Approach &#65533;Top &#65533;down&#65533; which is also known as &#65533;Initial balance&#65533; is faster, chipper but in same time less accurate than &#65533;Bottom-Up&#65533; approach. Further are described a methodology for managing with water balance using &#65533;top-down&#65533; approach.   Step 1- The system input volume The system input volume should be determined using measurements from all bulk water meters in the system. The accuracy of installed bulk meters should be tested (using portable ultrasonic flow meters). Estimation of the quantities has to be made if system input volumes are not metered. Bulk water meters for water exports to another system have to be identified and checked in order to calculate the amount of water supplied to the system.   Step 2 &#65533; Billed authorised consumption All customers registered in the data base (households, commercial and industrial consumers and public institutions) need to be identified to determine the billed authorised consumption. Annual consumption can be determined by means of regularly meter readings and by analysing metered consumption. Estimation can to be made for billed customers without water meters. It is not recommended to be assign consumption of metered users, because metered tariffs usually create different consumption behaviours than in lump sum. So, average unmetered consumption in households should be determined using individual household monitors for a random sample of users.   Step 3 - Unbilled authorised consumption Unbilled authorised consumption has to be determined by means of an appropriate estimate. First, all consumers have to be identified. These might be households, public institutions, parks, fire services etc. Estimation has to be made like annual consumption

for each consumer group. Also all volumes used by the water utility for some operational purposes (mains cleaning, flushing, etc.) have to be identified. Estimation need to be made if measured values are not available.   Step 4 - The authorised consumption The authorised consumption can be calculated as the sum of Billed and Unbilled Authorised consumption. The total water losses present the difference between System Input volume and Authorised consumption.   Step 5 - Estimation of apparent losses Estimation of apparent losses is very difficult and is subject to a high degree of uncertainty, especially in developing countries. Apparent losses should be split into their components to achieve a better estimate as follow: <ol style="list-style-type: upper-roman;"> The number of illegal connections has to be estimated. This can be done by consulting past records or by performing a survey within a sample district area. The losses incurred during data transfer and handling errors and metering inaccuracies have to be estimated. The number of broken water meters should be detected and recorded during meter readings. Volumes can be assessed by using per capita estimates.   Step 6 &#65533; Real Water losses Finally, the real water losses present the difference between total water losses and apparent losses. The biggest lack of the top-down water balance is that the procedure is subject to errors and uncertainty. It is resulting that this approach very often cannot be applicable in developing countries considering that local water supply companies cannot provide appropriate estimates and enough reliable data. Many calculations using the top-down approach have shown that confidence limits of less than &#65533; 15% of calculated real losses are difficult to achieve, even in the best managed systems (in

developed Western countries). Usually results obtained using this approach have mistake bigger than 30%.