

SPANISH NATIONAL COMMITTEE ON LARGE DAMS

**THE ROLE OF LARGE DAMS IN DEVELOPING ECONOMIES.
WORLD SURVEY AND ITS DEBATE**

Enrique Cifres Giménez¹

SUMMARY: The recent report of the World Commission on Dams (WCD), sponsored by the World Bank, has extremely emphasised the deep debate about large dams that has compromised a lot of hydraulic projects, sometimes of vital importance for developing countries, whose nourishing, health or energetic needs depend not only on its economic-financial viability, but also on the evaluation of its Environmental Impact.

The benefits of large dams are a part of the role they play, understanding this role as their social-economic-environmental impact, not only on local or national scale, but even in a strategic scheme of sustainable development o the world level. This debate is very fragile and demagogy very often distorts the true role of infrastructures by disguising other approaches. The celebration of the Conference with this subject to be discussed coincides with the creation in Spain of the Working Group or technical committee associated to the international about the role of dams and makes it pertinent to expose a reflection about this problem.

1. INTRODUCTION

¹ Speaker member of the 'International Committee on Dam Role in Basin Development' of ICOLD.CHJ. enrique@cifres.com.

The most pessimistic forecasts about the content of the report of the World Commission on Dams (WCD) that threaten the future of the discussion about the role of dams in the Third World development during the Beijing Congress in September 2000 were confirmed when it was published at the end of that year. This institution was born by the meeting promoted in 1977 by the World Bank (WB) and the World Conservation Union in Gland (Switzerland), as a result of a report about 50 dams financed by the WB. The WCD cannot be said to have followed the mandate from the Gland meeting. Among other circumstances, there is the birth of the FORUM, which draws together more than 70 members with a doubtful representative balance.

Different institutions, non-governmental organisations, governments, professionals, etc., have expressed a lot of diverse positions concerning to large dams as a phenomenon for the social discussion, as much before the publication of the mentioned WCD report as from its spreading, which raised all kind of reactions.

Although the analysis of the WCD report is not the subject of this dissertation, it unavoidable to refer to it because it has become the 'reference state' of irrational opponents to dams. And with 'irrational opponents' I am referring to those who do not use ethical or scientific arguments, not to those who in concrete cases expose coherent reasons that should be taken into account. This report, as a weapon in inadequate hands, can damage millions of people's hopes in the Third World deeply, and this aspect must be analysed so that, from the professional field, we can, within our possibilities, furnish our humble contribution to the inhibition, if that is possible, of the consequences derived from its use.

Spain, as a country that has managed its resources for decades in the realm of the hydrographic basin, that has 'enjoyed' dams for

thousands of years, that has and needs a big number of dams, is an interesting example, whose experience with dams can be perfectly exported or extrapolated.

2. THE WCD REPORT

We refer the reader to the essay by Alberto Herreras (OP, 2000) for an introduction to the report, which makes unnecessary that we describe it and expose its main conclusions.

Three big principles oppose one another in the mentioned report: the Declaration of Human Rights, the Declaration of the Right of Development for peoples and the Rio Principles from the Conference on Environment and Development.

I am not going to reason it, because better than from my words, it is inferred from the numerous reactions that it has raised among people and institutions that are more sensitive to the problems of underdevelopment. Some of them are summarised in the following, although personally I would retain how professor Laffite defined the mentioned report as promoter of the 'sustained underdevelopment.'

2.1. REACTIONS TO THE WCD REPORT

Some considerations from different documents that reacted to the mentioned WCD report are collected in the following:

The first reactions raised even before it was presented, when several members of the mentioned FORUM distanced themselves in disappointment. 'The Forum members were not given the opportunity to see or review any of the drafts. The lack of transparency in the preparation of the document is disturbing' (ICOLD-IHA-ICID-200).

Finally, they left the Forum saying that their organisations 'can unfortunately not take responsibility for the content of the Report.'

ICOLD described the point of view of the WCD report as 'potentially disastrous' for developing countries because it promotes its support to the moratorium on the construction of large dams and propose 'too cumbersome to deter promoters.'

The general impression of DSI (Turkey), with a huge effort to reach a consensus, can initially summarise the reactions:

- *'On the whole, the approach is intentionally negative concerning the role of dams, generalising negative aspects, unsatisfactory social and economic benefits.'*
- *'Some conclusions are based on inadequate data.'*
- *'Alternatives to large dams recommended as near-term solutions are qualitatively interesting, but inadequate to find solutions to the needs of more than 6 million people by 2050. In addition to this, the social and ecological impacts of the alternatives are not discussed nor compared.'*

Ethiopian reaction can be representative of the underdeveloped countries. Let us have in mind that in this country only 5 % population has access to electric energy, 20 % access to drinkable water, it only uses 2 % of its hydroelectric potential and the hydraulic resources generated in its territory exceed by far the needs; what is lacking is infrastructures.

Ethiopia, through its Environmental Protection Agency, replies to the report saying, among other things, that *'...its sovereignty in the management of its hydraulic resources is limited.'* The biased composition of the commission for the benefit of environmentalists that are not worried about development reaches as far as to include comments of extremist people like Ms Medha Patker and to a fallacious dissociation of development and environment. *'The goal of the report*

leads to a predetermined and preconceived premise that sounds to have already condemned large dams and the mission is looking for alternatives for large dams.'

'What predominates is the criterion of those countries that have already controlled and are enjoying a high percentage of their hydraulic resources and cannot put on the same level those that in addition if they do not so are suffering from starvation and thirst. How can a person who consumes comfortably 400 litres a day give an opinion about what a person who has to walk miles to get some bad quality water must do?' With regard to the public participation in the preparation of the report it wonders whether 'some of the millions of women that walk so many miles have been included in the discussion team.' This may be a clear case of improving management and water saving as an alternative.

'The proposals sound like a veiled treatment of some people so that the international community faces up to nations that aim to build dams in the future.'

Pakistan's position can be summarised like this:

- 'The WCD report has been carried out in such a way that it will have an anti developmental affect against the goal of the World Commission on Dams. The analysis of problems and benefits is unbalanced.*
- WCD has not fulfilled its Gland mandate (1997) for sending acceptable alternatives internationally for development.*
- Dams have made significant contribution for the human development. This has not been reflected in the report. In a hypothetical scenario without dams, modern technology has no real alternative.*

- *There are serious doubts about the choice of 8 dams representative of forty five thousand dams that exist in the world.*
- *The WCD recommendations are not globally applicable and cannot be considered by anyone including international financial institutions.'*

As an example, it may be commented that, as an approach to alternatives to the hydraulic resource management in developing countries, river Glomma's integral management in Norway was included among the examples analysed by the WDC, 'showing' how an adequate resource management can be carried out without building large dams. Please draw a deep breath. As a datum, you must take into account that this is the river that provides Oslo with water and has, with a basin of 4.5 km², the same annual contribution as river Júcar, with more than 20,000 km².

Criticism comes not only from countries in this area.

The WCD has ignored the keys without a correct analysis of the problem that the world faces,' said Rodney Bridle, Chairman of the British Dam Society referring to the presentation of the mentioned report by Nelson Mandela. 'By 2050 an extra 3 million people will need water, food and power. Dams will in many cases, after careful surveys, be the only viable alternative to alleviate poverty and starvation on a large scale.' (ICE-UK 2000)

'If the report is used to stop new dam construction, millions of people will be deprived of hope and subjected to an unnecessary and prolonged misery.'

Finally, to end this journey, we will adduce some of G. Lapin's reflections (Russia):

'The matter is not only the content of the report but its aggressive and offensive format... The World Bank wants to rule

through the WCD the destinies of the peoples throughout the world by even interfering into the internal affairs of each country.

The World Bank is, for some reasons, interested to throw in a controversy issue about the problems of large dams instead of finding solutions to the acute problems of electricity supply, water supply, floods, irrigation and as a consequence to the improvement of cropping and welfare of the people throughout the world.

"Who pays the piper calls a tune" (Russian proverb).'

Those interested will be able find countless references all over; the discussion is served. But is it a discussion about dams and development or simply about development? Because, if it is not so, that would be the first demonstration of the very important role that dams can play in the Third World's development.

2.2. ICOLD 'ROLE OF DAMS' COMMITTEE

Even before the mentioned report was published, the ICOLD created, in its executive meeting held in New Delhi (India, 1998) the 'International Committee on the Role of Dams in Basin Development', although its official constitution took place in Antalya (Turkey, 199).

This Technical Committee, with representation of Holland, Germany, France, Norway, Spain, Portugal, USA, Cyprus, Brazil, Australia, Iran, India, China, Zimbabwe and Lesotho, aims to identify the role that large dams have played in developed basins and the one they have to play in the developing ones, in order to establish some transparent bases in the comparison of alternatives.

The Cost-Benefit Analysis has been proposed as a tool for the diagnosis. Cost and Benefits must be understood in a general context that, in addition to the exchange values, includes the environmental

cost and the social benefit. The mentioned international technical committee is engaged in this task, and the Spanish reflection has been recently constituted within the Spanish Committee on Large Dams called 'Dams and Development'.

From the discussions within the mentioned international committee we pick out the following reflections:

3. DAMS AND DEVELOPMENT

3.1. THE DAM AS A CONSTITUTIVE FACTOR IN A DEVELOPMENT PROJECT

If it is inadmissible to be an irrational detractor of dams, a thoughtless anti-dam stance is also unacceptable. Dogmatic positions are not justifiable today. Dams have become a symbol of aggression against society and environment for a noteworthy sector of the public opinion. Luckily, the environment is beginning to be a concept that citizens' value scale in developed societies considers important, at least from their point of view, although they do not always implement it in their way of life.

To be fought, poverty, defined as scarcity of means and services, among these the lack of drinkable water, food, health assistance and energy supply, requires water availability with a warranted quality and quantity level. Less developed communities, where poverty is more widespread, often suffer, in addition, from natural risks among which floods take the first place. All these factors, which make development more difficult, are directly bound up to water.

As a first concept to be admitted, then, water is an essential element for development, and hydraulic and energetic projects intended to cooperate with development are in consequence essential tools for

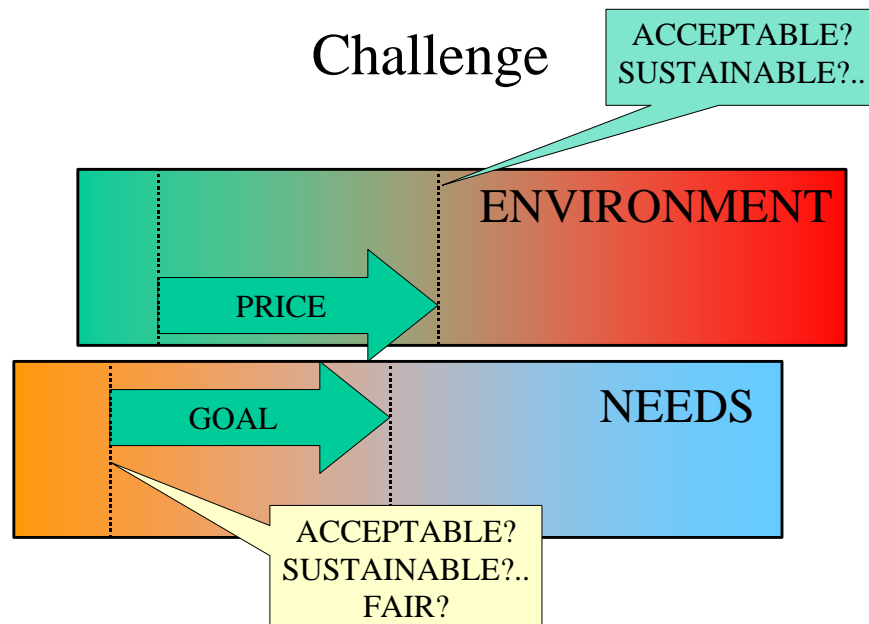
that main goal. On a second goal level, under development as a justifying umbrella, we have water supply for irrigation, drinkable water or sewerage, or energy supply (solutions).

PROBLEM	SOLUTION	TOOL
Poverty, starvation, thirst, natural risks, lack of energy, illnesses, lack of welfare	Energy supply, hydraulic resource development, anti-flood plans, education, health assistance	Dams, wells, irrigation channels, recycling, demand management, hospitals, medicine, thermal plants, nuclear plants, desalination...

Under this approach, we could ask: what is the 'price to pay' for achieving that? With the term 'price' I intend to comprise the cost for the involved community in totally common terms, that is, direct, indirect, social and environmental cost. But we shall have to evaluate this as well: What is the return or the goal fulfilled with that? And we shall have to evaluate what the benefits of water or energy availability are for those communities with a imperative necessity of it. These benefits will also be generalised including direct as well as indirect benefits, that is to say, it will not be easy to translate them in terms of market prices as social development and -consequently- sustainability is a decisive global environmental factor and the 'sustained underdevelopment' which professor Laffite defined and was worried about cannot be admitted nor imagined.

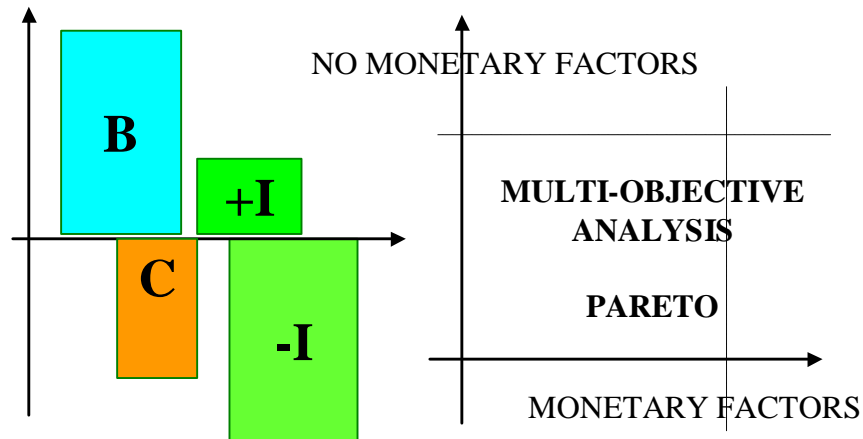
We can propose then the balance between the goal and the price to pay for achieving this: evaluate the economic and social effect of making a cubic metre of water or a kilowatt hour of energy available

and its social, economic and environmental cost. This is the comparison that will be used for taking a decision.



But what is the price? Obviously, that will depend on the means or tools that we need for the plan or programme that we are analysing. For that we have a wide offer of solutions, which taken alone or combined postulate themselves as tools for this programme.

GENERALIZED COST-BENEFIT ANALYSIS (GCBA)



Concerning to hydraulic resource plans, a lot of structural and non-structural tools can be considered, like regulation dam construction, underground water exploitation, residual water recycling, improving the efficiency in water use within existent systems, sea water desalination, flowing resource transferring from surplus basins, etc., and other non-structural ones, like optimised supply and demand management, saving conscience-raising, etc. A priori, maybe I should only dare to exclude the zero solution, as this approach refers to attention of basic necessities from the perspective of underdevelopment.

All these options offered by current technique will be simple 'tools' in a programme to be evaluated. Why should we have an a priori position about which the best one is? We must simply choose that one which exacts the lowest 'price' from the community, of course the lowest social and environmental price. In some cases, a dam may be among the tools which constitute the best option, in others maybe not. Another question will be how transparently or clearly we are able to

express the contribution to that 'price to pay' furnished by each of the tools that are involved in the analysis.

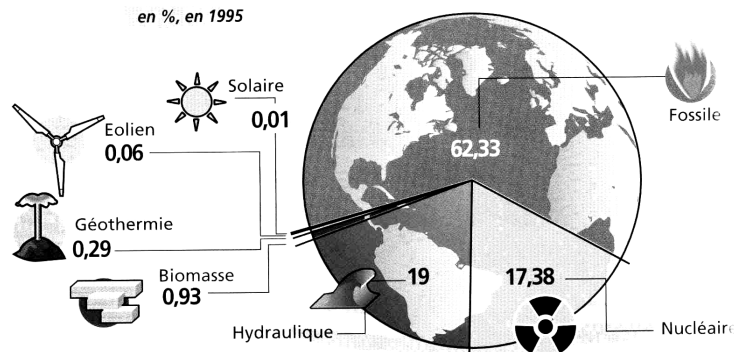
We must make sure that dam processes, implementation and efficiency, and infrastructures associated with each dam will be improved in order to fulfil people's necessities, by inserting the dam into a wider project with a 'solution' goal that must be the one truly analysed in terms of 'cost-benefit.'

The proposal ends up by being very simple: A dam, as a mere tool to solve a problem (mostly a very serious one in the Third World) must not choose between 'to be or not to be,' but simply be evaluated in each solution project (which is never the dam itself) against other alternative projects that achieve the same goal levels. In this realm, the best option will result from comparing not only economic costs but social and environmental ones as well.

In order to achieve this objective, I propose to inescapably consider a factor in the comparison of alternatives: the energetic factor of the project. By internalising costs, we must be able to evaluate the sustainability of projects that imply high energetic costs like desalination.

3.2. ENERGETIC COMPONENT AND SUTAINABILITY

The analysis of the social and environmental cost of a project will not always, in fact very rarely will, be translated into economic terms, because although some environmental impacts can be evaluated in terms of cost, at market prices, of their correction (for example, river pollution), others will be even more polemical, like a cultural or historical loss, the affection to biodiversity, etc. And even worse: what is the 'price' for crossing over the sustainability line?



As we can appreciate in the EDF graphics, a great part of the energy produced in the world comes from fossil combustibles that besides give off big quantities of gas into the atmosphere. One admitted effect of this is the 'greenhouse effect' with the climatic change as its main potential consequence. Hydroelectric energy means 90 % of total renewable energy in the world, but only 19 % of total.

The energetic component in each alternative to be considered will be then a factor in the analysis of its contribution to the sustainability of the project. This energetic component applied to every cubic metre of water supplied must be an essential factor in the comparison of alternatives in order to find the mentioned "best option".

Dams usually supply regulated water with a very little, mostly null indeed, energetic component, because solar energy, transformed into potential energy as a part of the hydrologic cycle, 'puts' water at the starting point of distribution schemes. So, the water furnished by rivers and dams is 'clean' water from the energetic point of view. Let us take as an example the fact that the hydroelectric capacity in the USA (73,500 MW) can produce over 300,000 GW/h a year, which, if they were produced by fossil combustibles (129 million tones of coal), would imply an atmospheric pollution increasing in 7,7 million tones

of and 296 tones of carbon dioxide, in addition to other emissions (COPA, 2001).

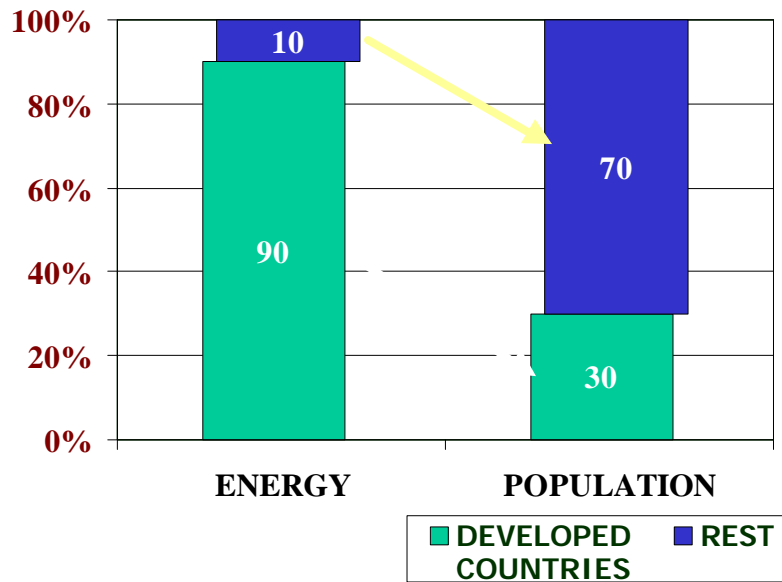
The internalisation of the energetic cost is then proposed, with a large non-sustainable component, in the comparison to whichever alternative to dams. This factor must be decisive if you want to be 'environmentally' right.

3.3. DEVELOPMENT IN THE SHORT-TERM

Within a conservationist approach in the long-term, which would represent mankind's legitimate aspiration to survival, we should establish which the horizon is that the planetary system can give shelter to an anti-environment society. Where is the sustainable limit for our resources? This a question with a deep sociological repercussion and a not easily approachable one.

The relative distribution of energy consume in the world is represented in the adjunct graphic.

AVAILABLE ENERGY PER CÁPITA



In the light of the previously mentioned arguments, the maintenance of this distribution structure that we can call asymmetrical does not seem sustainable.

Has an overshoot taken place? Can it occur in the future? It is very difficult to evaluate this limit transgression that our social model can mean in terms of sustainability. It is not my intention at all to pose the global problem.

But, what if we aspired to a less 'asymmetrical' development? It is obvious that a development in the short-term, with an increase of energetic production and consume, unavoidably requires to get the distribution of the energy origin overturned and, at least, renewable energies projects –dams in the first place– to acquire to priority.

So, the most environmentalist approach concludes with an inexorable support to short-term dam projects, until technology is not

able (it does not do that in the WCD report) to propose real, viable and sustainable alternatives to the unavoidable problem of supplying mankind with water and energy, and, in consequence, food and health assistance.

This stance of giving support to certain dams in the Third World is legitimated by the fact that we are all stakeholders of the problem, because nobody contradicts environmental globalisation any more.

3.4. THE 'EXPORTATION' OF THE SPANISH EXPERIENCE

The economic value of the water that is regulated by reservoirs in Spain can be estimated at 28,000 million USA dollars per year, which represents nearly 6 % of Spanish Gross National Product (Berga, 2001), without including the benefit from flood routing, a phenomenon that 'costs' 30 lives and 500 million dollars in material direct losses per year in Spain.

Potentially, in the context of the WCD's report Spain is a model of dam use, which should be exported for several reasons:

- Spain can be thought a developed country.
- It does not enjoy a wet climate as most developed countries, sharing semi-arid conditions with a lot of developing countries.
- It has enjoyed dam benefits for nearly two thousand years.
- It manages the resources in the realm of hydrographic basins.
- It has a participatory evaluation system of environmental impact in a politically democratic structure.
- Dam projects are inserted in a Hydrological Planning with wider goals.

Finally, what derives from this process, which fulfils the basic premises in the WCD report, is the need of building a larger number of dams.