

WHERE IS THE SCIENCE AND WHERE HOPE?

By Luigi Antonio Pezone

To download water in a marine or lake bottom is sufficient feed, continuously, from a little higher than the surface height, a tube that reaches down to the bottom. The reason why, even with a small hydraulic pressure above the water surface can discharge water into the depths is very simple: the water in the tube balances the external hydrostatic water pressure, therefore, is sufficient minimal energy kinetic to drain the water in the bottom. Based on this reflection, you can have another confirmation of the possibility of producing energy from hydro submerged. In fact, if the water do not get from the outside, but we insert in the tube a small flow of surface water and aspire it from below with a pump, we have even a better effect of the simple submerged exhaust, since, with the delivery of the pump, oriented downwards, move the water in the seabed and simultaneously recall down the entire column of water present in the descent tube, which is fed to infinity. But since the hydrostatic head on the pump it is always present the kinetic energy which develops in the descent tube is much higher than that which is used to drain the water in the bottom. Therefore, charging to the pump only the burden of winning the state of inertia for the displacement of the underlying water volume downwards in the direction of gravity we can insert in the descent tube before or after the pump also a submerged turbine which produces energy for the simple surface water fall as traditional in hydroelectric. These conditions in various ways we can realize the even in the atmospheric environment, producing energy at costs much lower than traditional systems fossil nuclear solar wind and so on for both the initial investment costs both for the production costs. Only the traditional hydropower can be compared to the cost of energy production but without the expense of construction of dams reservoirs conveyance works of the water and without wasting water which continually recycled it oxidizes and automatically cleans. It continues to be a valuable resource for all human needs.

In fact from the plumbing commonly applied and by the Bernoulli law we can be established the following rules.

The head of the pump, expressed in meters of water column in a plant is given by the difference between the total loads possessed by the flowing medium in the outlet sections the pump inlet. $\Delta H = H_{o2} - H_{i1}$; or we can write: $\Delta H = H_B - H_A + (L_1 J_1 + L_2 J_2)$.

Where H_B is the geodetic level of the supply tank H_A is the geodetic level of the suction tank.

In hydraulic lifts made in H_B atmospheric environment it is always superior to H_A , so the above formula is expressed considering $H_B > H_A$. But in hydroelectric submerged H_B does not exist because the water falls only and does not rises to the surface, being the one-way flow due to the fact that the surface water has the same density as that of the bottom therefore the water coming out of the descent tube is exactly equal to that which enters it. There is no reason why the water must be raised, even in small basins: the water above only changes the position, but producing energy during path.

Therefore the prevalence for the pump can be written in the following way $\Delta H = - H_A + (L_1 J_1 + L_2 J_2)$.

Where the $L_1 J_1$ = pressure losses in the suction pipe;

$L_2 J_2$ = It is the pressure drop in the turbine (10m) and the submerged outlet.

For example a descent tube D_n 1000 has a section of 0,785 m² under a hydraulic head of 10 m of water column with a density of 1000 kg / m³ according to the formula of Bernoulli / Torricelli the output speed in the absence of load losses would be about $V = \sqrt{2gh} = 2 * 9.81 * 10 = 14$ m / s which, multiplied by the section we would have a theoretical flow of 10,99 m³ / s.

The total energy lost as heat from this system would be about Kw 1077 (1000 * Q * H / 102) circulating with a throughput and a much lower flow rate than the calculation which is useless to calculate.

If instead we insert immediately after the pump a hydraulic turbine which slows the output speed about 2 m / s at the outlet disperse only 0.20 m of water column ($22 / 2g$) therefore the load losses Total L2 J2 is 10,20 m.

Therefore the capacity of the system would be reduced to 1,57 m³/s (0,785 m²*2);

while the L1 J1 load losses in the piping of 10 m are 0.015 m (from Bazin tables Darcy);

the power produced by the turbine, which uses the energy of surface water location (10m) with a 0.75 yield would be 115 kW ($1.57 * 1000 * 10 * 0.75 / 102$);

the energy spent to run the pump with the prevalence of 0,2015m a 0.6 yield is 5.16 Kw ($1000 * 1.57 * 0.2015 / 102 * 0.6$).

The ratio of energy expended and produced would be 1 a 22, 28 (115/ 5, 16).

It means that for a hydraulic head of 10 m used for each kw spent we produce 22 28. If we double triple etc. the hydrostatic head we double triple etc. also the energy production while the energy expenditure only increase of a few thousandths due to the loss of load of (0.0 15 m) that increases every 10 meters of descent of the pipe.

While today the ratio of energy expended and produced is at most 0.4 if dirty thermal energy which is currently the cheapest energy produced on the planet Earth. Which, it would be reduced to 0.30 in the case of cleaning with C.C.S. But as to produce thermal energy are needed refining drilling construction of thermal power plants and transport networks, hydropower with water recycling can be done everywhere, even in condominiums.

This "open" circuits with the pump stops would be at rest with, at the inertial state. But with the pump alone, without the turbine, they would be unbalanced from the point of view of energy since the water speed in the descent phase would become greater than that permitted by the pump due to the gravitational acceleration. In fact, the rotation of the pump, placed under the entire column of water inside the tube, breaking the state of inertia of the entire mass and the gravitational acceleration (energy of position: $m * g * h$), would develop a speed of 'water tends to reach the theoretical limit calculated by Torricelli " $\sqrt{2 * g * h}$ " which would be higher than the pump capacity that would be damaged. But assuming that the pump is not damaged, the entire energy would be converted into heat, since the only resistance offered by the circuit would be the friction with the walls of the descent tube and the static friction with the water molecules to the outlet, being known that the hydrostatic pressure is not opposed kinetic energy. The turbine, providing adequate hydraulic resistance to slow water velocity, preventing the total transformation into heat of energy. In fact, it produces a mechanical work through the force " $F = (m * g)$ " for the "displacement S" imprinted to the blades of the turbine in solidarity with the shaft of the current generator. Of course, contrary to conventional systems that exploit the hydraulic jump and have the fall of the total pressure coming out at atmospheric pressure, in these plants we have only the fall of dynamic pressure ($1/2 m * V^2$). The static pressure does not change, after the turbine, serves to recover the water, allowing it to enter back into the basin, also thanks to the kinetic residual energy ($V^2 / 2g$).

If in the testing phase, we realize that the returns will be lower in some way to the expectations calculated over tentatively the important thing is to make sure as we already know that the hydrostatic pressure is not opposed to kinetic energy. As this already experimentally proven by the submarine discharges with the currents under marine pressurized closed circuit even calculating differently and in a more correct way the energy yields, any drop in performance will never get to the current very low energy yields approved by science and by technologies of the part.

But where is the science? E' preferable a compassionate science, which is silent on the proposals practices unscientific of a probable crazy retiree reported on <http://www.spawhe.eu>, or an incompetent science, a science of part, or a science that has left out simple solutions to try those difficult? It 'obvious that everyone is convinced of the first solution, including political, environmental associations, trade unions, industrial entrepreneurs and nobody investigates beyond appearances. Where is the hope? If science does not answers? Nobody wants the answers? Especially the people who march in defense of the environment and looking for work. Who drives these marches who want to change everything and are silent on possible sustainable innovations? Even they expect that it is science to respond? Science is responsible for climate changes most of the political and entrepreneurs even when is simply silent because all the answers are waiting from the science. Science should simply admit their limitations and work with inventors and designers to design installations above the parties, that require transversal experiences and creativity that scientists, closed in laboratories, they cannot have. These experiences also escape the industrial researchers because they are born directly on construction sites where they build and bring together the implants. Only with these transversal experiences is possible to understand that we can design complete systems that are simultaneously purifying, energy and economic. For the moment these systems exist only virtually on <http://www.spawhe.eu> website, while the public and private science, for some years now, pretends not to understand them. Or, genuinely, do not understand them? They could be wrong? For posterity will judge, because the current science, it does not seem to have no desire to answer.

SYNERGIC PLANT, ARTIFICIAL WELLING, HYDROELECTRIC ENERGY

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Where H_B is the geodetic level of the supply tank H_A is the geodetic level of the suction tank.

In hydraulic lifts made in HB atmospheric environment it is always superior to H_A , so the above formula is expressed considering $H_B > H_A$. But in hydroelectric submerged HB does not exist because the water falls only and does not rises to the surface, being the one-way flow due to the fact that the surface water has the same density as that of the bottom therefore the water coming out of the descent tube is exactly equal to that which enters it. There is no reason why the water must be raised, even in small basins: the water above only changes the position, but producing energy during path.

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Where the $L1 \cdot J1$ = pressure losses in the suction pipe;

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For example a descent tube D_n 1000 has a section of 0,785 m² under a hydraulic head of 10 m of water column with a density of 1000 kg / m³ according to the formula of Bernoulli / Torricelli the output speed in the absence of load losses would be about $V = \sqrt{2gh} = 2 \cdot 9,81 \cdot 10 = 14 \text{ m/s}$ which, multiplied by the section we would have a theoretical flow of 10,99 m³ / s.

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Therefore the capacity of the system would be reduced to 1,57 m³/s (0,785 m² * 2); while the $L1 \cdot J1$ load losses in the piping of 10 m are 0,035 m (from Basin tables Darcy); the power produced by the turbine, which uses the energy of surface water location (10m) with a 0.75 yield would be 115 Kw ($1.57 \cdot 1000 \cdot 10 \cdot 0.75 / 102$); the energy spent to run the pump with the prevalence of 0,2015m \pm 0.6 yield is 5.16 Kw ($1000 \cdot 1.57 \cdot 0.2015 / 102 \cdot 0.6$).

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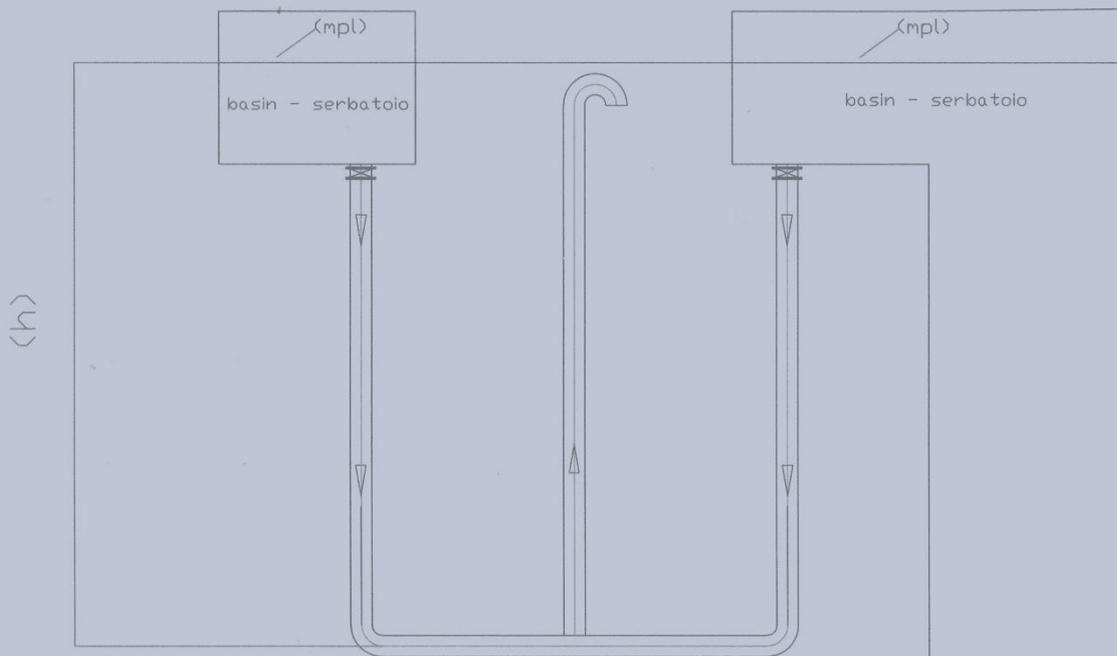
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SUBMERGED HYDROELECTRIC ENERGY WITH SEABED OXIDATION
WWW.SPAWHE.EU



Even this figure confirms the possibility of exploiting the energy of the water surface position. In fact, if the water, as is known, in such conditions, has the energy to rise to the surface, such energy can also be exploited to produce energy.

Anche questa figura conferma la possibilità di sfruttare l'energia di posizione dell'acqua superficiale. Infatti, se l'acqua, come è noto, in tali condizioni, ha l'energia per risalire in superficie, tale energia si può sfruttare anche per produrre energia.

Fac simile of energy artesian position

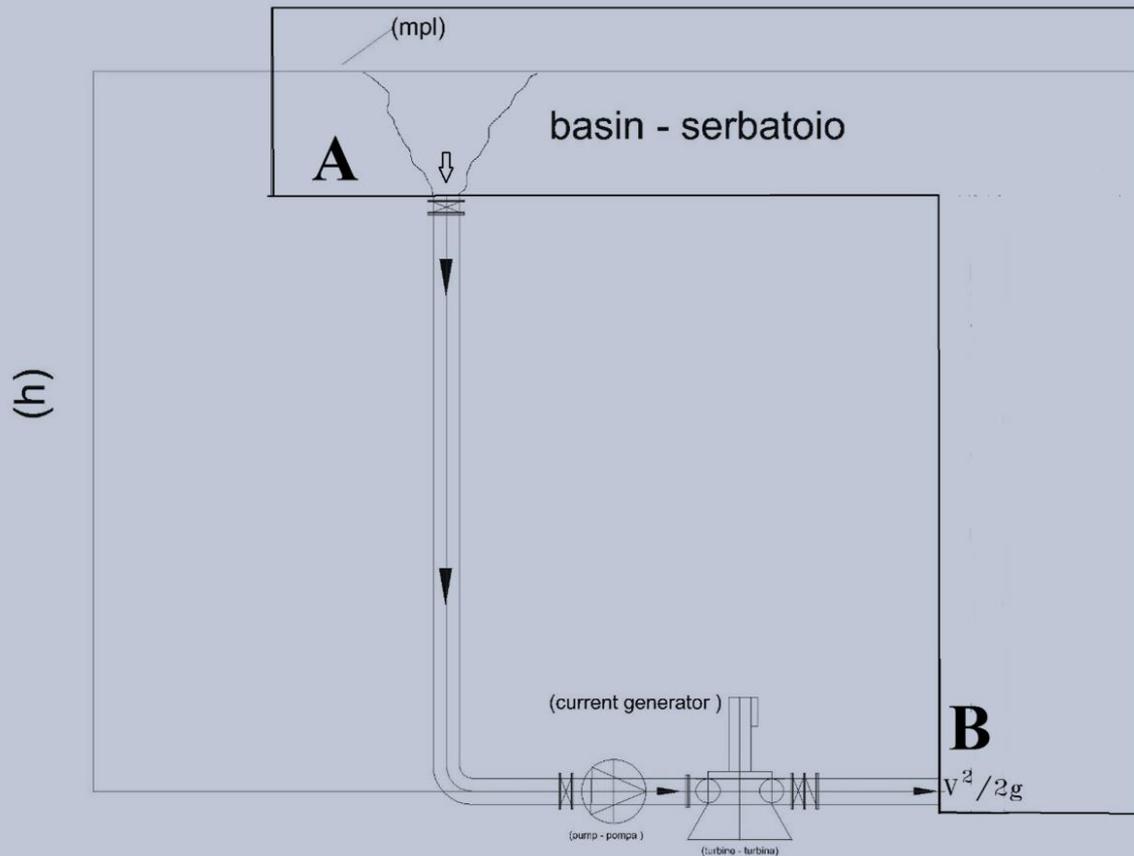
Fac simile di energia di posizione artesianiana

The artesian energy is a position of energy that can be converted into electrical energy, if instead of using it to raise the water, we convey it in a pump that feeds a turbine and by returning the water in the basin with the help of the force gravitational.

L'energia artesianiana è un'energia di posizione che può essere trasformata in energia elettrica, se invece di utilizzarla per sollevare le acque, noi la convogliamo in una pompa che alimenta una turbina e facendo ritornare l'acqua nel bacino con l'aiuto della forza gravitazionale.

<http://www.spawhe.eu/relativity-and-technology-in-the-new-hydroelectric-energy/>

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open hydro circuit with water recycling - Circuito idroelettrico aperto con riciclo di acqua

This hydraulic scheme is equivalent to the submerged hydroelectric

In this circuit, the position of the pump is very important. Must be placed in the lowest point of the circuit, so that, The upper tank which determines the hydrostatic pressure of the circuit and provides the entire capacity of flow, to minimize the prevalence of the circulation pump, which only has to overcome the state of inertia of the water and have the adequate supply passage sections of the turbine. The large tube section, which rises towards the tank, placed after the turbine is considered an extension of the upper tank, for which it is only necessary to calculate the pressure loss at the outlet $V^2/2g$

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