Key note address by Professor Sohan Wijesekera, University of Moratuwa, Sri Lanka

Water and Jobs

1. **World Water Day**

International World Water Day is a day we celebrate water. It is a day to prepare for water management in the future. In 1993, United Nations General Assembly, officially assigned the 22nd of March for this celebration. Since then, in each year, World Water Day highlighted a specific aspect of freshwater. For 2016, the global theme is "Water and jobs".

The UN World Water Development Report of 2016 which will be launched in Geneva today, illustrates that nearly 3 out of 4 jobs of the global workforce amounting to 3.2 billion people are moderately or highly dependent upon access to water and water related services. It quotes that " Water is essential to decent jobs and sustainable development. Water stress and Lack of Decent Work can exacerbate security challenges, force migration and undo the progress made in the fight to eradicate poverty".

Therefore in simple terms, the explanation appears that the theme and its celebrations are to focus on "demonstrating the power, that water has on jobs which will then contribute to transform the lives of people".

2. **Water Jobs**

The majority of water related jobs are in cultivation, livestock, fisheries and drinking water supply, which fall under the category of water users. Since water is scarce, the sectoral competition which increases with the rise of population, gives rise to a priority job which looks after the equitable water allocations among its users.

In the year 1992, the world communities met in Rio de Janeiro, and collectively agreed to practice the Integrated Water Resources Management concepts which recognized that, "water is a finite resource which must be valued, while, it must be managed with the participation of all sectors duly recognizing the role of women". This highlighted an important category of jobs in the area of water resources management. This job category is a special category that not only depends on water but also looks after the interests of water and the interests of the user communities. This is founded on and spearheaded by the technical strengths, the quantifications and threshold values developed for the sustainable use of water. This job category is called "Water Management Engineering" which has the responsibility to engineer the water managers. Today my emphasis will be on this job and its importance to water. I will be addressing their role, contributions and aspirations from the point of view of water.

3. Integrated Water Resources Management

Prior to the commencement of a discussion on this job which is the key to saving all other water related jobs, let us first refresh our awareness on Integrated water resources management and its components and tell why it should be engineered. This has to be done at the beginning especially because the world is now starting to question the nobleness of water resources management principles.

The four core principles of Integrated Water Resources Management established at Rio in 1992 are the pillars of the philosophy called water resources management. This philosophy is well grounded with reasons that no one can dispute. In very simple terms, it rationalizes and highlights the importance of sustainable water management through an integration of water users.

IWRM is a topic which is loved by those who know the value of water resources. IWRM principles and concepts form a key part of water education and it is the most commonly taught topic in the continuing education programs for both technical and non technical water jobs. However, at this point there is a human behaviour that needs highlighting. For all key personnel, water is a very well valued product. For most of us, water management is a critical element within discussion chambers; either at conference presentations, or at key policy-maker dialogs. Among politicians water has demonstrated its value as a vital commodity to win the hearts of general public and it is a widely used topic at public platforms. Most of the time the press gets vibrant because of water and its actions. However, the plain truth is that, even though the "talk" on the value of water could shake the tallest mountain on earth, the implementation does not budge and it remains stationary with a huge inertia.

Almost everywhere in the world, and especially in the developing world, implementing integrated water resources management does not appear as a success story. Even as far back in 2008, many international journals had been carrying articles raising this question. The commonly cited barriers to the implementation of rational water management form a long list. i) Very poor practices often hidden behind the rudimentary water policies, ii) weak regulatory mechanisms, iii) demographic pressures, iv) lack of political will, iv) lack of financial resources, v) lack of human resources, vi) human nature of unwillingness to change, vii) unwillingness to deal with the implications viii) poor Institutional mechanisms, ix)inadequate legal frameworks, and x) uncompromising sectoral monopolies are leading the list. One should note that this list is not in a priority order.

When there are so many serious obstacles, how could water resource managers carryout a meaningful implementation? If water is very precious, then one would expect the systems to iron out the obstacles in no time and then safeguard its water. Yet, to the great disappointment and dismay of "water lovers", most of those who matter, remain either silent or uninterested.

The present need to provide adequate attention to water can be attributed to poor management rather than to unforeseen events. In this case, the characteristics of water is taken advantage of, when water resources are ill treaded through poor management. One is the flexibility of water which prevents anyone from tracing the origins of ill treatment. Then there are "weather gods", who can be easily blamed for sending "higher-than" or "lesser-than" expected quantities, The next is the character of water to flow downstream under gravity. Usually water cannot be seen at the place of a disaster after its occurrence. Whatever remains after surface runoff, would get evaporated or infiltrated.

This provides the opportunity for the decision makers to extend temporary relief to a set of humans, spend finances on minimum levels of rehabilitation, and then suppress any discussion on poor planning by stating that the extreme events are probabilistic. In very simple terms the character of water enables many persons who do not know water technology, to survive in their positions of water resources management even if they do not do justice to the precious water resources.

Then there is another factor. It is the ease at which the decision makers can get the public and the media to dance to their tune. The public acceptance of the meaningless irrational answers given for either water shortages or water related disasters, is either because public is ignorant or because they are incapable or both. In my opinion they are simply helpless.

Therefore even if the "Integrated Water Resources Management Principles" are accepted by consensus and are very rational, the character of "decision makers" and "recipient stakeholders" along with the character of "water resources", make it difficult to practice Integrated Water Resources management for the greater good of a nation. Unless we find a solution to the continuous deterioration of water resources, we would find that a majority of the human livelihoods would be in danger. That is what we should stress today.

4. The need to move forward

What we should not forget is that water is serving us without any complains. Most of the time, water does not indicate any sign of ill treatment it receives. Even if it displays any resentment without intention, still it will not divulge the culprits. Any displeasure demonstrated by water on the drawbacks of water resources management is often drowned by sectoral powerhouses controlled by influential humans.

However, it is important for us to understand that though water is very flexible, it would not provide many early signals pointing to the great threat posed on a vast majority of jobs and livelihoods. At this point we need to carefully evaluate our situation to take urgent action. In many of our watersheds, the immediate need of water resources management is not about finding a way to have water bodies full with crystal clear water. The immediate need is to find solutions for the uphill task of keeping the "present status" static at yesterdays level when both quantity and quality of our water resources are rapidly moving downhill.

In this connection the biggest achievement thus far is that we have realized and have already established the right path to better water resources management. Visionaries around the world have confirmed the choice by indicating the undisputable value of IWRM principles. The biggest worry is that twenty four years had gone by since the Rio, but we are to find that implementation is at a very low ebb.

We need to question ourselves. Though we know that we are facing the right direction are we "moving" in the right direction ?

5. Water Philosophy and Religion

Now at this juncture there should be a critical review. As I had told you earlier, isn't it correct if we state that "Integrated Water Resources Management is a philosophy that lacks implementation interest" ? The term " Lack of Interest" is the key to finding a solution for the lethargy of IWRM implementation. It is necessary to address the lack of interest among the user community and the lack of interest among the institutional stakeholders.

With so many obstacles to overcome, successful implementation and its results may not happen overnight. However, if we pause a while and think, then it is easy to grasp the requirements for successful implementation.

In this connection, "A Religion" should be seen as an analogy for "Integrated Water Resources Management". A religion is a belief with a set of principles concerning i) the nature, ii) cause and ii) purpose. You may note that IWRM is the same with a better worldwide consensus on the principles.

Let us now compare the human behaviour, from the point of view of a religion and from the point of view of integrated water resources management. Religion and Water Resources are both philosophies founded on a solid reasoning. Religions are sufficiently well implemented while the water resources management is still on ground waiting to takeoff.

Let us take our country as the example. We have so many who are religious on their own, meaning that they always live by a religion without a burden to the world. This group usually consist of the elderly and part of the middle aged community. The young and the other part of the middle aged, form a group who need to be either guided by the religious preaching or by legislation. However it is important to note that the legislations on theft, killing, lying, sexuality, alcoholism etc., are to safeguard the minimum requirements of the religious preaching and practice guidelines.

If we turn to water resources management, do we have a dedicated set of people who would voluntarily practice IWRM, irrespective of the set of IWRM teachings? If am true to myself, then the answer is that they are very rare. Then let us ask ourselves, whether we have a set of people who would practice IWRM after following the guidance material of the philosophy, similar to the case of a religion ? What we would have to say is that the guidance notes on

IWRM has a long way to become practice guidelines with adequate quantifications that are "practically meaningful". In case of a religion we ensure that minimums are respected through policing. In case of IWRM only a sporadic monitoring effort can be seen. We have to admit that it is nowhere close to the practice of a religion.

The essence is that, In case of IWRM the available practical guidelines do not carry norms for a staged practical implementation in order to achieve the aspirations of the philosophy, while its legal framework needs more commitment to maintain the minimums. Therefore this calls for a soul searching effort. In case of the 'Religion' we know how to implement the philosophy and to do justice to the mankind. Whereas, in case of 'water' we are still crawling.

6. Regulations and usage norms

In order to enforce water management to the least expected levels we need regulations. For that we need to have usage norms for each water use sector.

The establishment of water use norms requires, i) a good capability to model our watersheds, ii) a thorough understanding on the importance of calibration and verification, iii) the possession of knowledge on conservation of mass and momentum, iv) the skills on the incorporation of probabilities to consider the factors such as climate change risks, along with v) the ability to convert data into meaningful information.

Accordingly, the key point on today's celebrations is that, in order to save our jobs, we need to manage our water resources and in order to manage the water resources the water engineering experts need to establish usage thresholds.

Though overarching statements about water resources management are "philosophically sound", it must be stressed that field level implementation requires targeted measurable thresholds based on a sound technical footing. We must all be aware of the vision behind this concept. Just like in the case of our 'religions', if water engineering community could have the thresholds in place, then the rest of the management personnel can start with the enforcement of minimum requirements for water resources management.

If the technical work reaches maturity to move further ahead than establishing the bare minimum, which would be a level of competence to calibrate and verify hydrologic models for our watersheds. A level of maturity to make the information available for the water lovers, then even if the "policing" gets delayed, the "willing and the caring" water users can follow the philosophy for the greater good of our world.

In Sri Lanka we possess significant water management experience relevant to the present era. There is a wealth of information backed by practice. This will enable the first cut in the documentation of water usage by sectors and move towards water user norms. Once it is done, then it is possible to pursue verification with sectoral water user participation; which in turn, will enable us to reach the milestone of quantitative guidelines for water use. Once the

sectoral guidelines are deep rooted and the managers start working with confidence, then convincing the policy makers to formulate legislations and associated regulations would only be a matter of formality.

7. Conclusion

Once again, the key point is that having a noble philosophy for Integrated Water Resources Management does not automatically lead us to the goal of rational water resources management. We humans form many categories. Some would only require to see the distant light and they would proceed with maturity and identify the colour of the light. Then there is a second category who require a red-light to show warnings and a travel guide or in other words, a set of regulations to achieve the salient milestones. The third category forming the rest requires "herding" along the path and for that policing is a must.

We need to manage our water to safeguard a majority of jobs, but the job that is a must to safeguard the billions of associated jobs is the job of quantifying water and its use. Hence as the starting point, water resources managers need to carryout physics based water auditing for each river basin and its sub catchments and get them independently reviewed.

On this important day, we must celebrate the occasion with the sheer determination that from now on, we will utilise all our power to quantify and value our water in order to save the finite water resource which is the backbone of our livelihoods and the environment.

With this message let me conclude by extending my best wishes for fruitful water resources management with courage, wisdom, and good luck.

Thank you very much.