8,000	369,250	276,938	646,188	81	1.7	2.1	1
80	Silk 30mm	50	32	27	0.04	100	1,974	1,481	3,455	35	1.5	2.1	1
81	Inj Iron Sorbitol	28	30	23	0.02	300	15,750	11,813	27,563	92	1.8	2.1	1
82	Tab Mefenamic Acid 250mg	55	26	24	0.03	10,000	630,000	472,500	1,102,500	110	3.8	2.1	2
83	Inj Lidocaine	8	6	13	0.00	50	15,750	11,813	27,563	551	0.3	2.1	1
84	Inj Lignocaine + Adrenaline 10ml	28	30	23	0.02	300	26,250	19,688	45,938	153	3.0	2.1	1
85	Tab Diclofenac Sodium, 50mg	55	26	24	0.03	10,000	3,354,400	2,515,800	5,870,200	587	20.1	2.1	10
86	Tab Mefenamic Acid 500mg	38	34	20	0.03	5,000	507,500	380,625	888,125	178	4.6	2.1	2
87	Cotton wool, 200g	15	50	92	0.07	200	69,479	52,109	121,587	608	41.9	2.1	20
89	Tab Erythromycine 500mg	17	49	26	0.02	8,000	45,500	34,125	79,625	10	0.2	2.1	1
90	Syp Aluminium Hydroxide + Smithicone, 120ml	44	33	14	0.02	48	4,200	3,150	7,350	153	3.1	2.1	1
91	Inj Cephradine 500mg + Dist Water 5cc	28	30	23	0.02	300	5,250	3,938	9,188	31	0.6	2.1	1
92	Tab Ranitidine 150mg	17	49	26	0.02	8,000	35,000	26,250	61,250	8	0.2	2.1	1
93	Rexine Best Quality meter	120	15	15	0.03	1	1,925	1,444	3,369	91.0	2.1	43	
94	Inj Nalbuphene, 10 mg	28	30	23	0.02	300	3,500	2,625	6,125	20	0.4	2.1	1
97	Inj Drotavarine 40mg	38	30	17	0.02	1,000	14,000	10,500	24,500	25	0.5	2.1	1
98	Cap Fluconazole 150mg	17	49	26	0.02	8,000	4,375	3,281	7,656	1	0.0	2.1	1
99	Syp Aminophylline cough, 120 ml	44	33	14	0.02	48	88,760	66,570	155,330	3,236	65.8	2.1	31
100	Butterfly Needle G22	53	30	45	0.07	2,000	4,375	3,281	7,656	4	0.3	2.1	1
101	Butterfly Needle G18	53	30	45	0.07	2,000	8,750	6,563	15,313	8	0.5	2.1	1
102	Tab Amoxicilline + Clavulanic Acid 375mg	48	28	37	0.05	1,800	105,021	78,766	183,787	102	5.1	2.1	2
103	Inj Jectosol Plus	28	30	23	0.02	300	1,750	1,313	3,063	10	0.2	2.1	1
104	Betamethosone 10mg Ointment	43	26	26	0.03	330	3,850	2,888	6,738	20	0.6	2.1	1
105	Cap Azithromycine 250mg	31	38	40	0.05	1,000	42,000	31,500	73,500	74	3.5	2.1	2
106	Syp Azithromycine 200mg	44	33	14	0.02	48	16,975	12,731	29,706	619	12.6	2.1	6
108	Cap Cefixime 400mg	31	38	40	0.05	1,000	35,000	26,250	61,250	61	2.9	2.1	1
109	Syp Domperidone 60ml	26	26	25	0.02	50	8,750	6,563	15,313	306	5.2	2.1	2
110	Syp Amoxicilline 250mg, 60ml	51	26	34	0.05	100	115,490	86,617	202,107	2,021	91.1	2.1	43
111	Disposable Syringe 3CC	62	42	58	0.15	2,400	68,250	51,188	119,438	50	7.5	2.1	4
112	Disposable Syringe 50CC	62	42	58	0.15	500	2,100	1,575	3,675	7	1.1	2.1	1
114	Inj Gentamycin 80mg/2ml	25	26	26	0.02	1,200	105,000	78,750	183,750	153	2.6	2.1	1
115	Inj Ranitidine 150mg	14	12	6	0.00	100	3,500	2,625	6,125	61	0.1	2.1	0
116	Tab Clarithromycin 250mg	17	49	26	0.02	5,000	5,250	3,938	9,188	2	0.0	2.1	1
117	Tab Clarithromycin 500mg	17	49	26	0.02	5,000	5,250	3,938	9,188	2	0.0	2.1	1
118	Tab Montelukast 5mg	21	30	25	0.02	1,000	105,000	78,750	183,750	184	2.9	2.1	1
119	Inj Lincomycin 600mg/2ml	25	26	26	0.02	1,200	2,975	2,231	5,206	4	0.1	2.1	1
120	Cap Azithromycine 500mg	26	27	34	0.02	960	17,500	13,125	30,625	32	0.8	2.1	1
121	Tab Carbamazepine 200mg	17	49	26	0.02	5,000	10,500	7,875	18,375	4	0.1	2.1	1
123	Tab Enticaver 0.5mg	17	49	26	0.02	8,000	8,750	6,563	15,313	2	0.0	2.1	1

#	Products	Outer carton size				An estimated yearly stock of district	3 % added on each year of 15 years (total 75%)	Total 25 years estimated Qty	Total # of Cartons	Product total CBM	Per loaded pallet CBM	Product required pallets based on 25 years supplies increment
		Length (cm)	Width (cm)	Height (cm)	Product carton CBM							
126	Foam Mattress 3x3x4	193	90	10	0.17	1	35	26	61	10.6	2.1	5
128	Tab Diclofenac Sodium, 50mg	44	39	30	0.05	40,000	350,000	262,500	612,500	15	0.8	2.1
129	Svp. Dimenhydramine, , 60ml	45	24	23	0.02	100	9,100	6,825	15,925	159	4.0	2.1
130	Inj Pheniramine maleate, 22.7mg 2ml	38	25	34	0.03	3,000	116,200	87,150	203,350	68	2.2	2.1
131	Xynosine Nasal spray xylometazoline	44	30	38	0.05	400	9,081	6,811	15,891	40	2.0	2.1
132	Dettol	36	28	27	0.03	12	6,545	4,909	11,454	954	26.0	2.1
133	Tab Pheniramine maleate, 4mg	32	23	30	0.02	2,100	990,500	742,875	1,733,375	825	18.2	2.1
134	Oint Polyfax	63	28	27	0.05	400	38,500	28,875	67,375	168	8.0	2.1
135	Svp Salbutamol 60ml	30	20	24	0.01	56	40,394	30,295	70,689	1,262	18.2	2.1
136	Polyfax eye ointment	35	20	39	0.03	480	11,813	8,859	20,672	43	1.2	2.1
137	Cap cephadrine 500mg	34	45	26	0.04	36,000	87,500	65,625	153,125	4	0.2	2.1
138	Adhesive Tape paper	29	25	25	0.02	360	1,890	1,418	3,308	9	0.2	2.1
139	Permethrine 30gm	18	30	40	0.02	112	1,225	919	2,144	19	0.4	2.1
140	Amoxicilline 500mg, Cap	18	25	26	0.01	2,080	249,025	186,769	435,794	210	2.5	2.1
141	Plumpy Nut	39	19	28	0.02	150	157,500	118,125	275,625	1,838	38.1	2.1
142	Tab Alprazolam 0.5mg	18	31	49	0.03	4,000	229,600	172,200	401,800	100	2.7	2.1
143	IV Canulla	40	87	30	0.10	800	83,545	62,659	146,204	183	19.1	2.1
144	Inj Amikacin 250mg/2ml	24	23	23	0.01	256	8,750	6,563	15,313	60	0.8	2.1
145	Inj Amikacin 500mg/2ml	24	23	23	0.01	256	8,750	6,563	15,313	60	0.8	2.1
146	Tab Paracetamol 500mg	17	49	26	0.02	8,000	1,016,050	762,038	1,778,088	222	4.8	2.1
147	Svp Cotrimoxazole	31	23	23	0.02	70	13,125	9,844	22,969	328	5.4	2.1
148	Svp Cefixime 100mg/5ml, 60ml	38	29	21	0.02	70	4,375	3,281	7,656	109	2.5	2.1
149	Tab Loratadine 10mg	36	36	26	0.03	12,000	262,500	196,875	459,375	38	1.3	2.1
150	Metronidazole 200mg	43	25	32	0.03	10,800	175,000	131,250	306,250	28	1.0	2.1
151	Cap Amoxicilline 250mg	43	22	40	0.04	9,000	157,500	118,125	275,625	31	1.2	2.1
152	Tab Cotrimoxazole	42	52	44	0.10	16,000	87,500	65,625	153,125	10	0.9	2.1
153	Tab Bromazepam 3mg	41	23	13	0.01	3,000	175,000	131,250	306,250	102	1.3	2.1
154	Tab Folic Acid	36	36	26	0.03	12,000	16,660	12,495	29,155	2	0.1	2.1
155	Inf Dextrose Saline 5%+..45%	42	40	23	0.04	20	4,725	3,544	8,269	413	16.0	2.1
156	Inf Normal Saline .9% 500ml	36	29	23	0.02	20	3,868	2,901	6,768	338	8.1	2.1
157	Inf; Monital 20& 500ml	36	29	23	0.02	20	525	394	919	46	1.1	2.1
158	Cotton Bandage Type-2	31	17	3	0.00	12	93,440	70,080	163,519	13,627	21.5	2.1
159	Inj; Tranexamic Acid 500mg	30	20	24	0.01	400	10,588	7,941	18,528	46	0.7	2.1
160	Tab; Amoxcilline Igm	43	22	40	0.04	5,000	17,903	13,427	31,329	6	0.2	2.1
161	Inj; Anti Snak Venom Sera 30ml	14	11	14	0.00	10	9	7	15	2	0.0	2.1
162	Tab; Pyridoxine Hcl 50mg	30	41	41	0.05	675	875	656	1,531	2	0.1	2.1
163	Disposable face mask	56	28	34	0.05	400	1,003	752	1,755	4	0.2	2.1
174	Cefuroxime 125mg	38	29	21	0.02	70	29,750	22,313	52,063	744	17.2	2.1
175	Svp Cephadrine 250mg/5ml	44	33	14	0.02	48	29,750	22,313	52,063	1,085	22.0	2.1
176	Tab; Famotadine 40mg	26	27	34	0.02	960	350,000	262,500	612,500	638	15.2	2.1
177	Betamethasone lotion	55	40	48	0.11	400	23,800	17,850	41,650	104	11.0	2.1
178	Inj; Amakacin Sulphate 500mg/2ml	30	20	24	0.01	400	4,375	3,281	7,656	19	0.3	2.1
179	Inj; Amakacin Sulphate 250mg/2ml	30	20	24	0.01	400	4,375	3,281	7,656	19	0.3	2.1

#	Products	Outer carton size				An estimated yearly stock of district	3 % added on each year of 15 years (total 75%)	Total 25 years estimated Qty	Total # of Cartons	Product total CBM	Per loaded pallet CBM	Product required pallets based on 25 years supplies increment	
		Length (cm)	Width (cm)	Height (cm)	Product carton CBM								
180	Cr; Betamethasone + Gent	43	26	26	0.03	330	11,375	8,531	19,906	60	1.8	2.1	1
181	Syrgical Blades - Size 15	7	5	3	0.00	100	11,900	8,925	20,825	208	0.0	2.1	1
182	Syrgical Blades - Size 23	7	5	3	0.00	100	11,900	8,925	20,825	208	0.0	2.1	1
183	Syrgical Blades - Size 24	7	5	3	0.00	100	15,400	11,550	26,950	270	0.0	2.1	1
184	TabMebandazol 500 mg	26	27	34	0.02	960	43,750	32,813	76,563	80	1.9	2.1	1
185	Metranedazol 500mg/100ml	20	25	49	0.02	120	8,750	6,563	15,313	128	3.1	2.1	1
186	Cap Cefuroxime 500 mg	32	24	10	0.01	1,500	257,250	192,938	450,188	300	2.3	2.1	1
187	Inj Tramadol	30	20	24	0.01	400	8,750	6,563	15,313	38	0.6	2.1	0
188	Multivitamin (B Complex)	30	41	41	0.05	675	17,220	12,915	30,135	45	2.2	2.1	1
189	Surgical Gloves	56	28	34	0.05	400	45,500	34,125	79,625	199	10.6	2.1	5
191	RHZE (150+75+400+275)	41	28	43	0.05	8,064	3,041,136	2,280,852	5,321,988	660	32.4	2.1	15
192	RHE (150+75+275)	41	28	43	0.05	12,096	478,632	358,974	837,606	69	3.4	2.1	2
193	RH 150mg (150+75)	20	46	25	0.02	12,096	5,662,440	4,246,830	9,909,270	819	19.3	2.1	9
194	RHZ Disp (75+50+150mg)	43	48	33	0.07	5,040	1,214,724	911,043	2,125,767	422	29.0	2.1	14
195	RH(DISP) (75+50mg)	43	48	33	0.07	5,040	1,024,884	768,663	1,793,547	356	24.5	2.1	12
196	RH(60+60)	20	46	25	0.02	12,096	116,424	87,318	203,742	17	0.4	2.1	1
197	Ing Sterptomycin 1G	76	64	28	0.14	1,500	46,375	34,781	81,156	54	7.3	2.1	3
199	D/Syring 5ml	40	87	30	0.10	500	42,175	31,631	73,806	148	15.4	2.1	7
200	Ethambutol 100mg	84	91	38	0.29	7,000	247,975	185,981	433,956	62	18.1	2.1	9
201	Tab-Ethambutal 400mg	84	91	38	0.29	7,000	2,352	1,764	4,116	1	0.2	2.1	1
202	Tab Isoniazid 300mg	30	41	41	0.05	672	2,352	1,764	4,116	6	0.3	2.1	1
203	Tab-Pyrazinamide 400mg	30	41	41	0.05	672	2,352	1,764	4,116	6	0.3	2.1	1
						Total	41,119,092			165,558	3,235		1,589

District Tank supplies space calculation spreadsheet based on 25 years supplies increment of @ rate of 3 % each year

#	Product	Outer carton size			Product carton CBM	Per carton Qty	An estimated yearly stock of district	3 % added on each year of 25 years (total 75%)	Total 25 years estimated Qty	Total # of Cartons	Product total CBM	Per loaded pallet CBM	Product required pallets based on 25 years supplies increment
		Length (cm)	Width (cm)	Height (cm)									
1	Metronidazole 200mg, 60ml	45	23	24	0.02	100	60,407	45,305	105,712	1,057	26.26	2.1	13
2	Citrazine 5mg, 60ml	45	23	24	0.02	100	20,000	15,000	35,000	350	8.69	2.1	4
3	Amoxicilline 125mg, 60ml	50	25	24	0.03	100	101,400	76,050	177,450	1,775	53.24	2.1	25
4	ORS	53	50	14	0.04	600	40,000	30,000	70,000	117	4.33	2.1	2
5	Cap. Doxicilline 100mg	32	24	10	0.01	1,500	30,000	22,500	52,500	35	0.27	2.1	1
6	Inj, Magnesium Sulphate	15	47	21	0.01	500	300	225	525	1	0.02	2.1	1
7	Inj, Oxytocine	15	47	21	0.01	500	8,400	6,300	14,700	29	0.44	2.1	1
8	Syp. Ibuprofen, 200mg, 90ml	44	33	13	0.02	48	42,000	31,500	73,500	1,531	28.90	2.1	14
9	Syp. Paracetamol, 60ml	44	24	23	0.02	100	90,000	67,500	157,500	1,575	38.25	2.1	18
10	Syp, Ferrous sulphate and Folic Acid, 120ml	44	33	13	0.02	48	60,200	45,150	105,350	2,195	41.43	2.1	20
11	Syp. Albendazole, 10ml	34	18	22	0.01	150	10,000	7,500	17,500	117	1.57	2.1	1
12	Tab. Dimenhydramine, 50mg	47	26	20	0.02	12,000	50,000	37,500	87,500	7	0.18	2.1	1
13	Syp Acefylline 120ml	44	33	14	0.02	48	51,746	38,810	90,556	1,887	38.35	2.1	18
14	Povidine Solution 450ml	40	30	19	0.02	20	3,056	2,292	5,348	267	6.10	2.1	3
15	Inj Diclofenac Sodium, 75mg	32	43	41	0.06	2,000	67,900	50,925	118,825	59	3.35	2.1	2
16	Tab Atenolol, 50mg	28	28	25	0.02	4,200	50,000	37,500	87,500	21	0.41	2.1	1
17	Tab Ciprofloxicine, 500mg	30	30	26	0.02	2,100	200,000	150,000	350,000	167	3.90	2.1	2
18	Cap Omeprazole, 20mg	44	32	30	0.04	11,500	500,000	375,000	875,000	76	3.21	2.1	2
19	Safiviolet 2/0 catgut 24mm	38	38	30	0.04	1,080	200	150	350	0	0.01	2.1	0
20	Disposable Syringe 5CC	62	42	58	0.15	2,400	181,300	135,975	317,275	132	19.97	2.1	10
21	Cotrimoxazole Vaginal Cream with Applicator	35	27	25	0.02	180	1,512	1,134	2,646	15	0.35	2.1	1
22	Nilstate 30ml Drops	29	19	23	0.01	50	3,000	2,250	5,250	105	1.33	2.1	1
24	Tab Levofloxicine, 250mg	45	33	30	0.04	11,500	350,000	262,500	612,500	53	2.37	2.1	1
25	Inj Hydrocortisone, 100mg	52	34	17	0.03	200	288	216	504	3	0.08	2.1	1
26	Inj Ceftriaxone 500mg	30	30	29	0.03	144	20,000	15,000	35,000	243	6.34	2.1	3
27	Syp Clarithromycine, 250 mg	34	27	25	0.02	46	6,056	4,542	10,598	230	5.29	2.1	3
28	IV Set	57	44	36	0.09	600	45,600	34,200	79,800	133	12.01	2.1	6
29	Tab Metronidazole 400mg	44	31	28	0.04	864	161,400	121,050	282,450	327	12.49	2.1	6
30	Inj Oxytocine	15	47	21	0.01	500	56,300	42,225	98,525	197	2.92	2.1	1
31	Safe delivery Kit	34	25	7	0.01	1	2,050	1,538	3,588	3,588	21.35	2.1	10
32	Inj Ciprofloxicine, 200mg, 100ml	45	39	14	0.02	80	2,000	1,500	3,500	44	1.07	2.1	1
33	Tab Salbutamol 4mg	29	29	25	0.02	1,050	200,000	150,000	350,000	333	7.01	2.1	3
34	Inj Dextrose 5%, 1000ml	42	40	23	0.04	20	1,000	750	1,750	88	3.38	2.1	2
35	Silk 30mm	50	32	27	0.04	100	200	150	350	4	0.15	2.1	1
36	Tab Mefenamic Acid 250mg	55	26	24	0.03	10,000	900,000	675,000	1,575,000	158	5.41	2.1	3
37	Inj Lidocaine	8	6	13	0.00	50	140	105	245	5	0.00	2.1	1
38	Tab Diclofenac Sodium, 50mg	55	26	24	0.03	10,000	423,800	317,850	741,650	74	2.55	2.1	1
39	Tab Mefenamic Acid 500mg	38	34	20	0.03	5,000	300,000	225,000	525,000	105	2.71	2.1	1
40	Cotton wool, 200g	15	50	92	0.07	200	2,000	1,500	3,500	18	1.21	2.1	1
41	Syp Aluminium Hydroxide + Smithicone, 120ml	44	33	14	0.02	48	30,000	22,500	52,500	1,094	22.23	2.1	11

#	Product	Outer carton size			Product carton CBM	Per carton Qty	An estimated yearly stock of district	3 % added on each year of 25 years (total 75%)	Total 25 years estimated Qty	Total # of Cartons	Product total CBM	Per loaded pallet CBM	Product required pallets based on 25 years supplies increment
		Length (cm)	Width (cm)	Height (cm)									
42	Inj Drotavarine 40mg	38	30	17	0.02	1,000	10,000	7,500	17,500	18	0.34	2.1	1
43	Tab Amoxicilline + Clavulanic Acid 375mg	40	30	20	0.02	1,440	102,100	76,575	178,675	124	2.98	2.1	1
44	Betamethosone 10mg Ointment	43	26	26	0.03	330	3,000	2,250	5,250	16	0.46	2.1	1
45	Syp Domperidone 60ml	26	26	25	0.02	50	21,597	16,198	37,795	756	12.77	2.1	6
46	Syp Amoxicilline 250mg, 60ml	51	26	34	0.05	100	65,900	49,425	115,325	1,153	51.99	2.1	25
47	Disposable Syringe 3CC	67	40	60	0.16	2,400	100,000	75,000	175,000	73	11.73	2.1	6
48	Inj Ranitidine 150mg	14	12	6	0.00	100	10,000	7,500	17,500	175	0.18	2.1	1
49	Oint Polyfax	63	28	27	0.05	400	508,200	381,150	889,350	2,223	105.89	2.1	50
50	Inf. Ringer Lactate 500ml	36	29	23	0.02	20	2,000	1,500	3,500	175	4.20	2.1	2
51	Tab Pheniramine maleate, 4mg	32	23	30	0.02	2,100	500,000	375,000	875,000	417	9.20	2.1	4
52	Syp Salbutamol 60ml	30	20	24	0.01	56	9,200	6,900	16,100	288	4.14	2.1	2
53	Polyfax eye ointment	35	20	39	0.03	480	35,000	26,250	61,250	128	3.48	2.1	2
54	Amoxicilline 500mg, Cap	18	25	26	0.01	2,080	208,400	156,300	364,700	175	2.05	2.1	1
55	IV Canulla	40	87	30	0.10	800	14,060	10,545	24,605	31	3.21	2.1	2
56	Tab Paracetamol 500mg	17	49	26	0.02	8,000	997,400	748,050	1,745,450	218	4.73	2.1	2
57	Syp Cotrimoxazole	31	23	23	0.02	70	80,000	60,000	140,000	2,000	32.80	2.1	16
58	Loratadine	36	36	26	0.03	12,000	300,000	225,000	525,000	44	1.47	2.1	1
59	Cap Amoxicilline 250mg	43	22	40	0.04	9,000	855,400	641,550	1,496,950	166	6.29	2.1	3
60	Tab Cotrimoxazole	42	52	44	0.10	16,000	900,000	675,000	1,575,000	98	9.46	2.1	5
61	Tab Folic Acid	44	40	28	0.05	20,000	78,000	58,500	136,500	7	0.34	2.1	1
62	Syp Cefixime 200mg/5ml, 30ml	38	28	20	0.02	70	9,000	6,750	15,750	225	4.79	2.1	2
63	Tab Multi vitamine	32	43	14	0.02	300,000	19,360	14,520	33,880	0	0.00	2.1	1
64	Chloramphenicol Eye Drops	21	16	18	0.01	100	10,000	7,500	17,500	175	1.06	2.1	1
65	Dexamethasone Eye Drops	21	16	18	0.01	100	10,000	7,500	17,500	175	1.06	2.1	1
66	Syp. Paracetamol, 60ml	31	21	22	0.01	70	28,400	21,300	49,700	710	10.17	2.1	5
67	Lederplex (Vitamin B Complex Srup)	32	43	14	0.02	48	17,780	13,335	31,115	648	12.49	2.1	6
68	Inj Anti Rabic Vaccine	14	11	14	0.00	10	1,011	758	1,769	177	0.38	2.1	1
69	Inf Normal 0.9% 1000ml	42	34	25	0.04	20	200	150	350	18	0.62	2.1	1
70	Betamethosone 20ml Lotion	42	34	25	0.04	360	5,000	3,750	8,750	24	0.87	2.1	1
71	Syp Amoxicilline + Clav Acid 156.25mg, 60ml	25	24	25	0.02	40	8,000	6,000	14,000	350	5.25	2.1	3
72	Permethrine Lotion 5% 60ml	27	23	14	0.01	55	10,000	7,500	17,500	318	2.77	2.1	1
73	Adrenaline 10ml	12	12	5	0.00	100	200	150	350	4	0.00	2.1	1
74	Metronidazole infusion 100ml	45	38	13	0.02	80	2,000	1,500	3,500	44	0.97	2.1	1
75	Tranexamic Inj 500mg	29	20	23	0.01	400	200	150	350	1	0.01	2.1	1
76	Syp Ibuprofen 100mg 60ml	41	30	12	0.01	48	10,000	7,500	17,500	365	5.38	2.1	3
77	Syp Broxol 120ml (Cough Syp)	42	33	14	0.02	48	7,000	5,250	12,250	255	4.95	2.1	2
78	Syp Domperidone 120ml	26	26	25	0.02	50	20,000	15,000	35,000	700	11.83	2.1	6
79	Unicef Pakistan Health Kit	60	40	48	0.12	1	108	81	189	189	21.77	2.1	10
80	Cotton Bandage	31	17	3	0.00	12	14,000	10,500	24,500	2,042	3.23	2.1	2
81	Pregnancy Kit	34	25	7	0.01	1	2,050	1,538	3,588	3,588	21.35	2.1	10
82	Cotton Roll (400GM)	30	80	160	0.38	200	843	632	1,475	7	2.83	2.1	1
83	Drips with Drip Set	42	40	23	0.04	20	14,060	10,545	24,605	1,230	47.54	2.1	23

#	Product	Outer carton size			Product carton CBM	Per carton Qty	An estimated yearly stock of district	3 % added on each year of 25 years (total 75%)	Total 25 years estimated Qty	Total # of Cartons	Product total CBM	Per loaded pallet CBM	Product required pallets based on 25 years supplies increment
		Length (cm)	Width (cm)	Height (cm)									
84	Cotrimoxazole Vaginal Tablets with Aplicator (100mg)	35	27	25	0.02	180	10,454	7,841	18,295	102	2.40	2.1	1
86	Acha Mum	51	32	22	0.03	17	39,144	29,358	68,502	4,127	144.42	2.1	69
87	Maamta	24	51	27	0.03	17	75,722	56,792	132,514	7,983	256.39	2.1	122
88	RHZE (150+75+400+275)	41	28	43	0.05	8,064	146,016	109,512	255,528	32	1.55	2.1	1
89	RHE (150+75+275)	41	28	43	0.05	12,096	18,816	14,112	32,928	3	0.13	2.1	1
90	RH 150mg (150+75)	20	46	25	0.02	12,096	351,461	263,596	615,057	51	1.20	2.1	1
91	RHZ Disp (75+50+150mg)	43	48	33	0.07	5,040	35,280	26,460	61,740	12	0.84	2.1	1
92	RH(DISP) (75+50mg)	43	48	33	0.07	5,040	29,232	21,924	51,156	10	0.70	2.1	1
93	RH(60+60)	43	48	33	0.07	5,040	33,264	24,948	58,212	12	0.79	2.1	1
94	RH(60+30)	43	48	33	0.07	5,040	847,384	635,538	1,482,922	294	20.25	2.1	10
95	Ing Sterptomycin 1G	76	64	28	0.14	1,500	2,800	2,100	4,900	3	0.44	2.1	1
97	D/Syring 5ml	40	87	30	0.10	500	2,800	2,100	4,900	10	1.02	2.1	1
98	Ethaabutal 100mg	84	91	38	0.29	7,000	10,900	8,175	19,075	3	0.80	2.1	1
99	Tab-Clarithromyne 250mg	17	49	26	0.02	8,000	5,200	3,900	9,100	1	0.02	2.1	1
100	Tab-Ethambutal 400mg	30	41	41	0.05	672	1,344	1,008	2,352	4	0.18	2.1	1
101	Tab Isonoazid 300mg	30	41	41	0.05	672	1,344	1,008	2,352	4	0.18	2.1	1
102	Tab-Pyrazinamide 400mg	30	41	41	0.05	672	1,344	1,008	2,352	4	0.18	2.1	1
					Total	10,674,229				50,393	1,248		620

ANNEXURE- 5: DETAILED COST ESTIMATIONS - MARDAN & TANK

Starter Unit and Add-on Unit Cost

Warehouse Location	Total number of pallets	Total Sq.Ft	Total Qty of Racks	Starter Unit		Add-on Unit		Total Amount PKR
				QTY 25%	Price PKR	QTY 75%	Price PKR	
Mardan	1,589	16,271	159	40	105,000	119	68,000	12,275,025
Tank	620	6,349	62	16	105,000	47	68,000	4,789,500

Foundation Work of Shed Cost

Warehouse Location	Total number of pallets	Total Sq.Ft	Total Qty of Racks	Foundation Work of Shed			Total Amount PKR
				Unit	Qty (Total Sq. Ft.)	Unit prize	
Mardan	1,589	16,271	159	Per Sq.Ft	15254.4	1350	20,593,440
Tank	620	6,349	62	Per Sq.Ft	5952	1350	8,035,200

Pre-Engineering Building Supply and Installations Cost

Warehouse Location	Total number of pallets	Total Sq.Ft	Total Qty of Racks	Pre - Engineering Building Supply and Installations			Total Amount PKR
				Unit	Qty (Total Sq. Ft.)	Unit prize	
Mardan	1,589	16,271	159	Per Sq.Ft	15,254	3,240	49,424,256
Tank	620	6,349	62	Per Sq.Ft	5,952	3,240	19,284,480

Material Handling Equipment) including High Reach Truck Cost

Warehouse Location	Total number of pallets	Total Sq.Ft	Total Qty of Racks	Material Handling Equipment (including High Reach Trucks)			Total Amount PKR
				Unit	Qty	Unit prize	
Mardan	1,589	16,271	159	Per Pcs.		Lum.Sum	4,500,000
Tank	620	6,349	62	Per Pcs.		Lum.Sum	4,500,000

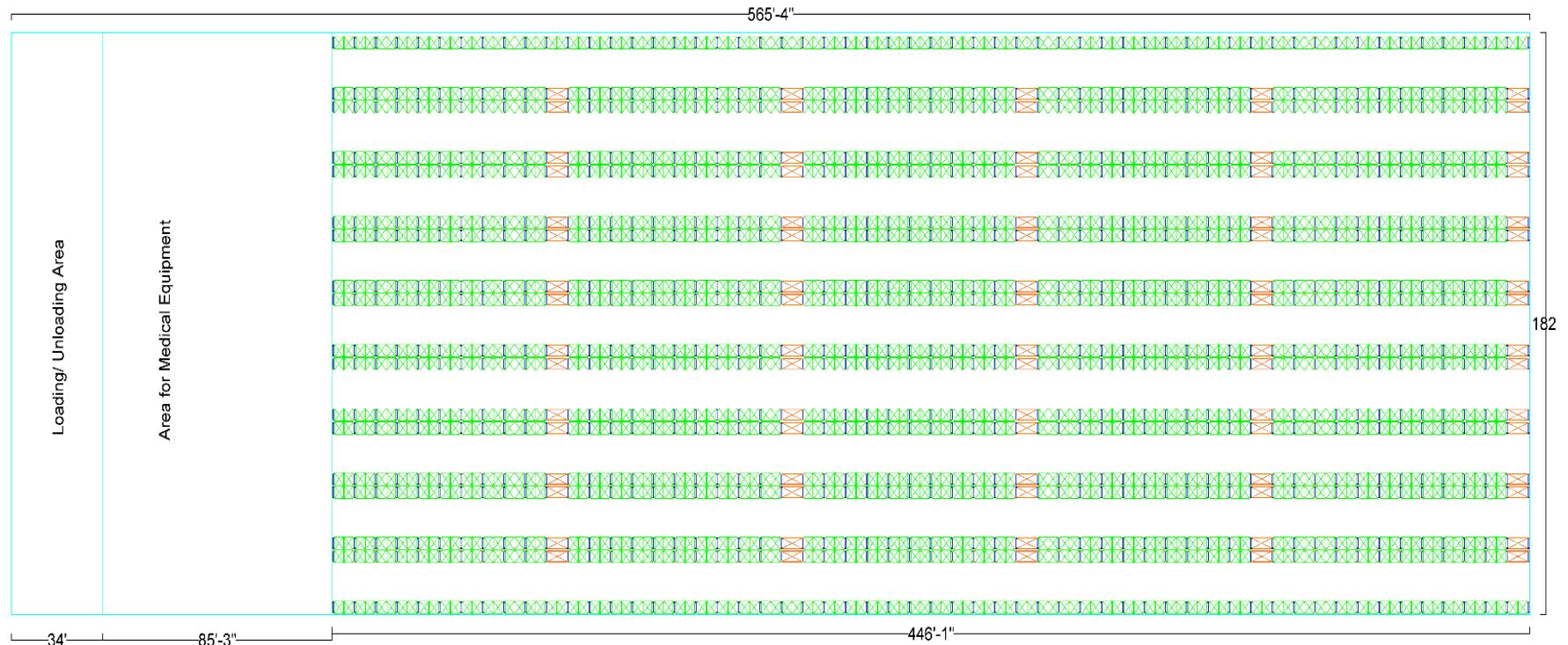
Cost of Pallets

Warehouse Location	Total number of pallets	Total Sq.Ft	Total Qty of Racks	Cost of Plastic Pallets			Total Amount PKR
				Unit	Qty (Total pallets)	Unit prize	
Mardan	1,589	16,271	159	Per Pcs.	1,589	5,000	7,945,000
Tank	620	6,349	62	Per Pcs.	620	5,000	3,100,000

Miscellaneous Cost including Boundary wall, Gates, Security operators, Shades, Hard Surface, Firefighting equipment, Electrical and Plumbing works, Stand by generators, WMS implementation, IT & Office equipment & operation)

Warehouse Location	Total number of pallets	Total Sq.Ft	Total Qty of Racks	Miscellaneous Cost			Total Amount PKR
				Unit	Qty	Unit prize	
Mardan	1,589	16,271	159		Lum. Sum		8,000,000
Tank	620	6,349	62		Lum. Sum		8,000,000

ANNEXURE- 6: LAYOUT PLAN FOR PROVINCIAL / REGIONAL WAREHOUSE



ANNEXURE- 7: DETAILED TECHNICAL REQUIREMENTS - PROVINCIAL AND REGIONAL WAREHOUSES

Provincial Warehouse Peshawar							
Districts	Population (in millions)	CBM	Pallets	Rack area of one loaded pallet (Sq.Ft.)	Total net land required for 1 Rack with 5 level stacking with total of 10 pallets on rack (Sq.Ft)	Area add on for Aisle 100% of racking area, medical equipment, loading/unloading (Sq.Ft)	Total Sq.Ft
Peshawar	4.3	6,470	3,081	32	9,859.63	19,719	29,579
Charsadda	1.6	4,991	2,376	32	7,605	15,209	22,814
Mohmand	0.5	1,248	594	32	1,901	3,802	5,703
Khyber	1.0	2,495	1,188	32	3,802	7,605	11,407
To cater for provincial needs cushion for buffer stock has been kept in provincial warehouse		1,618	770	32	2,465	4,930	7,395
Total	7.4	16,821	8,010	160	25,633	51,265	76,898
Regional Warehouse Malakand							
Districts	Population (in millions)	CBM	Pallets	Rack area of one loaded pallet (Sq.Ft.)	Total net land required for 1 Rack with 5 level stacking with total of 10 pallets on rack (Sq.Ft)	Area add on for Aisle 100% of racking area, medical equipment, loading/unloading (Sq.Ft)	Total Sq.Ft
Malakand	0.7	2,495	1,188	32	3,802	7,605	11,407
Dir Lower	1.4	1,618	770	32	2,465	4,930	7,395
Dir Upper	0.9	2,495	1,188	32	3,802	7,605	11,407
Chitral	0.4	1,248	594	32	1,901	3,802	5,703
Buner	0.9	2,495	1,188	32	3,802	7,605	11,407
Swat	2.3	3,235	1,541	32	4,930	9,860	14,789
Shangla	0.8	2,495	1,188	32	3,802	7,605	11,407
Bajour	1.1	3,743	1,782	32	5,703	11,407	17,110
Total	8.6	19,824.5	9,440		30,209	60,417	90,626
Regional Warehouse Lakki Marwat							
Districts	Population (in millions)	CBM	Pallets	Rack area of one loaded pallet (Sq.Ft.)	Total net land required for 1 Rack with 5 level stacking with total of 10 pallets on rack (Sq.Ft)	Area add on for Aisle 100% of racking area, medical equipment, loading/unloading (Sq.Ft)	Total Sq.Ft
Bannu	1.2	1,618	770	32	2,465	4,930	7,395
DI Khan	1.7	3,235	1,541	32	4,930	9,860	14,789
Tank	0.4	1,248	594	32	1,901	3,802	5,703
Lakki Marwat	0.9	2,495	1,188	32	3,802	7,605	11,407
South Waziristan	0.7	2,495	1,188	32	3,802	7,605	11,407
North Waziristan	0.5	1,248	594	32	1,901	3,802	5,703
Total	5.5	12,338.6	5,876		18,802	37,603	56,405

Regional Warehouse Mardan							
Districts	Population (in millions)	CBM	Pallets	Rack area of one loaded pallet (Sq.Ft.)	Total net land required for 1 Rack with 5 level stacking with total of 10 pallets on rack (Sq.Ft)	Area add on for Aisle 100% of racking area, medical equipment, loading/unloading (Sq.Ft)	Total Sq.Ft
Mardan	2.4	3,235	1,541	32	4,930	9,860	14,789
Nowshera	1.5	3,235	1,541	32	4,930	9,860	14,789
Swabi	1.6	3,235	1,541	32	4,930	9,860	14,789
Total	5.5	9,706	4,622		14,789	29,579	44,368
Regional Warehouse Kohat							
Districts	Population (in millions)	CBM	Pallets	Rack area of one loaded pallet (Sq.Ft.)	Total net land required for 1 Rack with 5 level stacking with total of 10 pallets on rack (Sq.Ft)	Area add on for Aisle 100% of racking area, medical equipment, loading/unloading (Sq.Ft)	Total Sq.Ft
Kohat	1.1	1,618	770	32	2,465	4,930	7,395
Karak	0.7	3,235	1,541	32	4,930	9,860	14,789
Kurram (Upper & Lower)	0.6	3,235	1,541	32	4,930	9,860	14,789
Orakzai	0.3	1,248	594	32	1,901	3,802	5,703
Hangu	0.5	1,248	594	32	1,901	3,802	5,703
Total	3.2	10,583	5,040		16,127	32,254	48,381
Regional Warehouse Mansehra							
Districts	Population (in millions)	CBM	Pallets	Rack area of one loaded pallet (Sq.Ft.)	Total net land required for 1 Rack with 5 level stacking with total of 10 pallets on rack (Sq.Ft)	Area add on for Aisle 100% of racking area, medical equipment, loading/unloading (Sq.Ft)	Total Sq.Ft
Mansehra	1.6	1,618	770	32	2,465	4,930	7,395
Haripur	1.0	2,495	1,188	32	3,802	7,605	11,407
Abbotabad	1.3	1,618	770	32	2,465	4,930	7,395
Battagram	0.5	1,248	594	32	1,901	3,802	5,703
Kohistan	0.8	2,495	1,188	32	3,802	7,605	11,407
Torgar	0.2	624	297	32	951	1,901	2,852
Total	5.3	10,097	4,808		15,386	30,772	46,159

ANNEXURE- 8: DETAILED FUTURISTIC COST ESTIMATION - PROVINCIAL AND REGIONAL WAREHOUSES

Starter Unit & Add-on Unit proposed cost

Warehouse Location	Total number of pallets	Total Sq.Ft	Total Qty of Racks	Starter Unit		Add-on Unit		Total Amount PKR
				QTY 25%	Price PKR	QTY 75%	Price PKR	
Provincial Warehouse Peshawar (4)	8,010	76,898	801	200	105000	601	68,000	61,878,916
Regional Warehouse Malakand (8)	9,440	90,626	944	236	105000	708	68,000	72,925,681
Regional Warehouse Lakki Marwat (6)	5,876	56,405	588	147	105000	441	68,000	45,388,503
Regional Warehouse Mardan (3)	4,622	44,368	462	116	105000	347	68,000	35,702,649
Regional Warehouse Kohat (5)	5,040	48,381	504	126	105000	378	68,000	38,931,267
Regional Warehouse Mansehra (6)	4,808	46,159	481	120	105000	361	68,000	37,143,296

Foundation Work of Shed proposed cost

Warehouse Location	Total number of pallets	Total Sq.Ft	Total Qty of Racks	Foundation Work of Shed			Total Amount PKR
				Unit	Qty (Total Sq. Ft.)	Unit prize	
Provincial Warehouse Peshawar (4)	8,010	76,898	801	Per Sq.Ft	76,898	1,350	103,812,394
Regional Warehouse Malakand (8)	9,440	90,626	944	Per Sq.Ft	90,626	1,350	122,345,220
Regional Warehouse Lakki Marwat (6)	5,876	56,405	588	Per Sq.Ft	56,405	1,350	76,146,925
Regional Warehouse Mardan (3)	4,622	44,368	462	Per Sq.Ft	44,368	1,350	59,897,260
Regional Warehouse Kohat (5)	5,040	48,381	504	Per Sq.Ft	48,381	1,350	65,313,815
Regional Warehouse Mansehra (6)	4,808	46,159	481	Per Sq.Ft	46,159	1,350	62,314,191

Pre-Engineering Building Supply and Installations proposed cost

Warehouse Location	Total number of pallets	Total Sq.Ft	Total Qty of Racks	Pre - Engineering Building Supply and Installations			Total Amount PKR
				Unit	Qty (Total Sq. Ft.)	Unit prize	
Provincial Warehouse Peshawar (4)	8,010	76,898	801	Per Sq.Ft	76,898	3,240	249,149,747
Regional Warehouse Malakand (8)	9,440	90,626	944	Per Sq.Ft	90,626	3,240	293,628,529
Regional Warehouse Lakki Marwat (6)	5,876	56,405	588	Per Sq.Ft	56,405	3,240	182,752,620
Regional Warehouse Mardan (3)	4,622	44,368	462	Per Sq.Ft	44,368	3,240	143,753,424
Regional Warehouse Kohat (5)	5,040	48,381	504	Per Sq.Ft	48,381	3,240	156,753,156
Regional Warehouse Mansehra (6)	4,808	46,159	481	Per Sq.Ft	46,159	3,240	149,554,057

Material Handling Equipment (including High Reach Trucks)

Warehouse Location	Total number of pallets	Total Sq.Ft	Total Qty of Racks	Material Handling Equipment (including High Reach Trucks)			Total Amount PKR
				Unit	Qty	Unit prize	
Provincial Warehouse Peshawar (4)	8,010	76,898	801	Lum Sum			4,500,000
Regional Warehouse Malakand (8)	9,440	90,626	944	Lum Sum			4,500,000
Regional Warehouse Lakki Marwat (6)	5,876	56,405	588	Lum Sum			4,500,000
Regional Warehouse Mardan (3)	4,622	44,368	462	Lum Sum			4,500,000

Warehouse Location	Total number of pallets	Total Sq.Ft	Total Qty of Racks	Material Handling Equipment (including High Reach Trucks)			Total Amount PKR
				Unit	Qty	Unit prize	
Regional Warehouse Kohat (5)	5,040	48,381	504	Lum Sum	4,500,000	4,500,000	
Regional Warehouse Masehra (6)	4,808	46,159	481	Lum Sum	4,500,000	4,500,000	

Proposed cost of plastic pallets

Warehouse Location	Total number of pallets	Total Sq.Ft	Total Qty of Racks	Cost of Plastic Pallets			Total Amount PKR
				Unit	Qty (Total pallets)	Unit prize	
Provincial Warehouse Peshawar (4)	8,010	76,898	801	Per Pcs.	8,010	5000	40,051,078
Regional Warehouse Malakand (8)	9,440	90,626	944	Per Pcs.	9,440	5000	47,201,088
Regional Warehouse Lakkhi Marwat (6)	5,876	56,405	588	Per Pcs.	5,876	5000	29,377,672
Regional Warehouse Mardan (3)	4,622	44,368	462	Per Pcs.	4,622	5000	23,108,511
Regional Warehouse Kohat (5)	5,040	48,381	504	Per Pcs.	5,040	5000	25,198,231
Regional Warehouse Masehra (6)	4,808	46,159	481	Per Pcs.	4,808	5000	24,040,969

Miscellaneous Cost Including Boundary wall, Gates, Security operators, Shades, Hard Surface, Firefighting equipment, Electrical and Plumbing works, Stand by generators, WMS implementation, IT & Office equipment & operations

Warehouse Location	Total number of pallets	Total Sq.Ft	Total Qty of Racks	Miscellaneous Cost			Total Amount PKR
				Unit	Qty	Unit prize	
Provincial Warehouse Peshawar (4)	8,010	76,898	801	Lum. Sum			50,000,000
Regional Warehouse Malakand (8)	9,440	90,626	944	Lum. Sum			50,000,000
Regional Warehouse Lakkhi Marwat (6)	5,876	56,405	588	Lum. Sum			50,000,000
Regional Warehouse Mardan (3)	4,622	44,368	462	Lum. Sum			50,000,000
Regional Warehouse Kohat (5)	5,040	48,381	504	Lum. Sum			50,000,000
Regional Warehouse Masehra (6)	4,808	46,159	481	Lum. Sum			50,000,000



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