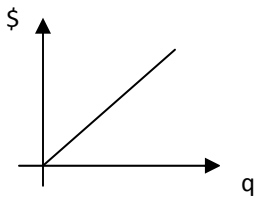
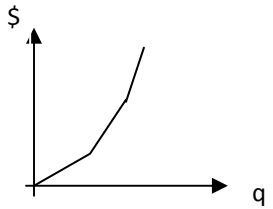
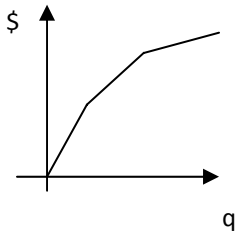
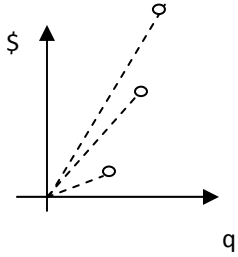
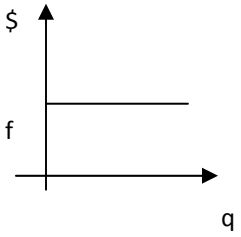
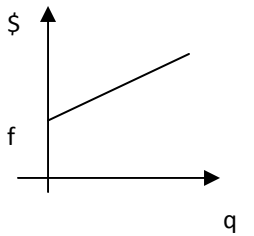
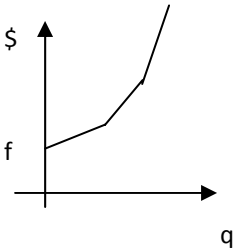
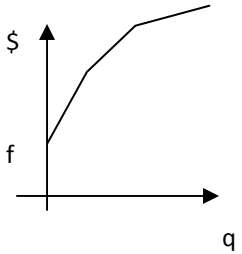
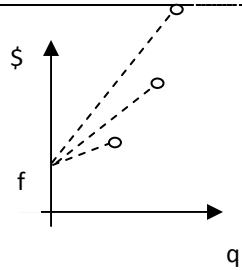
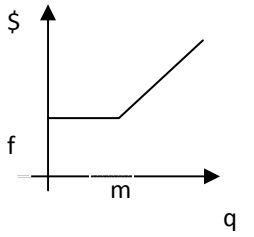
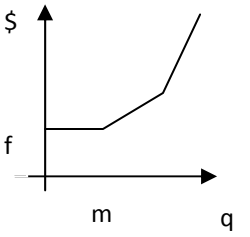
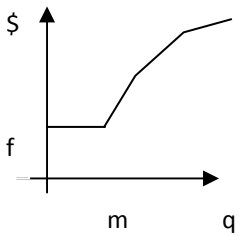
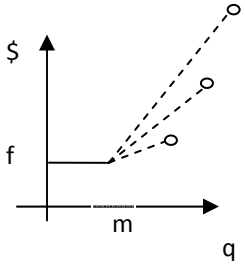
12 October 2011

Rev 3

PRICE STRUCTURES FOR WATER AND SANITATION

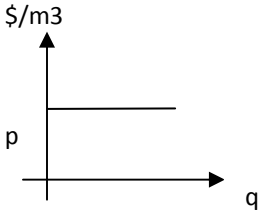
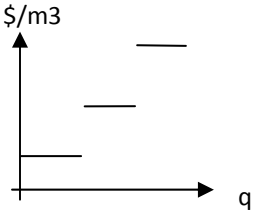
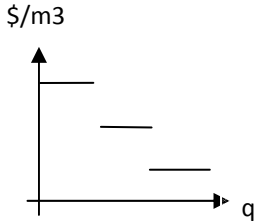
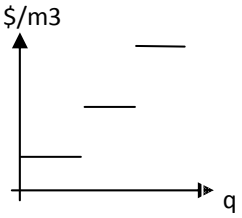
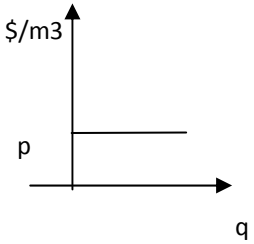
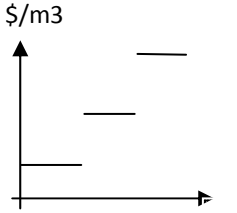
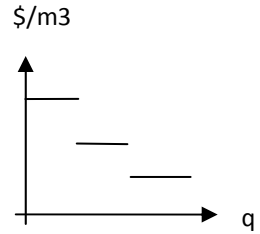
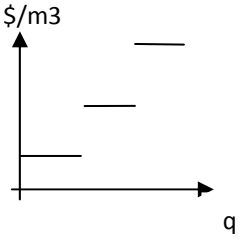
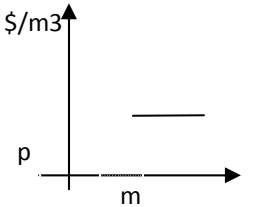
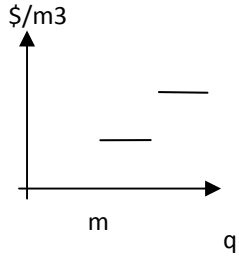
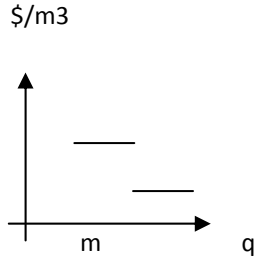
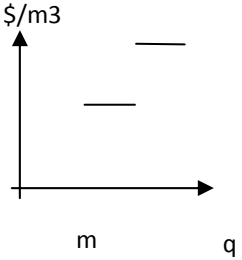
Amounts that have to be paid for a quantity (q) of water provided by an enterprise classified as ISIC 36 and ISIC 37.

TOTALS TO BE PAID (Monetary units, e.g. USD)

TYPE	**A (flat)**	**B** **Constant increase**	**C** **IBT= Increasing Block Tariffs** **("with memory")**	**D** **DBT= Decreasing Block Tariffs**	**E** **VDT= Volume Differentiated Tariffs** **("no memory")**
1. Without fixed part	0				
2. With fixed part					
3. With fixed part and minumum volume					

UNIT PRICES (Monetary Units per volume of water received, e.g. USD/m^3)

Unit prices are the slopes (or derivatives) of the previous curves

TYPE	A (flat)	B Constant increase	C IBT= Increasing Block Tariffs ("with memory")	D DBT= Decreasing Block Tariffs	E VDT= Volume Differentiated Tariffs ("no memory")
4. Without fixed part	0				
5. With fixed part	0				
6. With fixed part and minumum volume					

The unit price is different for each additional quantity of water received, except for case E, for which the unit price is the same for all the quantity received.

GENERAL FORMULAS TO CALCULATE WATER AND SANITATION PRICES

For price structures A, B, C and D, the total payment is equal to:

1) f if the quantity of water used, q, is less than m.
2) $f + \sum p_i * q_i$, where p_i is the unit tariff for each tariff block and q_i is the amount of water used within each block. These tariffs are sometimes called "with memory," since all the tariff blocks below q (quantity of water used) are included ("remembered"). Cases A and B are particular cases of C.

For price structure E ("without memory"), the total payment is equal to:

1) f if the amount of water used, q, is less tan m
2) $f + p_i * q$, where q is the quantity of water used and p_i is the unit tariff for the range in which q is.

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The price structures should be formulated as:

f	for	$0 \leq q \leq m$
p_1	for	$m \leq q \leq r_1$
p_i	for	$r_{i-1} \leq q \leq r_i$

for all i, from i= 2 to i = n, where n is the number of price blocks and r_i determines the quantity limit for block i.