

All India Policy Writing Competition

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<u>Policy No. 17</u>	<u>Title of policy: River-Basin Management</u>
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This entry has won the overall prize of **Rs. 1 lakh in the All India Policy Competition of the Freedom Team of India (November 2012-February 2013).**

This policy should act as a minimum benchmark that all policies for India should meet.

FTI recommends all policy writers in India to use the **Policy Framework of Sone Ki Chidiya Federation: <http://sonekichidiya.in/Documents/SKC-Policy-Framework.pdf>. Only through such analysis will India achieve good policies, and its problems solved.**



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Executive Summary

Free Market Economy

The behaviour of individuals in a society, when allowed to transact independently in the water market with no regulation, i.e. with complete liberty, will effect a detrimental result upon the society as a collective entity, as no measure is taken to regulate the amount and type of water use by each and every individual from the resource. This causes several difficulties such as a disturbance in the equilibrium, and the monopolisation of the market through private cooperative bodies in private consumption of water, and the Tragedy of Commons, hoarding, etc in collective consumption of water. In a complex real world economy, there exist several constraints such as transaction costs, imperfect information, multiplicity of players in the economy etc. no matter what decision the individual and the society takes, the end result is always undesirable and detrimental: they will eventually land at market failure and inefficiency in the allocation of resources.

Government's Role

Due to these issues, it is necessary and advisable for the Government to intervene in the matter and partake in the activity of allocation of water resources so as to maximise efficient utilisation of water and minimise the damage caused to the individual and the society in the long run. In order to do this, the Government must take away certain liberties of individuals, which is essential for the greater good. By doing so, the Government contributes to the overall growth and development of the country through the conservation of water resources and diversification of utilisation of the same. This is beneficial for the society as their interests and protected and their future is secure.

This policy deals with the management of river-basins in particular, i.e. the allocation of property rights with respect to river water to every individual in the society, and the distribution of the water through a well-planned distribution system. This ensures that every individual receives water for his essential uses, and even allows for the existence of private transactions or trade of water in the form of independent commercial entities and industries engaging in the trade.

Having undertaken this task, the Government institutes a River-Basin Management Authority at various levels of the society, thus introducing an effective devolution of powers from the Central level to the grass-root level. Each Authority is allowed complete financial self-sufficiency, in order to make the system more efficient. The funds received by the Authority will be through a collection system at the local level, with contributions from stakeholders. The presence of such Authority at the grass-root level also results in greater stakeholder participation, which allows for easy management and dispute resolution, and gives the stakeholders a sense of collective ownership.

Challenges to the Policy

However, the common man always tries to subvert any institution to his advantage. In this respect, certain measures are to be resorted to by the Authorities in order to prevent such unjust enrichment by these men. The Deterrent Theory of punishment should be relied upon by the Authorities to prevent the occurrence of such activities, and several scientific and technical enhancements to the system can be utilised.



The functioning of a management also depends on the willingness of officials of the system to work. For a sincere effort from every Authority official towards its working, internal controls utilising Fayol's Principles of Management are to be adopted. Frequent reminders of the principles of morality will help in developing an active ethical consciousness among the officials. Further, Governmental control in the form of an auditing system will ensure that the officials do not step out of bounds of the work given to them. Also, the people, through popular vote and deliberation mechanisms, and through the transparency and accountability of the system, will be able to direct the proper functioning of the Authorities. Further incentives such as awards, promotions, etc. can also be considered.

Real World Application

This policy is similar in structure to the policies adopted by the Murray-Darling Basin Authority, Alto-Tiete Basin Agency and the Brantas River Basin Management Authority. However, it differs from them in that it can provide a more sustainable framework and enhances efficient management, thus making it a better alternative to other policies. This is ensured by decentralisation, financial independence and participation from stakeholders.

The policy definitely provides for systematic governance of river-basins. It is also superior to any other river-basin management policy, having provided for the full devolution of powers and the complete financial autonomy of the Authority. However, it remains to be seen as to whether it is feasible for the same to be implemented in India. This can be analysed on the basis of a cost-benefit analysis which measures the costs of implementation of the policy, and the benefits received by the individuals out of the policy. The policy would evidently be feasible if the benefits outweigh the costs.

Application in India

Lastly, the application of the policy to India is to be achieved through moderate modifications in the existing framework of the nation. By adopting the dormant River Boards Act, a national River Board can be set up which takes up every task of river-basin management, and can be suitably called National River-Basin Management Authority. This NRBMA will adopt this policy to further its goals of achieving efficient allocation and management of a river-basin and its water. Each river basin in the country will constitute a regional Authority (RRBMAs). The Centre will direct the States to allow the formation of Local Authorities (LRBMAs) at the village level, and Municipal Authorities (MRBMAs) at the cities. These will constitute District Authorities (DRBMAs). This system will ensure devolution of powers.

Any opposition to the adoption of this policy by any class of citizens in the country can be circumvented through Government propaganda and a widespread awareness initiative that highlight the advantages of the system to the common man. Once the common man comes on board, no political groups will dare oppose the policy, so as not to incite the wrath of the common man.

In this manner, this policy can be adopted in India and can be used as an efficient means of allocation and distribution of river-water.

1. What would happen without any role for government

1.1 Introduction

“Like every other social institution, the State arose from many sources and under various conditions and it emerged imperceptibly”¹

The existence of the State has been deemed necessary and inevitable—an unavoidable consequence of human interaction and settlement². The necessity of the State seems to be based on its ability to regulate and coordinate the affairs of society. Generally speaking, these regulations are what may be termed as ‘law and order’. By ensuring the maintenance of ‘law and order’, the State seeks to ensure that the transactions taking place within the social framework are as efficient as possible. In order to fulfil these functions, the State provides for a regulating institution in the form of a government which is to ensure maintenance of ‘law and order’ and all other functions derived from the same. ‘Law and order’ is closely connected with the concept of ‘justice’ which again can be interpreted as a means to promote efficiency in the social processes. It operates at two levels: as ‘distributive justice’³, it works to ensure a fair division of social benefits and burdens among the members of a society which serves to bring about societal equilibrium, i.e. an initial allocation of rights and liabilities. However, this delicate balance can be upset by actions of the units within the system. It is then that ‘corrective justice’ will come into play, in order to correct the disequilibrium and restore status quo⁴. Thus, ‘justice’ in its distributive aspect serves to secure legitimate rights and duties.

The State exists for the welfare of the people⁵. In order for the State to be effective, power was bestowed upon it to enforce its diktat in society. This gave rise to the oldest and unchanging power that the State possesses: the **legal monopoly of violence**⁶, which it is to exercise in order to ensure compliance amongst the people, for the overall benefit of all. The state, however, is necessarily limited and cannot act arbitrarily or in contravention of the inalienable rights of the individual⁷. These inalienable rights are viz. life, liberty and property. The State exists for the enhancement and preservation of these rights alone; as Locke repeatedly asserts, “Government has no other end but the preservation of property”⁸. The term ‘property’, as used by Locke, is a “general name” designating “lives, liberties and

¹ R.G. Gettell, <http://www.universityofcalicut.info/syl/PS1B01FoundationsofPoliticalScience.pdf>

² “The State exists by nature because ‘man by nature is a political animal.’”; Sushila Ramaswamy, *Political Theory—Ideas and Concepts*, Macmillan India Ltd., 2003, 1st Ed., p. 133

³ PJ Fitzgerald, *Salmond on Jurisprudence*, Universal Law Publishing Co. Pvt. Ltd., 2004, 12th Ed., pp. 88-106.

⁴ *ibid*

⁵ *Supra n. 2*, p. 133

⁶ Lipsey & Cyrstal, *Economics*, 11th Ed., Oxford University Press, 2009, New York, United States of America, p. 274

⁷ *Supra n. 2*, p. 93

⁸ Michael J. White, *Political Philosophy, A Historical Introduction*, Oxford University Press, 2nd Ed., at p. 276



estates”⁹. In other words, the State has only two functions: protection against foreign invaders, protection of citizens from wrongs committed against them by other citizens¹⁰.

Thus, the State has no right to interfere in the private domain or the property¹¹ of the individual: “The best State is one that governs the least”¹². The individual is an autonomous being, free to enter into any social transaction towards the fulfilment of their basic potentialities¹³. He is a rational being and would therefore work towards the enhancement of his personal interests; he will control the different aspects of his life on his own. The existence of any circumstance which may render an individual disadvantaged as opposed to other individuals in the society shall not occur, i.e. equality shall prevail in the State¹⁴.

The right to property is a necessary pre-condition for a viable economy. In an ideal world, society would reach an optimal level of efficiency when the autonomy of each individual is maintained i.e. each individual is allowed to augment and preserve his acquired property. The government must not seek to regulate or interfere in the working of this free and competitive struggle for wealth and property. This is because the economic system is self-regulating; it functions by the interaction of the market forces of demand and supply, controlled, as if by an ‘unseen hand’.

1.2 Free Market Economy of Water

This ability of the individual to freely compete in the market in order to maximize his personal well-being extends to those properties in which ownership rights can be distinctly identified. However, it remains a debateable topic as to whether natural resources, such as water, can be vested with distinct property rights. One common perception is that water is viewed as an economic good that is “no more necessary than food, clothing, or housing, all of which obey the normal law of economics”¹⁵. On the other hand, several voices claim water to be a “shared legacy, a public trust, and a fundamental human right, and therefore, a collective responsibility” and hence “must not be treated as a private commodity to be bought, sold and traded for profit.”¹⁶

Water, as a natural resource, is indispensable for human life, rendering all processes such as daily living, cleanliness, production, management, etc. dependent on its use¹⁷. Thus, adopting a single approach to the role of water in the economy is insufficient and absurd. A natural resource like water, in light of its essentiality, is to be considered as a common good that is available to all¹⁸. For example, assume the existence of a freely available resource X

⁹ Ibid., p.277

¹⁰ Ian Adams and R.W. Dyson, *Fifty Major Political Thinkers: Robert Nozick*; Routledge Key Guides; Taylor and Francis e-Library, 2007 at p. 237

¹¹ Henceforth, the natural rights of ‘life’, ‘liberty’ and ‘property’ shall be referred to as ‘property’ only

¹² Supra, n. 2, p. 97

¹³ Ibid

¹⁴ V.K.Saraf, *Executive Authority and the Rule of Law*; Rule of Law in a Free Society, Ed. N.R. Madhav Menon; Oxford University Publishers, 1st Ed. 2008, India; at p. 57

¹⁵ W.M. Hanemann; *The Economic Conception of Water*; University of California, Berkeley, USA

¹⁶ Ibid.

¹⁷ *Narmada Bachao Andolan case* (2000) 10 SCC 664: “Water is the basic need for the survival of human beings and is part of the right to life and human rights as enshrined in Article 21 of the Constitution of India.”

¹⁸ Locke, in ‘*Second Treatise of Government*’, states that “both natural reason (which suggests people have equal claims to the fruits of the earth needed for preservation) and revelation (a quote from Psalms) support the idea that the earth was given to mankind in common.”. Further, Mill, in

(water), which every individual within a society has an equal right to use. Thus, every individual is entitled to, say, 10 units of the resource. These 10 units then become a distinct property held by every individual. The right to this property is absolute. The individual, now, is at complete liberty to do whatsoever with this property as he/she may wish. In other words, the property has now become a private commodity that, apart from personal use, can even be bought, sold and traded for profit.

However, conflicts for the use of X are bound to arise, due to X being a scarce resource. In furtherance of his/her own interests, an individual may eventually impinge on another individual's similar property rights. Economically, these can be viewed as negative externalities¹⁹. In the eventuality of such conflicts giving rise to negative externalities, in an ideal world, government intervention is not necessary to settle the dispute. The two parties can negotiate with each other and reach an understanding on their own, as long as the property right (private right to water) is vested in one of them and transaction costs are zero²⁰. This situation where no individual can further his personal interests without reducing another's interests is a Pareto-efficient situation²¹.

In order to understand the property right of water, consider an example. Let A be the owner of land that is bordering on a waterway (eg. land that is abutting a stream). According to Roman law, and subsequently English Common Law, A is a riparian owner, and is vested with a *natural*²² right to use such water passing through or by his property²³. The amount of water in the stream is irrelevant in deciding whether a land is riparian or not. Such use of the water for individual purposes should not *materially* diminish the water availability for the lower riparian owners, nor damage it for their use²⁴. Externalities occur when any one person possessing riparian property uses the water for his personal gain, without regard to another's interests in the same. As a result, if one person uses an unreasonable quantity of water, while that person is deriving benefit from the use, it leads to externalities for all the other riparian owners owning land further down the stream (i.e. lower riparian owners).

In the ideal world, where such a conflict arises, for example, between two riparian owners A and B, (B being the lower riparian owner), government intervention is not necessary to solve

'Principles of Political Economy', writes: "The essential principle of property being to assure to all persons what they have produced by their labour and accumulated by their abstinence, this principle cannot apply to what is not the produce of labour, the raw material of earth." – Joseph Mazon, *The Liberal Foundation for the Proposition of Equal Claims to Purely Natural Resources*, 24 April 2008

¹⁹ Externalities are of two types: Positive and Negative. Positive externalities are external benefits that fall on other parties involuntarily and result in the total (real) cost of production to be lesser than the cost of production. A positive externality would increase the utility of the third parties to the transaction at no cost to them, i.e. social welfare is increased, but since the providers have no way of monetizing the benefit, less of the goods will be produced than would be optimal for the society as a whole. eg. Health incentives, education, etc. It is often associated with the Free Rider Problem.

Negative externalities are external costs that are imposed on another party involuntarily and result in the total (real) cost of production to be more than the cost of production. When an externality results in the reduction of social welfare, it is a negative externality or an external cost. eg. Air pollution

²⁰ Mankiw, *Economics- Principle And Applications*, Cenage Learning India, 7th Ed., 2009; at p. 190

²¹ Florin Popa, *On Pareto Efficiency and Equitable Allocations of Resources*, Romanian Economic Journal, Year X, no. 23, June 2007

²² Such a right is a natural right, i.e. *Ex Jure Naturae*; "Riparianism in Indian Water Jurisprudence", Tony George Puthucherril

²³ Black's Law Dictionary defines the Riparian Rights Doctrine by stating that "owners of land bordering on a waterway have equal rights to use the water passing through or by their property."

²⁴ Supra n. 22



the problem, as stated above. The conflict lies in that *A* infringes on the property rights of *B*, resulting in an externality to *B*. In such a scenario, where both *A* and *B* have equal and distinct property rights to the use of the river water, the two parties can deliberate with each other and concur on a solution that is acceptable and beneficial to both parties. This can happen unimpeded only in an ideal world where there is no extra cost borne by the parties to carry out the task of negotiation, i.e. when there are zero transaction costs²⁵.

In a situation where individuals are able to conduct efficient transactions guided by the market forces of demand and supply, there is no need for any interference on the part of the government. Any such State intervention, in fact, will violate the individual's absolute right to property thereby compromising on the ideals of justice resulting in oppression.

²⁵ Transaction costs are the costs of bargaining, like travel, time, etc. Thus, those costs that are necessary to bring a transaction into existence are called transaction costs; *Supra* n. 20 at p.191

2. Identify problem/s with the base case and explain why these are problems

2.1 Introduction

In a situation where complete liberty is given to the individual for his/her decisions, and where no transaction costs exist, then, disputes arising out of the use of water resources can be settled through bargaining between the two disputing parties, without any government intervention. This is the most efficient outcome possible, where, with the given resources, parties to a transaction arrive at a point where no one can enhance his/her interests without compromising the interests of the opposite party²⁶; thereby, ensuring that the market for water attains equilibrium.

2.2 Economic Conception of Water

However, such a situation will come about only in the ideal world. This 'ideal world', is based on several fundamental assumptions which cannot be applied to the real world. The maintenance of equilibrium in the market for water resources necessitates the incorporation of these fundamental assumptions of market economics into the system.

In theory, water as a natural resource is viewed as a common good available to all, subject to the condition that every individual is entitled to an equal share in this common right. The personal share of every individual is considered an absolute property right, to be used and disposed of as per the individual's decision according to his preference.

2.2.1 Water as a Private Good

In other words, his personal share of the water resource would obey the normal law of economics. Thus, water will be bought and sold in compliance with the price that is determined by the market forces of aggregate demand and aggregate supply i.e. a **general equilibrium**.

This is a system which functions on the basis of private decision making on the part of several individuals, whose rational plans coincide to form the equilibrium. However, the smooth operation of this system relies on certain conditions such as the number of agents to the transactions, information possessed by the agents, transaction cost being zero and nature of the product.

The three preconditions have been explained in brief:

1. A very large number of agents are essential for attainment of equilibrium as it would ensure that no single agent becomes the cause of the outcome of the transaction. Because it is a situation of a general equilibrium, the agents will function according to the diktat of the market.
2. Perfect information or perfect knowledge is also vital as each unit has complete information about the market; any condition giving rise to disequilibrium in the

²⁶ Supra n. 21



market is adjusted because of information symmetry. Thus every individual would be empowered to take his/her decision after taking into account all social situations, past, present and the probable future; the individual will be able to take independent decisions with complete certainty.

3. Transaction costs are basically the cost felt for search and information, for bargaining and decision making, and for policing and enforcement of contract²⁷. In order for the market to reach equilibrium, it is necessary that transaction costs are absent, i.e. they are zero, because they are costs that are incurred by the producer outside the production process.
4. A homogenous product is one where all the units of that product are exactly identical to one another; products (or services) share the same qualities and characteristics. Only identical or homogenous units can result in the creation of equal property rights.

Now, it is imperative to understand whether the water economy described previously works upon these conditions or not.

Water is not a homogenous product; it can be classified on the basis of source, cleanliness, purpose upon purchase, etc. Each individual in the economy is vested with property rights over a given amount of water. Being not homogenous, it is not possible for the property rights of different individuals over the same amount of water to be equal, i.e. individuals invariably have unequal property rights. This is emphasized by the fact that not every individual can obtain the requisite units of water from the source directly, i.e. it would entail transportation costs, packaging costs, etc., thus creating a cost to be incurred in an equivalent unit of water as opposed to those who obtain it directly from the source (riparian owners). The cost of supply of water is high because it is bulky and expensive to transport. Therefore, developing economically viable plans and establishing equal and absolute property rights becomes a difficult and near impossible task. Moreover, lack of similar cost conditions in the market, further upsets the competitive conditions by preventing the individuals from earning the same returns on the property transferred through a market transaction. As a result, the rules of homogeneity and the consequent laws of economics surrounding such rules do not apply in the case of water.

Further, creating conditions of perfect knowledge is utopian. The perfect knowledge pool has been, till date, impossible. Because every unit in the water economy does not have perfect knowledge, social interaction will never be certain and the model undoubtedly cannot reach equilibrium. In economics, the absence of perfect information in the market can result in market failure²⁸. For instance, in this case, two parties to a transaction involving a transfer of property right for value may go awry, if one party has better or more information than the other. Thus, the absence of perfect information in the water market would lead to disequilibrium and possible market failure.

²⁷ Coase, "*The Problem of Social Cost*", states: "In order to carry out a market transaction, it is necessary to discover who it is that one wishes to deal with, to conduct negotiations leading up to a bargain, to draw up the contract, to undertake the inspection needed to make sure that the terms of the contract are being observed, and so on."; San Jose State University Article, CITE PROPERLY, available at: <http://www.sjsu.edu/faculty/watkins/coase.htm>

²⁸ Supra n. 20 at p. 184

Apart from the bare essential uses, water is not always required at the same amount all the time. For instance, during the irrigation season, water consumption will increase. At the micro-level however, the supply of water remains constant. This constant supply of water forms the basis of equal property rights. If the need for water is satisfied within the framework of the initial allocation of water rights then, the market for private water is not created. Hence, the demand for water is not always consistent, and may create a glut in the economy. In such a situation, the outcome is not efficient as the available water resource is not used to its optimal capacity.

These market imperfections import inefficiency into the system and result in market failure or lowering of social welfare. This is further accentuated by the presence of externalities like pollution, variations in quality of water, evaporation and seepage. These externalities impose costs (or benefits) on society as a whole and not merely the parties to a transaction. The market mechanism will not account for the social cost of the transaction i.e. the cost borne by a society. Thus, the equilibrium arrived at in the market will not be efficient. It has been pointed out that these social costs infringe upon the property rights of individuals in the society. However, if such rights are clear and distinct, in the ideal world, parties can bargain with each other in order to arrive at an efficient allocation of resources, without the need for any government control²⁹.

However, this mechanism of dispute resolution will be operational only if there is informational symmetry in the market. This will help to ensure the existence of zero transaction costs in the process of bargaining. However, because of the absence of distinct property rights and informational symmetry, bargaining process becomes indecisive and expensive; thereby, inefficient.

One more issue that is created, as far as the riparian rights' system of laws is concerned, is that without land, one does not have any right to water. In other words, if one is to enjoy water rights, the necessary precondition is that one should have land ownership. From a human right perspective, mere geographical proximity to water would confer no special claim or entitlement rights on a person³⁰. Further, the land must be closer to a source of natural water for easy accessibility of water.

2.2.2 Water as a Common Resource

“What is common to many is taken least care of, for all men have greater regard for what is their own than for what they possess in common with others.”

~ Aristotle³¹

The very nature of water makes it difficult, if not impossible, for the markets to achieve Pareto optimality or economic efficiency; this is due to the fact that water is a common resource. Two essential characteristics of such common resources are that they are

²⁹ Coase Theorem, “ When property rights are clear and enforceable, when all economic agents have full information, and when transaction costs are low, there is no need for government intervention to correct externalities, because the economic agents can bargain to achieve a Pareto optimal allocation of resources. Further, the ability of economic agents to achieve the Pareto optimal allocation does not depend on which agent the property right is given.”

³⁰ Supra n. 17; *Narmada Bachao Andolan* case

³¹ Supra n. 20



*rivalrous*³² and *non-excludable*³³. When a person extracts some amount of water from a water source, it reduces the amount of water available for others to use, making the resource rivalrous in its consumption. However, the water is available free of cost for anyone who wishes to use it. This makes it a non-excludable resource. This leads to a new problem: how much of the resource gets used up. This problem can be understood through what in economics is known as the **Tragedy of Commons**³⁴, as explained below.

Imagine a village that has a river running through it. The river water is a common resource as it can be used by anybody in the village and the consumption by one person of the water reduces the consumption for others. Initially, collective ownership of the resource works well as there is enough of the resource for everybody in the village, and every individual is happy. After several years, as the population of the village increases and new uses of water are discovered, the amount of water in the river goes on decreasing as it is unable to replenish itself fast enough. When one individual uses the common resource, he diminishes the other people's enjoyment of it, due to which the resource tends to be used excessively. Thus the village begins to face water shortage, and individuals do not receive the requisite water for their varied purposes. The reason for the tragedy that the village faces is that social and private incentives differ. Since the individuals do not individually own the resource, they have little incentive to take care of it, and instead extract as much personal utility or benefit from it as possible. Had the villagers acted collectively to regulate the amount of water used by every individual at a sustainable rate, this problem would never have arisen. However, no individual would be ready to reduce their water usage because their consumption represents only a small part of the problem. Further, as the tragedy of commons is a problem where one's actions affect the benefits of others in the future, concerns for intergenerational equity end up being dominated by concerns for personal benefits. Quintessentially, the Tragedy of Commons arises due to a negative externality, which people neglect, resulting in water shortage. This results in market failure due to failure to maximize efficient long-term allocation of resources, causing inefficient or inequitable outcomes.

Consider two persons A and B living near a water source such as a lake, river, etc. A's action of consuming water from the source does not exclude B's ability to do consume the water as well. Thus water is non-excludable. However, the two persons may not perceive to receive the same amount of benefits from the continuous use of this water source. Each person will place some value on the water from the source, as per his need and requirement, which will result in unequal benefits for each. In other words, for property rights of each individual to be distinct in the case of a common resource is improbable. Resources such as water are placed under the collective ownership of the society from which flows the equal right of each individual to appropriate for his own self the share of water belonging to him. However, the heterogeneity of water; i.e. its variance in quality, rate of flow, its mobility, make the efforts to establish property rights over the same difficult and unrealistic.

³² A rival good is one whose consumption reduces its availability for others, i.e. the consumption of this good by one individual reduces its consumption by others. Eg. clothing, soap, etc. – H.L.Ahuja, *Modern Microeconomics – Theory and Applications*, 15th Ed., 2009, S.Chand & Company Ltd., New Delhi, p. 810

³³ A non-excludable good is one which can be consumed by a person even if he is unwilling to pay for the good, i.e. the good is available to all equally irrespective of whether some people pay for it or not. Eg. National defence, lighthouses, clean air, etc. – Ibid.

³⁴Supra n. 20 at p. 234

In this way, the Pareto-optimality and economic efficiency of the market has been compromised due to the presence of a common resource.

Further, as an extension to the Tragedy of Commons, there is a possibility of **hoarding**. A person in the village might decide to divert water from the water source through an obstruction on the water body. The objective behind such a practice could be:

1. To create conditions of artificial scarcity in the market i.e. reduce the general availability of water to all. This would result in the development of a black market for water wherein the same is sold at exorbitant prices which fetch the hoarder windfall profits³⁵. This leads to a great amount of injustice to the villagers as only those who have the ability to pay for the resource will be able to avail of it.
2. To secure his own supplies in order to carry on his personal activities³⁶.

2.3 Conclusion

Thus the characteristics of water make it both a private good and a common resource. Both these avatars give rise to certain conditions which renders the allocation of distinct and equal property rights upon any individual impossible. This impossibility in allocating the rights in the market for private water results in inefficient outcomes from the transactions entered into by the individuals, and disturbs equilibrium. Externalities, imperfect information and transaction costs will prevent the individual from arriving at the optimal situation of maximum personal benefit through bargaining. Further, in the absence of collective responsibility, water as a common resource is not managed efficiently due to variance in personal incentives. There is no binding determinant of the extent to which each individual may utilise the water or the nature of such use resulting in water scarcity, damage and other related problems. In such a scenario, the sheer size of the population (i.e. the number of agents involved in the transaction, or the number of individuals in the community) will make it exceedingly unlikely that the people, on their own, will be able to define and allocate the share of water to each individual/community.

In other words, the property rights to water will remain obscure and indefinite. Any attempt at autonomous administration of water at the individual as well as the market level will be futile. All the factors discussed above will not allow for an efficient allocation of water through governance by the rationality of individuals who comprise the community. Further, the lack of sanctioning power by such self-governing individuals and communities has no binding value and will lead to immoral activities like hoarding resulting in a parallel black market.

To conclude, there are several forces that conspire against such individualistic administrations, causing a dire need for the presence of some form of regulations and binding authority.

³⁵ Illegal water markets have flourished in India for several years now.

Sandeep S.N., *Right to Water And Impact of Privatisation*, NUALS Law Journal, Vol. 4, 2010 at p. 51

³⁶ Association for Consumer Research, *Scarcity and Hoarding: Economic and Social Explanations and Marketing Implications*, Ronald Stiff, Keith Johnson and Khairy Ahmed Tourk (1975), Book name: NA – Advances in Consumer Research, Volume 02, Edited by Mary Jane Schlinger, Ann Arbor, Michigan, pp. 203-216



3. First principles test (of classical liberalism)

The problems highlighted in the previous chapter prove that bargaining between private individuals consequently break down due to the difficulty of coordination, imperfect information, costs of transaction and externalities. Further, the common resource of water cannot be managed collectively due the desire to maximise personal benefits and due to corrupt activities such as hoarding.

In imperfect markets, with information asymmetry, no efficient solution is possible as the parties to the transaction lack the relevant information to make maximizing decisions. Private bargaining among the parties involved in the production process would prove to be inefficient as it would entail high transaction costs arising out of negotiations. This would mean that the outcome, so arrived at, is inefficient.

At the same time, well defined property rights do not necessarily ensure that such property will be allocated efficiently and function in harmony with each other. Not only will this result in inefficient outcomes but they will also undermine the existing social welfare and enhance individual welfare in an immoral fashion. In other words, the collectivist nature of the society will break down.

The individuals in the community will then appoint an impartial agency to negotiate any conflicting decision that may arise in the allocation of water resources from time to time. This mechanism does away with the issue of transaction cost as the bargaining process no longer remain private. Rather, this impartial agency will function on certain set principles in order to ensure that the delicate balance of rights and duties is maintained and the collective interests of society as a whole is secure.

These regulatory authorities is to form 'mutual protection agencies': 'mutual' in the sense that each individual would secure protection of his or her own rights by contributing to the setting up and proper functioning of this agency in the common interest of all. These agencies will perhaps run on the lines of today's cooperative societies.

A single agency will, however, not have the capital, support or the scale to manage a vast resource such as water, for a large population inhabiting a large territory. This will allow the existence of several such agencies operating within a market providing protection functions to defined communities within the national boundaries.

The management of the water resources for such a large population will require that the agencies or cooperatives be endowed with certain rights which previously belonged to private individuals. In order to avail of these protective functions of the agency, the individuals will inevitably delegate some of their rights to it; for instance, the right to enforce one's property right against another through bargaining, negotiation or through pure force.

In time, with a growing degree of specialisation in their activity, the dominance of a few such cooperative agencies will increase so much that they will eventually acquire a greater operating power than the market can accommodate. The immense size of these cooperatives will lead to their pursuing destructive policies such as price warfare. In this war, only one can emerge victorious. Therefore, in order to eliminate such detrimental competition and enhance efficiency in each one's own activity, each cooperative will opt for horizontal integration and merge to form a single superior protective agency. This single

agency has monopoly over the market and will therefore be able to enforce its writ over the entire society.

This does not mean all individuals will subscribe to the dominance of the agency. However, the fact remains that these agencies do not have a binding approach to the entire society; there is eventually some level of injustice being done because these agencies do not extend their services to every single individual. The usurpation of bargaining powers by these agencies leaves little for the minority of individuals who do not wish to place their confidence in the superior agency. Soon, the power to enforce its will over the people becomes coercive.

However, it is only the State that has been vested with the legal monopoly to violence³⁷. Further, the adjudication of disputes involving the community as a whole is the sole responsibility of a sovereign body that has been vested with the right to do so – the State, manifested in the Government. This involves a power to extract revenues in the form of taxes for the unimpeded administration of the society, enforce law and order, ensure justice by reprimanding offenders, etc. It is highly improbable that a private cooperative will be able to and be allowed to exercise complete control over individuals as would a sovereign Government.

3.1 Conclusion

Both the State and the cooperative body exist to secure the interests (or property rights) of the individual. This involves the task of an initial allocation of rights and subsequently balancing these allocated rights against each other. In other words, the regulating body is entrusted with the duty to maintain 'justice'. The right of every individual to an equal share of the water resource has to be ensured through the initial allocation of property rights – 'distributive justice'. This function involves the distribution of a well-defined property right. The individual will exercise his/her free will over this property subject to the dictat of this body. In other word, the extreme degree of control that an individual might have exerted over such rights, which could be so high as to result in infringement of another's rights, is disallowed by the existence of the regulatory body. Any nonconformity to the regulations imposed by the body will attract penalties or admonishments – 'corrective justice'. This will necessitate the use of coercive methods in order to bend the will of the individual towards the collective interest of the community. In this situation, an individual will only give up his property right when the agency he is delegating his rights to will take him to a circumstance which maximizes his personal benefits and interests as much as is possible.

It has already been pointed out that in a State having the Rule of Law the Government will not allow the delegation of sovereign functions like Justice delivery – which comprises the determination of the principles of right and wrong and the its enforcement – to a private body:

*"The first duty of the sovereign is that of protecting the society from the violence and the invasion of other independent societies.....the second duty of the sovereign is that of protecting, as far as is possible, every member of the society from the injustice or oppression of every other member of it."*³⁸

If by any chance a private body is so allowed to exercise such sovereign functions, it would effectively give rise to a dual centre of power wherein the private body in its own sphere

³⁷ Refer to Chapter 1.

³⁸ Lipsey & Crystal, 11th ed., Oxford University Press, 2009, New York, USA; 283



begins to govern and administer the society. This undermines the authority of the government which is the only body that is conferred with the legitimate powers and duties to carry out these functions.

However, the Government may not take up the role of regulator on these grounds alone. The interests of the individual and the society are of paramount importance and must, therefore, be respected. Society oftentimes will prefer a non-governmental solution, if their interests are protected through that solution. These interests may be said to be protected if the conduct of private transactions remain efficient (or as efficient as possible).

This non-governmental solution, as it turns out, may not be quite as effective either. In the case of a private body, the individuals surrender their property rights to the body, ensuring that their interests to secure the water they are entitled to have been protected (i.e. they remain beneficiaries of the resource). Thus the collective ownership of the resource rests with the private body. In exercising the function of resource allocation that is given to it by the society, the private body soon gains a monopoly over the resource. The lack of competition gives the monopolist cooperative absolute control of the market. Over time, as the protection of rights become expensive, the monopoly will keep acquiring more of the individual's rights in order to ensure efficiency in its functioning. The market comes to be dominated by an exploitative power instead of the protective regulatory body that it started out as. It must be kept in mind that this body is a private profit maximising body and will never provide its services without profit. In this manner, monopoly body may gradually make the water excludable by the use of coercive methods. Ideally, this will enable the body to allocate distinct property rights to the individuals, but with a drawback. A monopoly³⁹ by nature of its being a monopoly is inefficient.

It has already been pointed out that inherent market imperfections result in inefficient transactions. In the case of a monopoly, it is also true that the monopolist will provide his services deliberately at inefficient levels. In other words, the individual will have to forego not only his rights to the body but also pay higher prices for services he receives. Thus, he will be paying for more than just the services he is receiving. This excess payment is the profit earned by the monopolist. This situation is visibly that of lower welfare than in the ideal world. The unrequited payment is in the nature of a deadweight loss⁴⁰ similar to the deadweight loss (i.e. loss of welfare) caused by a tax. Therefore the agency is like a private tax collector. The difference between the Government and the monopolist agency is that the Government treats this tax as revenue for the purpose of carrying out the essential sovereign functions that it was created to perform, while the private agency will view this as profit and will seek to exchange for these profits more property rights. By buying more property rights or by enhancing bargaining power through its financial superiority over the individual, the private monopolist body is effectively culminating in a conglomeration of every aspect of water management and ownership within itself. Eventually, this situation will give rise to greater injustice than the previous situation of lack of regulation.

The Government, on the other hand, is the guardian of the interests and rights of every single individual in the Nation. It will intervene in the freedom of transactions by individuals only when absolutely necessary, i.e. when the society is unable to conduct such transactions

³⁹ A monopoly is a market controlled by one firm alone. In this market the seller sets the price and the firm's supply constitutes the market supply.

⁴⁰ The costs to society created by market inefficiency caused by an inefficient allocation of resources. Available at: "Investopedia", <http://www.investopedia.com/terms/d/deadweightloss.asp#axzz2MDUtIAAZ>

efficiently simultaneously resulting in the detriment of the common interest of all. In the present situation, it has been seen that individuals, no matter which alternative they choose, are rendered incapable of managing and allocating water resources efficiently. In their individual capacity, they are too disorganised to coordinate among themselves, the efficient use of water resulting in damage to social welfare. The formation of a cooperative body will lead to the rise of a self-created monopoly power in the economy which will destroy the rights of citizens and result in a despotic pseudo-government for controlling water. The only alternative and the best solution would be for the Government to take up the role of the manager and regulator of the water resources.



4. Options: What can government do about the problem/s?

4.1 Introduction

The Government comes into the picture in order to rid the society of the oppression of the cooperative body, which the people had appointed as the safe-keeper of their collective and individual interests. The question remains as to whether the monopoly of the cooperative body is to be substituted by that of the State.

The intervention of the Government on behalf of the State in the management of water resources can only be justified if such intervention has been done to prevent greater harm, than that which would have occurred in an unregulated market, from being caused, and in order to secure and enhance the interests of the people in the society. In order to meet this end, the Government must ensure that efficiency is maintained in private transactions. The courses of action before the Government range from minimal control of market activity (market liberalisation) to outright 'nationalisation' of the water resource. Irrespective of the course taken, the Government will have to allocate the property rights in order that the use and management of the water resource remains efficient.

4.2 'Command and Control' Policy

Where the market structures do not allow for an efficient outcome, people must either learn to live with such an outcome or to allow the Government to function as a regulator. The Government thus takes full control of the water resources, due to which private entities will have no say in the management and utilisation of the same. They will have to accept the rules laid down by the Government with regard to allocation of the water resource. The Government, in its capacity as a Sovereign authority, has the right to impose sanctions on any violation of the rules set down by it. This mechanism works by compelling the private entities to pay heed to the Government's diktat. These types of coercive methods are what, in legal literature, are referred to as 'Command Theory of Law'⁴¹.

However, such an extreme measure should be adopted only as a last resort. When the individuals are divested of their power to independent transactions and the government 'makes' their decision for them, people may be said to be 'controlled' by the services being provided to them⁴². Such remote-controlling by government destroys the individuality and dignity of the person by denying him all his rights of life, liberty and property; something which is ultra vires the powers of the Government. Finally, it leaves the individual vulnerable to abuse. Because they are dependent on the government for the continued supply of an

⁴¹ Paul Spicker, *Social Policy – Themes and Approaches*, Rawat Publications, 2nd Ed. (Revised), 2010, p. 72 – Austin's Command Theory of Law

⁴² Id., at p. 192. "Control' does not always refer to direct effects; it might also be held to refer to cases where the opportunity to form different choices, rather than the costs or benefits of the options available, is limited."

essential of life, i.e. water, there is a high possibility that the officers may misuse their powers in order to extract benefits from the helpless individual.

4.3 Depolitisation

4.3.1 Minimal State Regulation - Empowerment

On the other hand, being the protector of all natural rights, the Government is vested with the duty to uphold the absolute rights of man – life, liberty and property. Once there is initial endowment of property rights, the State's role is limited to ensuring that the allocated rights and liabilities of the individuals are maintained (*status quo*⁴³), i.e. the model is insulated from external forces. So, where there is minimal State regulation, private entities will participate in market activities so as to conduct buying, selling and transferring of water. All the State will do in this situation is to regulate the manner in which the common resource is utilised and define the property right that will be allocated to the individuals. These regulations will serve to provide for 'incentives' and 'disincentives' which will encourage rational human behaviour towards the desired goal. This form of executing Government policy is what we could term as a 'night-watchman' function wherein the State merely facilitates the smooth operation of the market for the water resource.

In the pursuit of this strategy, the government will provide for a 'mechanism by which people, organisations and communities gain mastery over their lives'⁴⁴.

At the individual level, the person is allowed to decide for himself. The autonomy of the individual is thus maintained and he is free to engage in transactions. At the collective level, this policy strives to enhance the participation of the community as a whole. This involves the creation of mechanisms which would provide a platform for individuals placed in different circumstances to transact with each other on an equal footing and participate in the operation of the market.

4.3.2 Auctioning Policy

The Government may further choose to facilitate the market processes through a process involving 'auctioning' of the water resource. This method would involve the Government taking over the ownership rights of water resources in its territory. The Government will ensure that the use of the water resource by the public remains unobstructed. So, it will set about defining the right of each individual to a share in the common resource. The amount so defined is meant only for the personal use of the individual and cannot be traded in on a market. The allocation of the water will be based on every individual's needs —water being an essential of life.

If after such allocation any part of the resource is left over as residue with the government, these remaining units of water will be disposed off to individual entities by the Government, in a process similar to 'auctioning'. This excess resource is transferred for consideration to the private sector. In this new avatar, water will be a commercial good; an asset to be traded in the market. Further, the proceeds from the sale may be used by the government to recover the cost of providing service to the individuals.

⁴³ We should not mistake the term *status quo* to be stagnation. What we mean is equilibrium through changing conditions. This equilibrium within the society refers to maintenance of those property rights that were allocated during the initial endowment. Such equilibrium would ensure the outcome is equitable (under conditions of externalities) is not absolute equality.

⁴⁴Supra n. 41, at p. 193



The procedure for such 'auctioning' of rights to the water must be laid down. The procedure so laid down must ensure that procedural fairness is maintained. Government may prescribe some standard for participation in such a competitive 'auction' for the rights to water.

A two stage screening process can be put in place. The rationale for this is that the Government will be able to ensure that the water is used in a responsible and reasonable manner, i.e. to ensure that there is no wastage of water. Thus, the initial screening process will involve reviewing applications by different entities and deciding upon those entities that plan to use the water in reasonable manner which would exclude use for pollution, wastage, etc. or any other use detrimental to society. Further, it would screen out all non-serious candidates. The number of applications chosen to go to the second round would depend on how much water is allocated in a particular season for the auctioning process. The second round would be the bidding round wherein entities use their finances to obtain as much water as is needed or as much as they can, subject to their own financial restraints. This would ensure a fair system of water supply to all private users, as well as to commercial users of water. Now these commercial users of water constitute the market for water resource that functions on the basis of leasing, licensing or simply selling of the water resource that has been bought. Also, self consumption of such water resource is also possible where the user utilises the same in their production process.

4.4 Critical Analysis

Whatever be the policy adopted, it should be borne in mind that the end of such governmental intervention for the delivery of essential goods such as water is the creation of welfare. 'Welfare' will come about, as has been discussed earlier, when the water resources will be allocated to all individuals in the society such that no individual can be made better off through redistribution of such resource without resulting in someone else being worse off⁴⁵.

The policies enumerated above all seek to enhance societal welfare through various levels of State intervention. It is demonstrable that in cases of 'nationalisation' of resources where the government takes complete 'command and control' of the management and use of the resource, it enforces its writ through its power of sanction i.e. it uses coercive force against those who violate the rules it lays down. However, as has already been pointed out previously, this policy, if pursued by the government, will lead to the violation of the inalienable rights of man, the loss of his dignity and the possibility of his being oppressed by the officers of the State, which might lead to a law and order crisis resulting from the individual standing up to the State, and the subsequent failure of the mechanism of the State.

Further, we may look upon the State as a monopolist. Having full control over the water resources, the Government would be able to exercise the same monopoly power over the market for such resources as would have been by a private monopolist entity. However, it has been seen that the State would normally use any monopoly it holds for the welfare of the people⁴⁶. Despite the best intentions of the Government, the services cannot be provided free of cost. The Government incurs a cost in providing these services; it is not a self-financing entity and will not be able to bear the cost of delivering the service without either creating new money or without levying a charge on the people for the use of facilities for water.

⁴⁵ Supra n.21

⁴⁶ Supra n. 6

Now, if new money were to be created for the purpose of financing the management of the water resources, the effects of the increased money flow will not be limited to the sphere of water only. Money being the medium of exchange, an increased volume of money in the economy will cause an increase in the aggregate demand for goods as the purchasing power of the individual increases. A sudden shift in the aggregate demand without an equivalent increase in the aggregate supply would lead to inflation. Therefore, this artificial inducement of currency in the economy creates inflationary pressures which will upset economic activities throughout the country. Thus, the creation of money is not a viable or advisable option.

However, if the Government were to provide the services upon the levy of a charge to finance these services, it is theoretically possible that the economy might remain in equilibrium. The amount of charge levied on the society will be used to cover both the fixed cost as well as the variable cost⁴⁷ associated with the supply of water. However, it is a serious misconception to consider this situation as that of an equilibrium in the market. This is because the supply of water, which is provided by the Government, is not in consonance with market needs. The Government is not integral to the market, due to which it cannot determine the demand for the various different uses of water by different individuals – this is further accentuated by the fact that there exists information asymmetry in the economy.

In other words, the demand for the essential needs for water (for instance drinking, cleaning, bathing, etc.) is determined by a body that is not even a part of the society, and so would have no foolproof method of recognising the daily water needs of the society. As a result, due to this kind of information asymmetry, there is a high possibility that the Government will provide more water than is necessary to Region A, resulting in squandering of resources, and provide less water to Region B, which is facing acute shortage of water. In following this practice, there is no equitable distribution of water, lowering the efficiency of Government system of distribution as well as adversely affecting the welfare of the society.

Further, the Government can never be a 'businessman'; it can never look to earning profits out of the transactions that it effects in society. Therefore, it will always charge such prices as are necessary to cover its expenses in the implementation of its allocation system. However, this does not take into consideration the existence of differently placed individuals in the society, as well as the different statuses of individuals and a private industry (this is nothing but a private entity as discussed in earlier chapters). The Government will levy the same charge on every entity in the economy regardless of their economic standing, resulting in the perpetuation of economic inequalities.

Thus, 'nationalising' of the resource by a coercive Government is not a viable option.

As far as auctioning off the water resource is concerned, there are several inherent loopholes in the process. The two stages of screening confer on the Government a wide range of discretionary powers leaving open a possibility for gross mistakes in the allocation of the resource, or, in extreme cases, procedural inconsistencies and biased or unreasonable allotment due to the fact that these allotments are based on subjectivity⁴⁸.

⁴⁷ Supra n. 20

⁴⁸ An instance of such unfeasible model of allocation of resources is to be found in the Indian Government's decision to allocate coal resources to private players after three decades of state control. – *Draining a Nation's Wealth? Coal Denationalisation in India*, AVAILABLE AT: <http://blogs.lse.ac.uk/indiaatlse/2012/09/24/draining-a-nations-wealth-coal-denationalisation-in-india/>



An example to understand this would be found in *Sanjeev Coke Manufacturing Company v. Bharat Coking Coal Ltd.*⁴⁹, the Supreme Court of India held that coal was to be viewed as a “material resource of the community capable of producing wealth for the community”. According to the judgment, where competing social and economic factors have to be weighed, “legislative wisdom” must prevail. Through the use of the screening process, thus, the Government made allocations relying on the judgment of the “many participants in the Screening Committee acting collectively”⁵⁰, which were allegedly biased and prejudicial to the interests of the market for coal and society as a whole.

Further, there is no infallible system of checking the accuracy of the information provided in the various applications by the entities. Thus there is a large scope for misrepresentations or half truths, causing injustice in the allocation of the resource. Also, there is the likelihood of corruption breeding in the form of practices like bribery to secure a favourable outcome of allotment. More laws will then have to be formulated to keep such practices in check. The cost of enforcing such stringent measures and the potential social cost⁵¹ that might be imposed make this option undesirable and unnecessary.

However, a different policy option involving minimal State regulations would mean that the functioning of the free market for water resources is left mostly untouched. The Government, under this policy model, does not take over the functioning of the market, nor does it engage in a process of competitive bidding or discretionary allocation of resources to private individuals. What it does, however, is that it **upholds the original, inalienable rights of every individual to a share in the water resource**. In other words, the task of the State is to define the extent of the property rights of the people i.e. specify the share an individual will have in that resource, lay down rules for the use of such privately owned water resources and finally regulate the market transactions for the private water resource. Any non-compliance with these interventionist measures would attract sanction from the government.

4.5 Minimal State Policy – Highlights and Significance

The Government would begin by specifying the property right of every individual in the common resource i.e. water. This would mean that the Government make an in-depth study of the needs of the individual with regard to his individual share in the common resource. The study undertaken by the Government will seek to reduce the gap in the difference of ‘need’ in the nature of a ‘desire’ and a ‘right’. As a ‘desire’, it is a frivolous want that is unsupported by any claim to efficient usage of the allocated property. On the other hand, a ‘right’ in this case would mean an absolute, inalienable right to usage of the allocated property.

The completion of this kind of a study undertaken by the Government would reduce the informational asymmetry. It can then proceed to determining the share in the resource that would satisfy the right of the individual. While doing so, the State will create an entitlement

⁴⁹ 1983 AIR 239

⁵⁰ *Coal Scam: Full Text of PM Manmohan Singh’s speech in Parliament*, AVAILABLE AT: <http://businesstoday.intoday.in/story/coal-scam-full-text-pm-manmohan-singh-speech-in-parliament/1/187552.html>

⁵¹ Illegal pay-offs and other corrupt practices can increase the cost and lower the quality of public works projects by as much as 30% to 50%. – *The Political Economy of Corruption – Causes and Consequences*, Public Policy for the Private Sector, The World Bank, April 1996, Author: Susan Rose-Ackerman, AVAILABLE AT: <http://rru.worldbank.org/documents/publicpolicyjournal/074ackerm.pdf>

to be enjoyed by every individual⁵². This entitlement to the natural resource of water will need to be *transferred* to the individuals in the society. The Government will effectuate such a transfer as per its findings in the study conducted. This exercise must ensure two things: one, that every individual is entitled to an equal share in the resource; two, that those uses of water that are absolutely essential to a decent standard of living are given preference. In other words, the amount of water to be allocated for commercial uses should be subject to the availability of water after the demand for essential water has been met, and after keeping in mind the levels of sustainability of the resource over various time periods⁵³. The Government must ensure that this exercise is done in a transparent manner so that justice is done to society as a whole. Once this allocation of property rights (in the form of entitlements) has been completed, the Government's next task is to ensure that these rights are well protected; it will formulate such laws as will provide for the security and enhancement of these rights, and will make sure that these rights cannot be taken away from the individual.

These laws are to provide for 'incentives' and 'disincentives' so that individual behaviour is guided towards the desired goal of achieving social efficiency⁵⁴. This would imply that the Government is able to reduce the social costs arising from the private transactions of individuals in the market for water. 'Incentives' are provided in order to manipulate the individuals to cooperate with the Government by following the rules laid down by it. The 'disincentives', on the other hand, will impose costs on the deviants and will reduce their inclination to disobey.

'Incentives' will depend on three major factors⁵⁵:

- Availability of water for every individual: The more water available to an individual under the law, the more he is likely to follow the same. Therefore the Government should strive to frame such a policy as will ensure that the *per capita* availability of water is greater than that without the law.
- Excludability of the resource: The Government should lay down, in clear terms, the right of every individual to use the available water. In doing so, it strengthens the property rights in water and enhances the bargaining position of the individual in the market.
- Broadening the basket of potential benefits: The Government must frame policies taking into account the perceptions of the individuals with regard to water. This can

⁵² Robert Nozick, *Internet Encyclopedia of Philosophy – A Peer-Reviewed Academic Resource*, AVAILABLE AT: www.iep.utm.edu/nozick/#SH2a

⁵³ Water is to be allocated as per the availability in a particular time period i.e. a season of the year. This form of rationing of water ensures that the demand for water is adjusted as per the supply and an efficient solution is reached. – *Dry Season Water Allocation in the Chao Phraya Basin: what is at stake and how to gain in efficiency and equity*, Francois Molle, Chatchom Chompadit, Jesda Keawkulaya, AVAILABLE AT:

http://std.cpc.ku.ac.th/delta/conf/Acrobat/Papers_Eng/Volume%201/Francois%20Molle%20Chatchom%20Chompadit%20Jesda%20Keawkulaya.pdf

⁵⁴ Robert Cooter, Thomas Ulen, *Law & Economics*, 4th Ed., 2004, Pearson Education (Singapore) Pte. Ltd. Printed in India by Pashupati Printers Pvt. Ltd., Delhi, p. 4

⁵⁵ Halla Qaddumi, *Practical approaches to trans-boundary water benefit sharing, Working paper 292, Results of ODI Research presented in preliminary form for discussion and critical comment*, July 2008, Overseas Development Institute, London, AVAILABLE AT: <http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/2576.pdf>



be done utilising the study that has been mentioned above. By doing so, the Government will be increasing the information that the individuals have, thereby aiding in the strengthening of property rights and bargaining power, resulting in greater benefits accruing to the individuals.

Thus it has been demonstrated that the Government can successfully employ the use of 'incentives' to manipulate private behaviour towards cooperative and efficient outcomes.

'Disincentives', on the other hand, can generally be understood as punishments. They impose costs upon the individual and lower his/her tendency to disobey the Governmental norms.

However, it has been seen that the market will not be able to act solely on the basis of these 'incentives' and 'disincentives'. There is greater need for the enforcement of these laws. The only way to do so is by regulating the day-to-day functioning of the market without any hindrance to the essential freedoms that the market is endowed with. The Government cannot, however, do so directly for want of **time and expertise** in such a specialized market⁵⁶. This requires that the Government delegate its functions of regulation to a body that is empowered to carry on these functions. Such delegation of administrative authority can be held to be synonymous to 'decentralisation'⁵⁷.

Such delegation of powers, in the form of decentralisation, would allow for the scope of, what is known as, 'Community Driven Development': which involves economic efficiency, public accountability and empowerment. Benefits accruing from decentralisation may be:

- Greater voice and choice of individuals to influence decisions which affect their lives and of sub-national and local Governments to respond dynamically to constituency concerns.
- Allocative Efficiency: Matching of local needs and preferences with patterns of local public expenditure (assumes substantial fiscal autonomy).
- Empowerment of districts, villages, communities and individual constituents.

This builds the case for a decentralised body for the regulated distribution of water in a river-basin. Thus, there is a wide scope for USER EMPOWERMENT.

Thus, through delegated legislation, there shall exist a **River-Basin Management Authority** (henceforth referred to as Authority) stationed at several lengths along a river. This Authority will have certain distinct features about it which will enable it to function in a manner that is satisfactorily within the realms of justice:

1. Representation and Participation: The Authority will ensure representation and participation of the members of the community, thereby addressing all the water

⁵⁶ Delegated Legislation; *Why is it necessary to have controls over delegated legislation? Are the present controls satisfactory?*, Kierendeep Chahal, AVAILABLE AT: <http://www.peterjepson.com/law/Kieren%20Chahal.htm>

⁵⁷ Delegation is an extensive form of decentralisation. Through delegation, Central Governments transfer responsibility for decision making and administration of public functions to semi-autonomous organisations, not wholly controlled by the Central Government, but fully accountable to it: *Decentralisation & Subnational Regional Economics, 'Administrative Decentralisation'*, AVAILABLE AT: <http://www1.worldbank.org/publicsector/decentralization/admin.htm>

needs of every single individual. Decision making powers will be inclusive, and will thus represent the interests of all stakeholders.

2. Accountability: There will be a mechanism through which the distribution system will be made answerable to the community. Eg: Transaction records, accounts books, correspondences with higher authorities, etc. should all be produced upon demand.
3. Access to information: The people must be allowed to have access to information because the lack of information denies them the opportunity for comment or control.
4. Choice: It is essential to allow the individual to exercise his free choice to participate in the decision-making process.
5. Redressal mechanism: The Authority should have the jurisdiction to ensure that any grievance that may arise from time to time is redressed convincingly.

The end-goal of such a basin management authority is to transfer effective power to the grass-roots and to leave the freedom of decision-making with the people. The lowest rung of the management chain will be the village, followed by the Regional Authority. The highest body of control will be the Central Authority. Each river basin will then be managed by such authorities. These authorities will function under an umbrella-body which would serve to ensure accountability of these bodies, as well as direct and coordinate their efforts towards the accomplishment of specific goals keeping in view short-term and long-term requirements in mind.

The Authority shall need finances in order to carry on its function as regulator in the market for river-water sharing. However, it is not possible for the Government to create money for the financial support of the Authority, nor can it allow the Authority to generate its own finances through the levying of taxes as that would result in hindering the free functioning of the market⁵⁸. However, it is possible to set up a **fund** to be utilised for the management of the river water resource. The fund may be utilised in meeting the administrative expenses and activities undertaken by the Authority.

Further, information related to commercial uses of water will also be collected using these finances. Any excess financial support will be extended by the Government in cases of absolute necessity with adequate reasons provided by the Authority demanding more finances. The normal finances will be used by the Authorities to maintain their infrastructure, distribute water, and manage their other administrative functions.

Thus the Authority will function on the lines of a cooperative society. It would be an association of persons who work together towards the accomplishment of the common objective of maximisation of community welfare. The capital of the Authority will be subscribed to by all the individuals in equal proportions. This subscription constitutes the 'fund' from which the Authority finances its activities. Surpluses, if any, may be paid back to the members or re-invested towards the activities. Such surpluses may also be kept as reserves during times of emergency such as, drought or flood situations, which will be accounted for.

In order to make the Authority a true representative of the people, a democratic structure of governance must be put in place. The Authority exists for the people and must therefore take decisions by popular vote. The decisions so taken by the general body of the people

⁵⁸ Taxes are considered leakages and, by their very definition, are imposed without any specific account of their utilization given



must be implemented by the **Governing Council**, which is nothing but the executive body of the Authority. Every member of the Governing Council is to be handed specific portfolios. In other words, there will be an effective system of division of labour, such that every function performed by the Authority will be classified under main heads and categorized into individual Departments. The decisions taken by the Governing Council has to be on consensual basis. Any dispute that may arise from any aspect of the management process will be decided upon by a tribunal that has been vested with judicial powers.

At the village level, **all families are a part of the Authority working at that level**, and constitute the **General Body**. Decisions are taken by the community as a whole, with each household (family) having one vote. These decisions shall be implemented by the Governing Council of the village Authority elected by the families through free and fair elections. A group of such village Authorities shall constitute the Regional Authority wherein the members of the Governing Councils of all Village Authorities in a particular region shall elect a representative of such Village Authority to partake in the decision-making process at the Regional level. This body lays down guidelines to be followed by all village authorities comprising it.

Finally, the umbrella body at the national level in the form of the **Central Authority** is a body comprising of the elected representatives of the Regional Authorities who deliberate in order to formulate a national water policy which would serve as guidelines for the country as a whole.

Alternatively, both the Regional and Central Authorities have **judicial functions**. They shall be vested with the jurisdiction to try all cases which come in appeal before them from the lower authorities, i.e. from the Village Authorities in case of Regional Authorities and, from the Regional Authorities to the Central Authorities. The judicial body shall be a separate wing of the Council⁵⁹.

These judicial bodies will be imperative in the justice system for the water economy, particularly in the case of water theft, as will be elaborated upon further, in Chapter on Strategic Gaming.

In the distribution of water to private individuals, the Authority shall operate on the basis of a set framework that prescribes the following procedures:

1. Water shall be given to households upon the issuance of a **water permit**. This water permit acts as a licence with which every private individual can secure his daily essential water needs. New consumers, in order to gain a water permit, will have to apply to the Authority in this respect, and will have to furnish some form of Government issued Identity proof, like a Unique Identification Number.
2. Every household shall have a **water meter** installed. This meter will measure the amount of water that has been consumed or utilised by a household during a given period of time, say a month. The water will be measured on volumetric basis. The installation of such a meter at a household will be done by an authorized official from the Authority, upon issuance of a water permit for that household.
3. At the end of a specified time period, say a month, an official from the Authority will check the water meter at every household in order to issue the **water bill** for that

⁵⁹ and will be in the nature of the House of Lords exercising its judicial functions

period of time. This kind of charge is levied in order to raise funds for the Authority, and to charge for the water supply infrastructure.

4. Not all households and residents are located near a river water source. This requires an efficient and well-connected network of **pipelines** that will carry the water from the source to the destination. Since water cannot always be delivered to every single household, instead, it can, upon distribution, be left to the local Authorities, with a direction to distribute it at the local level.
5. As the pipelines carry tonnes of water on a daily basis, good maintenance of the pipes is essential for the smooth functioning of the Authority. This brings about the necessity for regular **Maintenance Teams** checking the condition of the pipes, and reporting and repairing any damage to it.
6. A very resourceful method of checking damage to a pipeline is through the installation of **pressure points at every node** along the pipeline, i.e. after regular gaps along the pipeline. These pressure points will be able to detect any drop in the pressure at a particular node when compared to the neighbouring ones. When this is detected, it can easily be concluded that there has been some damage to the pipe, which needs to be checked, and a Maintenance Team can be dispatched to the area.

The funds collected by the Authority will all be utilised in these types of infrastructural developments which will eventually make it easier for the distribution of water to every individual. The construction of an intricate network of pipelines, installation of water meters, installation of pressure points in the pipelines, etc. are designed to render the whole process of distribution a whole lot easier. They also help in preventing the system from being cheated thereby ensuring that the individuals' rights are not taken away from them.

Water at the commercial level will be provided only after the essential uses of water by every single individual in the society has been satisfied. However, as explained earlier, water also has a commercial aspect to it. Individuals, in their capacity as commercial entities, have every freedom to engage in the trade of water, for the varied uses of water, like drinking of purified water, recreational ponds in parks, swimming pools, water-sports, etc. Further, every industry, no matter what it manufactures, makes use of water as an essential resource for the manufacturing process. In order to facilitate this kind of commercial use of water, the Authority supplies water to every commercial entity in the market. Further, in case households or commercial entities require more water for any use, they may buy such water from the open market. This kind of trade helps in increasing competition in the market. It also leads to the emergence of several middle-men organizations that buy water from the Authority and sell it to farmers for irrigation purposes, to industrialists for their varied uses, to commercial entities for their recreational activities, etc. In order to ensure that no entity charges too much and exploits the individuals in the trade, the Authority will fix a threshold level for the prices that such traders can charge.

However, there still remain certain aspects of River-Basin management which require that the Authority directly intervene, in its capacity as a community organisation, and cannot be left to the market to sort out.

These functions include:

- a) Water to be supplied to the residences not adjoining river water courses in keeping with the principles of the **equal rights** to the use and distribution of water. The water supply may be used for drinking water purposes, irrigation for agriculture or any other



- commercial use. The consumers of such services are to be charged according to a volumetric measure.
- b) The Authority must ensure the **sustainability and health** of the resource. It has to incur costs to implement schemes for the same. This will require several investigations into the climate, physical infrastructure, drainage, etc. which will have to be laid before the General Body. Based on this data, schemes will have to be formulated to maintain the water in the rivers.
 - c) The Authority also acts as a **disaster management board** in order to control flood and in times of droughts:
 - i. **Flooding** is a problem that will be faced regardless of the proximity to the water source. In order to control such flooding, several investments have to be made, such as the construction of dams, self-closing flood barriers, reservoirs, diversions, bunds, levees, weirs, etc. In order to decide on the type of flood control mechanism to be invested in, the different plans should be proposed and discussed in the General Body. The decision of the General Body will be implemented by the Governing Council.
 - ii. Drought mitigation involves prediction, monitoring, impact assessment and response⁶⁰. This includes a range of climate studies, ground-based information such as rainfall, water availability, demographics, etc. Schemes of rain-water harvesting or an even more ambitious Inter-basin water transfer plan, if found to be cost-effective and environmentally feasible, can be considered by the General Body and Governing Council.

These kinds of disaster management programmes can be effectively implemented using the funds that are set up through the Authority. This necessitates an increase in the public awareness about drought, flood, and other disasters that have extremely dangerous consequences. If the public are alert and know the impact that disasters can have on them, they will be able to actively participate in local planning and contribute collectively towards reducing the dangers.

Thus, private individuals functioning in the market framework will not be able to respond effectively to the above contingencies, which are essentially market externalities, without the help of the Authority. The Authority alone can provide for cost-effective efficient solutions, which would serve the ultimate goal of ensuring market freedom.

4.6 Conclusion

Market regulation in this manner by the State is not very efficient; through complete efficiency, some amount of welfare is always lost. However, the efficiency achieved by the State in this manner is certainly more than that achieved in an unregulated free market economy for water or in the other alternatives specified above. The State is effectively able to allocate property rights and bring about the distribution of water in a manner that will ensure that the society as a whole is empowered and involved in the process. Further, it has helped in the sustainable management of a common resource. Thus the State has not completely taken away the liberty of the individual, but has only taken away a small part of

⁶⁰ Drought Mitigation, AVAILABLE AT: http://threeissues.sdsu.edu/three_issues_droughtfacts04.html

it. By entering the market in this manner, the State has not slowed down the system but has acted as a catalyst to reaching the goal of efficient resource allocation.



5. Freedom test

5.1 Introduction

“Freedom does not mean happiness. One can be free and yet be miserable.”

It can be safely concluded that while the property rights – life, liberty and estates- are absolute in principle, it is difficult to uphold them in practical reality. This has been adequately proved in the above discussions. The unregulated society shall be inefficient and injustice shall prevail in the form of corporate oppression⁶¹. This necessitates that the State take up the mantle of regulator of all river-water resources in the country.

The role of the State as the law-giver has already been elaborated above. However, such measures of societal regulation cannot stand if they destroy the property rights altogether. It is to be noted that, like in the unregulated market, the end-result will still remain inefficient in that market regulations would not be able to provide for the perfect allocation of resources. This is due to the fact that conditions such as perfect knowledge, homogenous product and so on are absent.

The goal of Government intervention is to foster a situation is as close to an efficient equilibrium as possible. This implies that the central element of State intervention would be to ensure governance, as a goal directed activity, with the need to establish collective goals and develop the means of reaching these goals. This requires the recognition of individual rights and implementation of policies for the protection and enhancement of the position of these rights. Legal recognition to these ‘moral’/‘natural’ rights ensures that individuals act within the scope of their own rights and not encroach upon the rights vested in another.

The touchstone by which the efficacy of any public policy is to be measured is the amount of freedom that such policy would guarantee to the people. The terms ‘liberty’ and ‘freedom’ are not to be confused. ‘Liberty’ is an absolute and inalienable right vested in a person. It consists of being free from any superior law-making power. Under the rule of a government, the liberty of every individual is constrained by laws that are enacted to manipulate the behaviour of individuals towards a certain fixed goal⁶². The guarantee of freedom to individuals would imply that:

- a) The decision-making power remains primarily with the people; this involves the ability of the individual to choose, and;
- b) The people will not be subjected to arbitrary, unknown, uncertain decisions and will of the government.

Government regulations must not only ensure that the above conditions are met, but also perform in a manner that would create a situation that would guarantee greater degree of

⁶¹ Referring to the private monopoly that initially governed the use of water resources in the country

⁶² Hayek’s – *The Constitution of Liberty* – e-book – p. 45: “Hayek insists that state coercion is required to prevent private persons from coercing each other.”

freedom than without such governmental regulations. The society's interests are paramount to the maintenance of social efficiency⁶³.

5.2 Regulation of Freedom

In the ideal world, every individual had an absolute and equal right to property. This would ensure absolute equality in the social, economic and political spheres of life. However, because these ideal conditions are absent in practical reality, such absolute equality between individuals can never be achieved in the unregulated society.

It would be utopian to claim that the State can bring about an absolute equality merely by providing a framework within which society is to function: it cannot. However, it must proceed with the assumption that it can.

The initial restructuring of the ownership structure to the river-water resource is made on the premise that every individual is equal. Everyone is given an equal share to water resource. This share is defined and made distinct from the property right of every other individual in society⁶⁴.

In doing so, the Government removes all disadvantages that hindered free transactions in the unregulated society⁶⁵. This endowment of resources has an enabling effect on the individuals' ability to exercise his property rights as per his will and choice. Further, this endowment of resources is an informed choice made after having conducted proper study and research into the needs and wants of the people. This makes the endowment a permanent feature and requires that there be mechanisms developed in order to protect these property rights vested in the people.

Thus, it can be concluded that freedom can be guaranteed if the following are pursued:

- a) Equality of treatment: The allocation is made without bias, prejudice or special conditions applying to people. A proper impartial study ensures that allocation of the water-resource ownership is equal.
- b) Equality of opportunity: Once the initial endowment has been made, individuals are allowed to use their share in any manner they wish to subject to the condition that they do not encroach upon the property right of any other person.
- c) Equality of provision: This constitutes a departure from the concept of absolute equality in resource use. The Government ensures there is equity in the use of the water resources. It ensures that water from the river resources are allocated as per the availability during a given time period i.e. season of the year keeping in mind the levels of sustainable use of the river water.
- d) Basic Security: the unregulated market lacks security of property rights. This occurs because of the absence of one or more factors that enable individuals to assume basic responsibility and to enjoy their absolute rights. The Government after conducting the distribution of resources among the members of the society ensures

⁶³ "That the only purpose for which power can be rightfully exercised over any member a civilized community, against his will, is to prevent harm to others. His own good, either physical or moral, is not sufficient warrant." - J.S. Mill (policy rules)

⁶⁴ Alexis deTocqueville, *Tocqueville on Liberty and Equality in Democracies, Democracy in America*, Vol. 2, Part III, Chapter 1; Available at: <http://lamar.colostate.edu/~grjan/libertyequality.html>

⁶⁵ Supra n. 41



that such allocations made are secure. Provisions are made in the form of 'disincentives' to ensure that people are not excluded from the use of their share of the resource.

- e) Equality of outcome: By ensuring an equal right to resources, legal sanctions (put in place to protect the property rights) and a relatively free market, the Government is able to ensure that the outcome of every transaction remains equal for both parties. Thus, the essential principle of equality for all is maintained.

It can be successfully argued that the essential freedom of all in society can be guaranteed by the Government working through a River-Basin Management Authority⁶⁶. After the initial allocation of property rights, the regulatory functions are delegated to the Authority which ensures the equality of opportunity by ensuring free and fair competition to all, regulates the allocation and use of water keeping in mind the maximisation of social efficiency according variations in water availability. Further, it will accord protection to the property rights so allocated by acting as the final authority to resolve all disputes that may arise from the use of river-water from time to time. The Authority will thus be able to ensure that the absolute equality of individuals – essential to the freedom of individuals in the society- is maintained as far as is possible subject to pragmatic restraints placed upon the free use of water-resource.

5.2.1 Equity and Procedural Fairness

Further, for freedom to be ensured, the Governing Authority must ensure equity and fairness in its functioning. The concept 'equity' constitutes an exception to the concept of equality as has been discussed above. It is related to fairness; for instance, in the case discussed above, the allocation of property right to water is absolute in the nominal sense. However, in reality, the Authority must regulate its use as per the availability of water in a particular season.

This concept of 'equity' also involves the task of prioritising the use of the water resource. This idea of 'equity' is linked to 'distributive justice'; the essential needs for the water in the dry-season will gain precedence over its commercial uses.

'Equity' further requires that the Authority ensure procedural fairness in its functioning. This implies the need for impartiality, transparency in functioning and mechanisms to ensure that unfairness, if any is reviewed and corrective measures are taken. Thus, the Government ensures that the allocations made initially are fair. To do so, it ensures that the study conducted is freely available in the public forum. Further, all laws formulated by the Government are made known to all. Hence, the extent of property rights, the role of the Authority, the 'incentives' and 'disincentives' provided for by it is known and individuals act with substantial knowledge of the repercussions that their decisions might have. Further, the act of reviewing the actions taken by the Authority can be linked to judicial functioning wherein it takes cognizance of disputes that arise from the use of water from time to time⁶⁷.

⁶⁶ The word 'Authority' hereinafter shall refer to the River-Basin Management Authorities present at every level in the hierarchy of the Water Management System, unless expressly provided otherwise.

⁶⁷ Hayek – Constitution of Liberty, e-book, p.139: "Government can coerce even law-abiding individuals if the community's interest requires it, so long as it does so in conformity to a general rule and allows for review by independent courts."

5.2.2 Democratic Element of Governance

The freedom to take decisions is also maintained by allowing for participatory governance of the river water resource. The decisions by the Authority are taken as per popular vote. This makes the Authority *responsive* and *accountable* to the people. The Authority serves as a platform where people can voice their opinions and register their grievances, if any. Further, the Governing Council of the Authority is composed of representatives of the people. The dispute resolution mechanism of the Authority will provide for the amicable settlement of disputes and will also ensure that the rights of every individual is protected and respected.

In turn, the Authorities for each of the River Basins are represented at the Central Authority in the form of an Inter-Zonal Council at the National Level, wherein they enact policies for effective water sharing and management at the national level.

5.3 Conclusion

By ensuring equality amongst individuals, equity and fairness in the functioning of the Authority and by vesting effective decision-making power with the community, the governance provided by the Authority, though inefficient, when compared to the ideal world, is a definite improvement over the anarchic situation of imperfect self-regulation or the corporate governance provided by the monopolist protection agency.



6. Strategic gaming test

6.1 Introduction

“On the whole human beings want to be good, but not too good and not quite all the time.”⁶⁸

Oftentimes, when a policy is implemented, it is seen that many classes of society find ways and means to circumvent the rules of the policy through inherent weaknesses in its structure. Any policy must be as stringent as possible in order to deter such circumvention, so as to fortify the functioning of the policy against unscrupulous businessmen and consumers.

As has been discussed above, the Authority, as empowered by the Government, has established several rules and regulations to be followed for effective functioning. If such regulations are contravened, it has the power to impose sanction upon such offenders. Such punishments must be in proportion to the offence committed as well as produce a deterrent effect upon all potential offenders in the society. However, such punishment is contingent upon the detection of the offence. The ideal world functioned upon the rationality of man, i.e. the ability of man to base his actions upon prudence and reason. In other words, individuals were able to conduct their activities in a fashion such that the furtherance of their self-interests would not harm other individuals' self-interest; such a situation led to the maximisation of efficiency in the ideal world. The rationality of man is however, not necessarily in consonance with each other. In fact, the interests of individuals can very well be in conflict with each other.

It is this perverse rationality that motivates an individual to game the system, i.e. to take advantage of any loopholes or weaknesses in the policy. The fallout of such incidents is borne by the law-abiding individuals of the society; this happens through the imposition of excess costs upon them resulting from the inefficiencies that occur due to these “leakages” in the system.

6.2 Supply of Water

As has been discussed above, the Authority will have to undertake the task of supplying water to both households as well as commercial units. The Authority will have to bear the capital expenditure of setting up such public utilities in the form of storage facilities, treatment plants, pipelines, etc. Further it will also have to finance the recurring costs of maintenance of such utilities. However, the Authority will not have funds to finance such a vast activity. The capital subscribed to by the individual members will not be sufficient to cover these expenses. Therefore the people will have to be charged for these services as per a volumetric scale, i.e. according to the volume of water used during a particular period of time.

⁶⁸ George Orwell, George Orwell Quotes: AVAILABLE AT: http://www.george-orwell.org/l_quotes.html

The amount to be charged must be just enough to cover the following expenses: **fixed costs** (capital expenditure – referred to above) and **variable costs** (in the form of maintenance costs). This ensures the financial independence of the Authority and also maintains the free monetary flow within the market, without absorbing any of the money for its own purposes, but using the money for the benefit of the people. In other words, it acts as a catalyst that channelizes the money towards the setting up of infrastructural facilities for the overall benefit of the community. Further this system of pricing also ensures that water is not wasted or put to inefficient uses as the value of water is felt.

In order to accurately evaluate the water charges to be paid by every individual unit, the volume of water being consumed by each household during a particular period of time needs to be calculated. This task may be achieved by installing standardized water meters in every household, which will measure the volume of water being supplied. This further ensures a greater level of transparency in the services provided by the Authority, as it involves “doorstep delivery” of the water; thereby, ruling out the hazards of supply-chains, such as middle-men⁶⁹. At the end of every time period, say a month, the water meter shall be read and the number of units of water shall be noted, following which a bill shall duly be issued to the consumer.

A record shall be kept with the local Authorities of all the bills issued to the households, and a separate record shall be maintained for those who have paid the bill and those who have defaulted. After a stipulated amount of time to pay the bill, if the consumer still evades payment after warning and notice, then the water supply shall be cut the next month, along with the imposition of a fine. This is to be followed up by the judicial tribunal of the Authority. When such methods are followed meticulously at the local level, it will prove to be very difficult for households to evade payment as every local Authority will supervise payment from a limited number of households, making the management of records far easier than it would have been at a centralized system.

One situation that may arise is the issuance of ‘bogus’ water bills. In other words, consumers may bribe Authority officials who come to check their water meter, and thereby get a bill issues for a lesser amount. This can be prevented by the issuance of a digitized bill that reads the water consumed from the meter directly through a machine (which also prints out the bill). This bars the possibility of the bill reading being changed. Further, the Authority officials can be deterred from bribe-taking through disincentives that impose a high penalty for committing the offence.

6.2.1 Water Theft

Further, an issue that is quite likely to be faced by the Authority is water theft. Such water theft can happen in four ways:

One, stealing water directly from the pipeline by breaking into it through a hole or a leakage;

Two, stealing water from the pipeline going to a neighbouring household, i.e. through a diversion canal;

Three, tampering with the water meter to make it show a reading lesser than it ought to have for a particular amount of water consumption;

⁶⁹ *Reforming the Public Distribution System: Lessons from Chattisgarh*, Economic and Political Weekly, 4th February, 2012: AVAILABLE AT: http://www.epw.in/commentary/reforming-public-distribution-system-lessons-chhattisgarh.html?ip_login_no_cache=93795274422a0caa535086002cd5ba5c



Four, water theft directly from the source of water, i.e. the river/stream, etc.

Law-abiding consumers of water should not be disadvantaged by those few who do the wrong thing, i.e. steal. Such criminal activities result in inefficiency in the working of the Authority and impose additional costs on the society⁷⁰. Hence, the persons who commit wrong, i.e. the offenders or criminals, should be apprehended and punished. The deterrent theory of punishment⁷¹ will be an important tool in solving these issues of water theft, and discouraging potential offenders from committing the crime.

The second and third situation can be verified and corrected at the time of issuance of the water bill. At the end of every month, an Authority official will come and check the water consumption in every household and issue the bill for the same. At this time, he can check if the water meter is operating as it should be. If someone has stolen water from that household's pipeline, the water reading will be unusually high as compared to previous months, due to which the pipelines can be checked, and the thief caught. On the other hand, if the meter has been tampered with, the Authority Official will be able to detect damages to the meter. Further, the water meter reading will be lower than the average consumption of water of that household⁷². In this case as well, it is possible to detect the households that steal water through tampering of meter; the thief in this case is also apprehended. In cases where the consumer refuses to allow the Authority officials to access their property or their meter, a warrant may be issued by the appropriate State authorities in this matter on application by the Authority, to enter the property and investigate into the functioning of the meter.

In order to have a deterrent effect, such thieves will be punished severely for their immoral and illegal actions. Hefty fines⁷³ shall be imposed on the thieves. In extreme cases, for example when the water stolen is of high quantities, with the discretion of the judicial body, the culprit may be severely fined and referred to the State for criminal proceedings to be initiated. This kind of severe punishment will be made known to the people so as to deter any potential offenders; water theft is taken seriously and will not be tolerated.

The first situation of water theft is, however, more difficult to detect. Further, the severity of theft in this manner is greater as the water is stolen by damaging the pipeline that has been designed to carry it from one place to another; this causes harm to community property and obstructs the distribution of the resource. Therefore, the penalty for committing this crime is much greater, exemplary fines may be imposed and the case may be referred to State for appropriate criminal proceedings to be initiated.

However, this crime cannot be punished until detected. For this, routine examinations and maintenance procedures are to be undertaken at regular intervals of time. This will ensure that any abnormality in the pipeline is duly reported and taken care of. Further monitoring

⁷⁰ "Criminal activities impose the following costs: a) costs in anticipation of the crime, b) costs in consequence of the crime, and c) costs in response to the crime", *Organized Crime: Revenues, Economic and Social Costs, and criminal assets available for seizure*. Available at: <http://www.homeoffice.gov.uk/about-us/freedom-of-information/released-information1/foi-archive-crime/9886.pdf?view=Binary>

⁷¹ The Deterrent Theory of Punishment has two purposes: (i) to restrain the wrong-doer from repeatedly indulging in crime; and (ii) to set an example for others to deter and prevent them from committing crimes or violating laws.

⁷² National Drinking Water Clearing-house, Jamie Knotts, *You'd be surprised who's stealing your water*, Available at: <http://www.nesc.wvu.edu/ndwc/articles/ot/wi04/stealing.html>

⁷³ Australian Government: <http://home.iprimus.com.au/foo7/watersteal.html>

of the area will reveal the thief responsible for the abnormality, i.e. the leak, and he can be apprehended and penalized for theft.

Another method of detecting such theft directly from the pipeline is through the installation of pressure points at regular distances along the length of the pipeline⁷⁴. Scientific advancements have led to the invention of pressure points which monitor the pressure within a container (pipeline) at regular time intervals. Thus, the minute the pressure drops at a particular place as compared to the neighbouring pressures, it can be safely assumed that a leak has developed, either due to maintenance problems or due to an offender attempting to steal water. A search team can immediately be dispatched to the location of low pressure; in the case of water theft, the offender can be apprehended and arrested, following the imposition of penalty.

To prevent such theft from the river or stream, reconnaissance and boat patrols⁷⁵ will help in reducing the pilferage of the water. Once the thief is caught, appropriate proceeding may be taken up in the judicial tribunal.

Such action by the Authority is bound to achieve deterrence in society, thus reducing water theft.

6.2.2 Identity Theft

A different kind of theft that may occur is Identity Theft. It involves the stealing of an individual's identity and using it in order to obtain benefits that rightfully belong to the individual. In other words, the thief will manipulate the individual's account information to ensure that the services to be provided to the individual are instead provided to him. This is a highly deceptive and cunning crime that affects the quality of life of the individuals and results in the deterioration of public welfare and inefficiency in the functioning of the Authority.

In order to prevent such identity thefts, the water accounts for every individual along with the database of information on every consumer should be handled with careful security and information should be protected. Every new account issued will be done on the basis of a unique identification for every individual. This will ensure privacy and exclusivity in the providing of services by the Authority. Further, any changes to be made to the account, such as a change in residence, in phone number, etc. will be made only upon furnishing conclusive evidence to prove that the person looking to make such change is the true holder of the account. This can be done by providing photo ID in the case of changes made in person or the verification of UID Consumer number in the case of changes made over the telephone⁷⁶. Further, any change in the information of the individual, any payment made, etc. will be updated on the database, along with a mail sent alerting the individual of such change to the individual's email-ID or mobile phone, as a method of double confirmation.

⁷⁴ Improvement of water supply through a GIS-based monitoring and control system for water loss reduction; Yamba Harouma Ouiba, Director General of ONEA, UN- Water International Conference, Ouogadougou, Burkina Faso; available at: http://www.un.org/waterforlifedecade/green_economy_2011/pdf/session_5_technology_cases_burkinafaso.pdf

⁷⁵ Supra n. 73

⁷⁶ MURRAY ELECTRIC SYSTEM, available at: http://www2.murray-ky.net/murray_electric_identity_theft_program_changestoprocedures.html



6.2.3 Miscellaneous

The creation of pollution is an important externality in a market economy that has tremendous detrimental effects on the environment. This can happen in several ways: industries may discharge their effluents into river water, private individuals may dump their waste in water, sewage may be disposed of in water, people may use the water for activities like bathing, cleaning, etc. Such activities should be prevented in order to maintain the quality of the water and the health and hygiene of the people using it. The Governing Council lays the acceptable norms under which private individuals can dispose of waste. The Authority will monitor and prevent such pollution of the water. Industries in particular will be fined heavily for the discharge of effluents into the water, and in extreme cases, their right to use water might be revoked.

Hoarding was a difficulty that was described in the second chapter, which can potentially arise in this situation as well. Private individuals in collusion with each other may store water in private artificial reservoirs. When the market economy loses water due to emergency conditions like drought, these private individuals will sell the stored water at higher prices, thus gaining a profit by selling a commodity that rightfully belongs to the public. Hoarding is an activity that is strongly condemned by the Government. The Government does not encourage or authorize the creation of an artificial market in the economy that is established with a profit-making goal, by exploiting individual and community interests. Any such activity will immediately be shut down by the Government; the reservoir will be taken over and the hoarders penalized.

6.2.4 Commercial Challenges

The Authority was designed to regulate the trade of water in the market. It encourages such trading in water as more competition leads to a more efficient market. The Authority, in this regard, can specify threshold limits for the price of water that is traded in the economy.

However, when such trading firms and businesses begin to acquire more economic power, i.e. adopting practices that will increase their economic standing and create a sort of monopoly in the market, then the Authority will have to step in to curb such activities and ensure that monopolisation does not take place. This is because monopolisation would reduce the efficiency of functioning, as well as create a parallel economic power, thereby obstructing the Authority from being able to exercise its regulatory duty of ensuring the competitiveness of the market. Further, the adoption of unfair practices such as collusive price fixing, false advertising, and other practices that hinder competitiveness in the market, are also to be prevented and obstructed by the Authority. Thus, in order to control this, the Government can adopt anti-monopoly regulations with respect to water management and distribution. A Committee within the scope of the Governing Council will observe market economics of water and report the emergence of any firm as a significant economic power. Some of the regulatory measures for these firms that can be taken by the Authority are:

One, the business of the firm that gains a dominant position is to be issued orders that direct it not to abuse such a dominant position. The violation of such order will result in the imposition of a fine.

Two, any firm that sells water at higher prices i.e. crosses the threshold limit for water pricing is to be penalized and a fine is to be imposed.

Three, firms that refuse to submit financial records for auditing purposes, and which submit fraudulent or misrepresented material, hidden evidences, or obstructed investigation in any way will be fined and their account with the Authority for the supply of water will be cancelled.

Four, in case of attempts to monopolise the market, the firms are to be restrained from doing so by destroying the account of the firm or reducing the amount of water to be supplied to the firm.

Five, the Committee must carefully monitor the market for mergers that take place with the intention of monopolising the market and fixing prices. Such mergers that increase the economic stronghold of a firm giving it undue economic prowess is to be declared void and punitive actions are to be taken against the two individual firms.

In this manner, the Authority will make sure that there will be minimal advantage taken of the system. As far as is possible, the Authority has attempted, through this framework, to block out every possible ambiguity and weakness in its structure, and to prevent vested interests in the society from conning the system and using it to further their own individual interests. Further, this framework also attempts to reduce the tendency of individuals in the society to gain unfair profit from the services of the Authority. Thus, the Authority has attempted to prevent the occurrence of any consequence of the regulations adopted by it, which was not in consistence with their primary objectives.



7. Government failure test

7.1 Introduction

An essential element of all organisations is the willingness of persons, who are a part of the organisation, to contribute their individual efforts to the cooperative system. Inadequate incentives would result in improper functioning of the system. Hence the affording of adequate incentives becomes the most definitely emphasised task in the existence of organisations. It is probably in this aspect of executive work that failure is most pronounced.

The effective decision-making power in the system of the Authority is vested in the people. It is by their popular vote that the Authority derives its legitimacy of action. The decisions so taken must be executed by the Governing Council composed of the representatives of the people. Further, the higher bodies in the form of the Regional Authorities and Central Authority serve as the executive bodies for a particular region (in the case of a Regional Authority) and the country as whole. Now, these executive bodies give effect to what is nothing but the sovereign will of the people. It is therefore necessary that there must be in place some mechanism to ensure that the members of the executive body remain accountable to the people for their actions. Administrative responsibility can be defined as the liability of the officials to give satisfactory account of the powers or discretion vested in them to who it is due⁷⁷.

It need not be expressly stated that the Authority exists for the maximisation of societal efficiency resulting in welfare. This objective forms the yardstick according to which the performance of the members of the Governing Council will be measured. These members are accountable to the people in two fundamental ways:

- a) Individually, for their performance in carrying out the responsibilities specifically vested in them; and,
- b) Collectively, for all the members of the executive council are collectively responsible for giving effect to the decisions of the people.

Thus, the members of the executive body are directly accountable to people for the exercise of their powers, duties and functions vested in them both individually as well as a group.

7.2 Professional Morality

The following guidelines may be useful to guide the members of the executive body in their conduct⁷⁸. It must be kept in mind by every member of the Council and Authority in the

⁷⁷ *Public Administration, Theory and Practice*; Hoshiar Singh & Pardeep Sachdeva, Pearson, India, at p. 228

⁷⁸ *Accountable Government, A Guide for Ministers and Ministers of State*, Government of Canada, Privy Council Office; Available at: www.pco-bcp.gc.ca

discharge of his functions, so as to constantly be aware that there are consequences to all of their actions:

1. Public Scrutiny:

They must respond to **all questions** regarding the discharge of their responsibility and must further account for the use of the finances of the Authority.

2. Ethical Standards:

It is expected that the members of the Governing Council and all officials working under them act with the utmost honesty and uphold the highest ethical standards. This ensures that public confidence and trust in the integrity and impartiality of the Authority. They are obligated to perform their official duties and arrange their private affairs in a manner that will bear the closest public scrutiny. In other words, they must not allow for any conflict of interest to occur in the discharge of their responsibilities. Further, in such discharge of their functions, each member is expected to perform his duty diligently and with the competence that has been expected of him. However, the accountability of the members of the Council does not imply that they must have perfect knowledge of every matter that occurs in the carrying out of their area of responsibility.

3. Decision-Making:

The members of the Governing-Council are also required to take decisions to implement the will of the people. They are required to take such decisions in the public interest and with regard to the merits of each case.

4. Government Property:

They are not to use the property of the authority (such as the rivers) for anything other than the activities for which such property has been vested with the Authority.

The principles outlined above are, however, very general principles that seek to regulate the behaviour of the members of the Governing Council. However, there is no way of enforcing the same. Therefore, checks must be devised in order that the society can supervise the activities and performance of the members of the Governing Council.

7.3 Control by the People

7.3.1 Popular Control over Governing Council

One such check would be the popular control over the Governing Council. As has been discussed, the Governing Council is formed by the representatives of the people or of the authorities themselves (in the Regional and Central Authorities). Their tenure is at the pleasure of the people. They are the elected representatives of the people and therefore, answerable to them. If not found suitable, they shall be thrown out of office at the next round of elections. Furthermore, the people have a right to *recall* any member not discharging duties properly, even before the expiry of the term by voting against them in a poll which is conducted specially for this purpose at the request of a stipulated number of voters entitled to elect them.

This constant supervision by the people at large helps ensure that the members of the executive council work diligently for the proper discharge of their official functions.

7.3.2 Parliamentary Methods

The control exercised directly by the people in day-to-day functioning of the Government would be through the use of various parliamentary methods:



- **Budgetary Control:** The most effective control over the Governing Council is exercised through the control over its purse. The members must furnish exact and detailed accounts of expenditure and justify each head of expenditure and demand for capital subscription.
- **Debates and discussions:** The Governing Council must place a monthly report of its activities before the people. The report will be considered and debated by the people. The performance of the Council will be commented, criticised or praised.
- **Questions and Resolutions:** Every individual has the right to put forth questions regarding the proper working and functioning of the Authority. The members of the Governing Council are bound to answer to these questions put forth. Further, the people may pass resolutions which act as recommendations for the Council to work in a particular manner. Being the will of the people, the Council will dare not act against it.

7.3.3 Judicial Intervention

As a last resort, the people can take their concerns and problems to the judicial organ of the Governing Council in order to straighten out discrepancies in the functioning of the Authority such as corruption, biased decisions, nepotism, procedural flaws, etc. If they feel that the decisions of this body are not satisfactory, they can move the courts in the Judiciary of the State, and may even go to the Apex Court for exceptional cases.

The methods expounded upon above, allow for the community to keep a check on the day-to-day functioning of the Authority. This ensures that the implementation of the policies of the Authority efficiently and in a transparent and proper manner.

7.4 Governmental Control

As has been explained earlier, the Government had delegated its regulatory functions to the Authority which it had created in order that the people govern themselves. It had ensured that effective governance remains with the people. However, it still bears the responsibility of ensuring that the Authority functions in the way it should. This responsibility naturally places it under the Government's auditing services.

The Government will place auditing standards according to which the Authority will have to maintain records, documents and books of accounts. This ensures uniformity and consistency in procedural matters. It also makes the recording of all official instructions, orders, or decisions mandatory. Further, this would require the establishment of a set and distinct chain of command, wherein the responsibility can be delegated to a definite officer present on particular rung of the official hierarchy and responsibility can be fixed on him in case the need arises. This responsibility will drive him to make his subordinates function in an efficient and disciplined manner. A distinct chain of command also enables faster communication flows between all levels of command, thereby enhancing the accessibility and accountability of every officer in the department.

Further, the auditors are empowered to comment or supplement the reports and documents of the Authority. The report of such audit is to be made public. Fear of adverse comments by the auditors and the publicity received by it, and an unfavourable report of the working and financial propriety and health of the Authority, ensures that the Governing Council and the officials work efficiently, diligently and honestly in the interests of the public.

7.5 Internal Control

The members of the Governing Council are vested with the responsibility of administering the various functions of the Authority. Each of them is put in charge of one or the other function. The discharging of such functions at the various levels is carried on by several paid officers of the Authority.

The work-force needs to be efficient, competent and focused in order that the objectives of the Authority are fulfilled. For this to be ensured, a mechanism to ensure the effectiveness of the workforce as well as a system to fix responsibility must be ensured. This requires that officers at various hierarchies be given suitable disincentives and incentives. The Authority may resort to **Fayol's Principles of Management**⁷⁹ in this regard. The following principles form the basis of any well-managed entity:

1. **Division of Work:** Work should be divided among the members of the Authority to ensure that effort and attention are focused on special portions of the task. Work specialization is the best way to use the human resources of the Authority.
2. **Authority:** The concepts of authority and responsibility are closely related. 'Authority' may be defined as the right to give orders and the power to exact obedience. 'Responsibility' involves being accountable, and is therefore naturally associated with authority. Thus the members of the Council assume authority as well as responsibility.
3. **Discipline:** The success of the River Basin Management Authorities requires the common effort of workers. Penalties should be applied judiciously to encourage this common effort.
4. **Unity of Command:** Workers should receive orders from only one manager in the Authority in order to maintain the exclusive supremacy of one member over a body of others.
5. **Unity of Direction:** The Authority should be moving towards a common objective in a common direction.
6. **Subordination of Individual Interests to the General Interests:** The interests of one person should not take priority over the interests of the Authority as a whole. The main purpose of the Authority is to look after the collective interests of every individual in the society, which includes the members of the Authority as well.
7. **Remuneration:** Many variables, such as cost of living, supply of qualified personnel, general business conditions, and success of the business, should be considered in determining the rate of pay of the members of the Authority.
8. **Centralisation:** Centralization may be defined as lowering the importance of the subordinate role. Decentralization is increasing this importance. The degree to which

⁷⁹ Available at: <http://www.provenmodels.com/4>



centralization or decentralization should be adopted depends on the specific organization in which the manager is working. The Authority requires decentralisation in order for its functioning.

9. **Scalar Chain:** Members in the various hierarchies of the Authority are part of a chain. Each Manager along the line possesses some level of authority. The Governing Council as a whole possesses the most authority. Lower level members should always keep upper level members informed of their work activities. The existence of such a chain and adherence to it are necessary if the organization is to be successful.
10. **Order:** For the sake of efficiency and coordination, all materials and people related to a specific kind of work in the Authority should be treated as equally as possible.
11. **Equity:** All employees should be treated as equally as possible.
12. **Stability of Tenure of Personnel:** Retaining productive employees should always be a high priority of the Authority. Recruitment and Selection Costs, as well as increased product-reject rates are usually associated with hiring new workers.
13. **Initiative:** The Authority should take steps to encourage worker initiative, which is defined as new or additional work activity undertaken through self direction.
14. **Esprit de Corps:** The Authority should encourage harmony and general good feelings among employees.

Internal rules and regulations for carrying on the activities of the Authority must thus be formulated on the basis of the broad category of 'incentives' and 'disincentives' specified above, as the member of the Governing Council may deem fit. Following such guidelines will ensure that there are efficient and healthy work ethics being followed.

7.6 Access to Information

"A Government which revels in secrecy... not only acts against democracy but busies itself with its own burial."⁸⁰

It has been said that exposure to public gaze and scrutiny is one of the surest means of achieving a clean and healthy administration. Openness is a foolproof method to minimize administrative faults. The basic principle of administration is that the people should have information about the functioning of the Authority⁸¹.

The performance of the executive body can be assessed only if the people have access to the relevant information. All decisions taken by the Authority can then be judged and debated upon by the general body of the people. Any decision so taken must therefore be free of bias and transparent. If only the final decision were conveyed without any explanation thereto, then the rationale and logic behind such a decision may not be

⁸⁰ Maneka Gandhi v. Union of India, (1978) 1 SCC 248

⁸¹ *Right to Information and its Relationship to Good Governance and Development*, M.M. Ansari, Central Information Commissioner, Published by Central Information Commission, New Delhi, p. <http://cic.gov.in/CIC-Events/IC-MA-LectureAtUNESCO-04122008.pdf>

apparent⁸². Any unfair influence or collateral considerations in decision making will then be immediately detected. Thus a mechanism which allows the people to have free access to information will act as a strong deterrent to arbitrary decision-making. Such transparency will naturally boost the efficiency of the Authorities' functioning by ensuring that every activity authorised and undertaken by it is backed by sound reason and logic⁸³.

However, the question remains as to how far the members of the Authority will reveal or distort the true accounts or documents related to the functioning of the Authority. In order to ensure that the information so furnished is complete and true, every order or action taken within the Authority must be in the form of written orders and must follow the chain of command as has been elaborated above in Fayol's Principles. Further, an effective information management system must be put in place in order that the chaotic nature of information and the records are properly archived for access by the people⁸⁴. This requires that a copy of all such orders to be filed in the records of the archives. If such a system is diligently followed, then all actions must be supported by a corresponding written order without which no action can be validated⁸⁵. Not only does this system ensure the supremacy of the chain of command as may be established in an Authority, but it also helps in the fixing of responsibility for any action taken. It also serves as evidence for the rationale behind an action.

In order that such information system remains effective and accountable, regulatory and enforcement machinery is to be established. This is ensured by the Government Auditors who furnish public reports of the inner functioning of the entire system. This form of an independent and powerful "ombudsman" mechanism will keep the Governing Council and all of its officers on their toes.

⁸² *A Commentary and Digest On THE RIGHT TO INFORMATION ACT, 2005*; Dheera Khandelwal & Krishana K. Khandelwal, The Bright Law House, New Delhi, 1st Ed., 2007, p. 52

⁸³ *Ibid.*

⁸⁴ *Right to Informaiton – A Practical Guidance Note*, UNDP – Bureau for Development Policy – Democratic Governance Group, p. 30, AVAILABLE AT:

⁸⁵ The Election Commission of India had recently cautioned senior officers of the Uttar Pradesh Administration to obey only written orders. – EC cracks down on officials, wants only written orders, The Indian Express, Jan 26 2012, AVAILABLE AT: <http://www.indianexpress.com/news/ec-cracks-down-on-officials-wants-only-written-orders/904016/0>



8. Real experience test

8.1 Introduction

In the recent years, there has been a global trend towards rationalising the river-water policies with a view to enhancing the efficiency and effectiveness of the use of such river water. The World Bank, in its report titled, "*Water Resources Management*"⁸⁶ has laid down a few criteria for the study of such policies: **decentralisation, incentives, participation and environment.**

Further, the "*The Dublin Statement on Water and Sustainable Development*"⁸⁷ has identified certain principles on which the policies need be framed:

- Water rights need to be allocated in order that the sustainability of the water resource is maintained.
- A participatory and inclusive approach has to be ensured where the interests of all user-groups is represented and heard.
- Women should be allowed to play a central role in the decision-making process, implementation mechanism and all other levels of the program.
- Finally, the economic value of water, in all its competing uses must be recognised. In other words, water must be treated as an economic good. Managing water as an economic good is an important way of achieving efficient and equitable use, and enhancing the conservation and protection of water resources.

In keeping with the global trends, this policy has provided for a procedure for allocation of definite allocation of rights, a participatory approach for all- men and woman alike. Further, the policy is based on the application of basic economic principles and rationalising.

A comparative study of the river water management policies across the world would prove useful for a deeper understanding and appreciation of the above policy. Further, it furnishes an opportunity to perfect the system elaborated here and to address any concerns that may be raised as to the efficacy of the policy devised. A brief analytical study of the river-basin policies of Australia, Brazil and Indonesia provided hereinafter will prove useful in this regard.

8.2 Comparative Analysis

8.2.1 Structure

The Government established an Authority that ensured complete devolution of powers to the grass-root level, i.e. the people. The effective decision-making power is vested in the

⁸⁶ The World Bank, United States of America

⁸⁷ Available at: <http://www.wmo.int/pages/prog/hwrp/documents/english/icwedec.html#p1>

people. The River-Basin Management Authorities are established along a well-defined chain of hierarchy, starting from the Central level, Regional level, and the local level.

Similarly the **Murray-Darling Basin Authority**⁸⁸, established by the Water Act, 2007, in Australia, has been designed in order to decentralise the management of the concerned basin. The rationale behind this is that the decision making process is inclusive and based on better knowledge of local conditions.

The General Body of the people, in this case, can be equated to the Community Advisory Committee which represents the interests of the local communities, enterprises, farmers and other stakeholder groups.

The Governing Council performs functions similar to the Murray-Darling Basin Commission. It is the executive wing of the Authority and is composed of representatives of participating riparian state governments.

The Ministerial Council of the Murray-Darling Basin Authority, as the policy-making body, is a marked departure from the principle of minimal State intervention.

In the **Alto-Tiete Basin Agency**⁸⁹, the river basin institutions are divided into two bodies: Basin Committees and Basin Agencies.

The Basin Committees are the deliberative bodies wherein negotiations and participatory decision-making takes place. All stakeholders such as industries, civil society and agriculturalists, etc. are represented in this body. The Basin Agencies act as the “Executive arm” of the committees, providing technical support and implementing the decisions taken by the stakeholders. At a higher level, the Executive Secretariat and Technical Chambers function as the Executive bodies. Further, at the local level, sub-committees operate in order to execute the Agency’s plans and programs. The marked deviation is seen in that the Government Still holds effective power over the decision making process through the Executive Secretariat⁹⁰.

In the case of the **Brantas River Basin Management Authority**⁹¹, the river basin was managed entirely by State-owned companies: Perum Jasa Tirta I and II. Today, however, complete control has been passed on to PJT I. This system is mostly centralised in character with the Government controlling the Authority. However, a semblance of a decentralised model is reflected in the fact that Central Government is the policy maker, PJT I is the Executive Agency and the local Governments are the intermediaries between people and the Authority.

All the structures mentioned above have a common link in their weaknesses in that true autonomy has been sacrificed for Governmental interference in guiding policy. At times, this results in an inefficient administrative body that is unable to take full control over its functions. For instance, in **Australia**, the rights of the indigenous to the river water have not

⁸⁸ *The Murray Darling River Basin, Australia*, Institutional and Policy Analysis of River Basin Management, World Bank Policy Research Working Paper 3527, February 2005; William Blomquist, Brian Haisman, Ariel Dinar and Anjali Bhat

⁸⁹ *The Alto-Tiete River Basin, Sao Paulo, Brazil*, Institutional and Policy Analysis of River Basin Management, World Bank Policy Research Working Paper 3650, June 2005; Rosa Maria Formiga Johnson and Karin Erika Kemper

⁹⁰ Water Legislation and Regulation in Brazil, Oscar Cordeiro Netto, OIEau Meeting, Paris, 2004, AVAILABLE AT: <http://www.inbo-news.org/IMG/pdf/Brazil.pdf>

⁹¹ *Indonesia case study – Brantas River Corporation (PJT I)*, Anjali Bhat, Kikkeri Ramu, Trie Mulat Sunaryo, Karin Kemper



been taken into account. Thus all the interest groups may not necessarily find representation in the Authority. Moreover, in **Brazil**, the Agency continues to be inefficient due to lack of authority. There have been instances of the Government taking independent decisions for the basin management without consulting the Agency. Also, it has yet to become a forum of decision-making regarding the various problems and solutions of the basin.

However, the Authority designed by this policy is a “bottom-up” model. It derives its power from the lower most level, i.e. the people. No form of Government intervention from any other organ of the State is feasible in such a model. Further, every individual at the local level is a stakeholder, thereby eradicating the problem of lack of representation.

8.2.2 Financial Self-Sufficiency

The autonomy of any administrative body depends on its capacity to generate its own income and meet its expenses out of such funds.

The Authority has been designed to allow for capital subscription, i.e. every stakeholder has to pay a standard amount of money, which will give him a share in the Authority. This money will constitute a fund and will be utilised in the normal regulatory functions of the Authority. Any surplus after the performance of these regulatory functions will be given back to the people. Further, the Authority charges the use of water through the water bill which mainly intends to recover the cost of infrastructural developments that make the distribution of water manageable. In times of disarray or emergency, for instance during floods or droughts, aid will be provided by the Government.

In the **Murray Darling Basin** too, the Authority seeks to attain financial self-sufficiency through contribution from the participating States who form the decision-making bodies along with the Advisory Committee. Thus, in principle the Authority is to be financed by the people through the agency of their respective State Government. However, in truth, the financial structure of the Management Authority is dependent on the assistance of the Commonwealth Government. The Income Statement of the Authority for the period ended 30 June 2011 indicated that the income generated by it would not have been sufficient to meet its costs in providing services⁹².

In the **Alto-Tiete** basin on the other hand, working mostly on State grant, seeks to attain sufficiency through revenues earned by charging consumers for water use.

In the **Brantas** basin, however, the Company, PJT 1 is supposed to finance itself through charges imposed on water supplied to the industries, private water suppliers and other commercial units. It is also supposed to generate a profit for the Government of Indonesia on an incremental basis⁹³. However, revenue collection is difficult and the Company is only able to recover part of its costs. This makes the Company dependent on National funds.

It is seen that the common link of weaknesses in the financial structures of the River Basin Management Bodies across the world is the lack of financial self-sufficiency or autonomy. This results on its dependence on State intervention, lowers the quality of service provided and renders the functioning of the Authority inefficient.

⁹² Murray-Darling Basin Authority Statement of Comprehensive Income *for the period ended 30 June 2011*; available at: http://www.mdba.gov.au/annualreports/2010-11/financial_authority_statement.pdf

⁹³ The annual rate of incremental is to be Rp. 7 billion

However, the Authority designed here, in this policy, is to be self-sufficient. The administrative functions must be met out of the capital subscriptions paid by the member-individuals for a particular time period. Moreover, the costs incurred by it in the performance of its ancillary functions such as supplying water for essential uses as well as commercial needs are met through the water charges imposed on the users. Such charges are to cover the fixed costs as well the variable costs involved in the supply of water. Thus, each unit of water must be so priced as to just cover the fixed and variable costs incurred in the supply of that unit of water. A provision for strict vigilance has also been provided for in the previous chapters. Further, contingencies such as disasters like floods, droughts, etc. can be met out of surplus funds, if any. However, this policy provides for one exception: the Government is permitted to intervene in any situation where there arises a situation which is beyond the Authority's financial capacities. Such an action by the Government can be justified on the grounds that it helps ensure the greater autonomy of the Authority.

8.2.3 Stake-holder Participation

The Authority designed in this policy is based upon a 'bottom-up' approach where the decision-making power is vested in the people directly and indirectly, in their representatives at the higher levels. This ensures maximum stake-holder participation and the decision-making process reflects the true interests of all concerned.

Similarly, in **Australia**, the Murray-Darling Authority provides for the Advisory Committee which represents the interests of local communities, businesses and agriculturists. Although an advisory body, it aids in the decision-making process by advising the Ministers who represent them at the Ministerial Council.

Further, in the **Alto-Tiete** basin the creation Basin-Committees and sub-committees provide for the decision making authority to remain with the people.

In the **Brantas** basin, on the other hand, the stakeholders are represented by Government officials. This represents a much centralised approach to the management of the basin.

A number of weaknesses have been identified as common to all these authorities; the inefficiency arising out of non-representation of people, wherein all the relevant stakeholders do not have representation. Further, the decision-making power may be slow for the requirement of a consensus.

These weaknesses will not arise in the Authority established under this policy for the simple reason that it is based on the decision-making power at the local level: villages. The stakeholders residing in this village will be of a more or less homogenous profile for the reason that they will be placed in the same situation as far as the need and demand will be concerned. Problems of estimating the demand for water will be absent for the reason that every family and every entity within that village will be represented, have a say in the local authority and is entitled to a share of the common resource.

Further, the requirement of a consensus for the Authority's executive wings to take action will not be plagued with indecision or time lags. The stability in the composition of the Governing Council ensures that the decision-making is bold and pragmatic. Further, the Governing Council at the local level is well-versed with the local condition and with limited funds of the community; it can be expected that no serious delays will occur for divergence in view points. Also, non-performance by the executive body will lead to it incurring the wrath of the people who can exercise their power to recall.

The same procedure is true for the higher rungs of the Authority which is accountable to those that compose it.



8.3 Conclusion

Thus, it can be seen that this policy is similar to the river-water management policies of several other countries of the world. However, this similarity binds only those pragmatic and logical provisions of all the policies, wherein the basic framework of management is outlined. In other words, similarity can be seen in the necessity of the establishment of an independent Agency or Authority for the management of river water, the structure of such an Authority, the powers conferred on the Authority and the various functions performed by the Authority.

However, this policy differs from the policies of other countries in certain subtle manners which provide it with a more sustainable framework and enhances management. One of the distinctive features of this policy, in this respect, is devolution of powers to the very lowest level, i.e. bringing the problem to the people. This kind of decentralisation ensures that the local Authorities have the power to solve their own issues instead of having to seek action from higher Authorities. Another way to incorporate this is greater stakeholder participation. By involving every individual of the society in the decision making process through the General Body of the Local Authority, this policy ensures a sense of ownership and collective responsibility toward the resource among the people. Further, there is an efficient method of providing funds to the Authority ensuring financial independence and self-sufficiency to it.

In this manner, this policy ensures an effective framework of river-basin management that functions efficiently to meet the needs of every individual and the society as a whole. It achieves what it set out to do – establish a proper system of supply of water to every household and commercial entity, maximising optimum utilisation of the resource. It also enhances the market operability by encouraging free market trade between the various individuals and entities of the society, including the eventual middle-men spoken of in the fourth chapter (OPTIONS). It promotes opportunity of trade in the society. It is thus the most efficient system of river-water management possible in a nation with a sizeable population and diverse interests.

9. Cost benefit test

9.1 Introduction

The policy definitely provides for systematic governance of river-basins. It is also superior to any other river-basin management policy, having provided for the full devolution of powers and the complete financial autonomy of the Authority. However, it remains to be seen as to whether it is feasible for the same to be implemented in India.

It has been envisaged that all the basin authorities of the country shall form the Central River-Basin Authority to formulate the National Water Policy which is to serve as the guiding principle for the administration of the river basins. In other words, the effective administration of the river-basin lies with the people. However, the implementation of the policy entails some costs on society in both monetary and qualitative terms. For the purposes of this chapter, all costs and benefits shall be expressed in monetary values (Indian National Rupee, expressed as "Rs."). This policy may be implemented in India only if its estimated benefits outweigh the estimated costs.

River Basins in India are currently governed by individual states governments. In case of trans-boundary river basins, agreements between the riparian state governments form the basis for governance of river water through river sharing. However, inter-state disputes have erupted since independence and involve the following issues:

- Allocation of water between the different states
- Apportionment of costs and benefits of a project jointly developed by the riparian states
- Excess withdrawal of water by States contradicting previous agreements

9.2 Quantitative Analysis

These river water disputes have time and again resulted in law and order crises and failed crops in several districts. For instance, in Tamil Nadu the crop failure costs have reached Rs. 40,000 Crores⁹⁴. A passing glance at the Financial Outlays of the various river disputes tribunals would demonstrate the inefficiency and incompetence of the system.

The Cauvery Water Disputes Tribunal was allotted a total Rs. 2.36 Crores for the period 2012-13⁹⁵. For the same period, the Krishna Water Disputes Tribunal was allotted Rs. 1.75 Crores. In all, the amount spent on all such tribunals is unreasonably high and, in light of the lack of dispute resolution, it seems unwarranted.

⁹⁴ The Mullaperiyar Imbroglio, ER Gopinath; HARDNEWS, available at: <http://web.archive.org/web/20070113213632/http://www.hardnewsmedia.com/portal/2006/03/413>

⁹⁵ Outcome Budget, 2012-2013; Ministry of Water Resources, Government of India, Available at: <http://wrmin.nic.in/writereaddata/linkimages/Binder19317827657.pdf>



Further, the total financial outlay of the Water Resources Ministry for the year 2012-13 was Rs. 1,500 Crores⁹⁶. The policy of the Government of India however, is fundamentally different from that proposed under this policy. The Government of India seems to believe in a Statist approach where the concerned State Governments are responsible for the allocation and regulation of water use.

A participatory approach wherein the people are allowed to make their own decisions does away with the delays and inaccuracies of delegated decision making through the State.

SCHEME-WISE POSITION OF OUTLAY OF FUNDS & EXPENDITURE (2011-2012)⁹⁷

(Rs. in Crores/Net)

SECTOR	OUTLAY	EXPENDITURE	%AGE
MAJOR & MEDIUM IRRIGATION	1065	187.72	17.63
MINOR IRRIGATION	485	145.30	29.96
FLOOD CONTROL	1231	169.10	13.74
TRANSPORT	350	69.46	19.85
INFRASTRUCTURE DEVELOPMENT	115	14.83	12.96
TOTAL	3246	586.41	18.07

It is thus evident that the amount of funds earmarked by the Centre to be spent on water resources is inefficient as it remains idle. If it is assumed that the capacity of the Ministry to implement projects is as has been projected in the above figures, then funds allocated over and above this threshold capacity is a waste and would have been better utilized in other sectors of the National Economy.

Further, costs to the tune of Rs. 7938.74 Crores have incurred by the Ministry of Environment and Forest during the period between 2005 and 2010⁹⁸.

Not only is there inadequate utilization of allocated funds, the Audit Reports of the Comptroller and Auditor General also suggest that a substantial portion of such expenditure is in fact wasteful and impermissible as per accepted accounting norms and standards⁹⁹.

⁹⁶ Ibid.

⁹⁷ Accounts at a Glance; Plan Schemes of Ministry of Water Resources; Available at: <http://wrmin.nic.in/writereaddata/linkimages/accounts-at-glance5593755003.pdf>

⁹⁸ Report No. 21 of 2011-2012 for the Period Ended March 2011: Water Pollution in India (Ministry of environment and Forest); Available at: http://saiindia.gov.in/english/home/Our_Products/Audit_Report/Government_Wise/union_audit/rec ent_reports/union_performance/2011_2012/Civil_%20Performance_Audits/Reort_21/Chap_7.pdf

Further, the CAG audits have revealed wasteful expenditures in the Water Resources Department to the tune of Rs. 3.80 Crores in excess manpower alone¹⁰⁰.

Further, the cost recovery system of the programmes implemented in India has been attributed to the following factors¹⁰¹:

- Political Compulsions of the multiparty System
- Laxity in cost collection
- Inequity in the charges levied
- Dissatisfaction with services provided.

These costs cannot however be accounted for nor quantified in monetary terms.

Now, for the policy to be implemented in India, it is essential that the benefits that accrue from it exceed the costs it will necessarily impose on society. Further, it will have to demonstrably out do the current model of resource management.

With the monetary figures present, a small calculation will reveal the total cost (approximate) borne by the Government:

Heads of expenditure	Expenditure (in Rs. Crore)
River Water Sharing Tribunals	5.1
Financial Outlay of Water Resources Ministry	3246
Pollution Control by MoEF	7939
TOTAL	11190.1

The Total financial outlay of all water resources departments in India comes to a whopping Rs. 11190.1. These include capital costs of irrigation projects, flood control, transport and Infrastructure Development.

If this policy were to be implemented this cost would have to be borne by the people as a whole. a simple way of ascertaining the costs to be borne per head would be to divide this

⁹⁹ Works Expenditure; Public Works Department (Water Resources Wing); available at: http://saiindia.gov.in/english/home/Our_Products/Audit_Report/Government_Wise/state_audit/rent_reports/Tripura/2003/rep_2003/civil_ChIV.pdf

¹⁰⁰ Audit of Transactions: Water Resources Department; Available at: http://saiindia.gov.in/english/home/Our_Products/Audit_Report/Government_Wise/state_audit/rent_reports/Goa/2006/Civil/Civil_Goa_2006/civil_chap_4.pdf

¹⁰¹ Economic Reforms through Principled Pragmatism, V.S. Vyas; Handbook of Water Resources in India, Developmet, management and strategies, ed. John Briscoe & R.P.S. Malik; the world bank, oxford university press, ed. 1, 2007



amount by the official population figures of the country¹⁰². The official population figure for India is 1,21,01,93,422¹⁰³.

This comes out to around Rs. 92 per head, per year. This is a meagre sum when compared to the per capita income of India, which is Rs. 5,729 per month¹⁰⁴.

Therefore, this policy can be financed directly from the pockets of the households and industries of the country. Rules must be made to ensure that equity is guaranteed in that the amount that is paid by private individuals and private entities must be in proportion to their capacity to pay. In doing so, the Authority must ensure that the inability to pay, of one individual, is compensated by the excess ability of another to do so.

This calculation has been made on the basic assumption that there has been no wastage of funds that were collected. However, as has been seen from several CAG reports, a significant portion of such funds, in reality, are either wasted or have been left idle. The method of fixing capital subscription in this policy will not only cover the financial requirements of the policy but also have surpluses left over, which may be utilised in light of contingencies, implementation of new schemes, etc.

9.3 Qualitative Analysis

In addition to this, the policy has several qualitative benefits as well. It provides for the flourishing of free trade among the private individuals and commercial entities of the society, thereby promoting competition in the market. In this manner, the liberty of the individual to enter into independent transactions is not compromised; it is only regulated.

An important benefit to the people in the implementation of this policy is the generation of stakeholder participation. In simpler words, every individual in the society has a say in the management of the water resource. Thus, in a sense, he maintains some level of ownership over the resource that he is entitled to, albeit a collective ownership. Through this sense of belonging, he will treat the water resource much more judiciously, and will contribute to its administration effectively, so as to derive maximum benefit from the system in return. In this manner, the implementation of the policy also results in a growing awareness is created among the people about the growing need for an efficient water management system due to the fact that water is a scarce resource, which is rapidly getting depleted through unsustainable management.

The devolution of powers in this system implies that the individual wields power over the water, as a result of which, his participation will be at a higher level. The stakeholders will be able to see the consequences of participation immediately around him, as his efforts in management will materialise about him in the form of efficient distribution of water. This will ensure an active participation in the decision-making process, thus bringing democracy to the doorstep of the individual.

Further, the elaborate machinery of the policy and its various tools of implementation will result in the large scale generation of employment in economy. In this regard, the National Rural Employment Guarantee Act (NREGA) can be utilised to appoint several unemployed

¹⁰³ Available at: <http://censusindia.gov.in/>

¹⁰⁴ Available at: <http://www.rediff.com/business/slide-show/slide-show-1-budget-indias-per-capita-income-rises/20130208.htm>

persons in the country and engage them in the task of river-basin management¹⁰⁵. This includes work in the field of rain-water harvesting, irrigation systems, micro-irrigation, infrastructural maintenance, etc. If the Government invests in providing training for a higher standard of jobs related to water management, further employment can be generated in the maintenance of accounts, installation and checking of water meters, drafting of schemes, etc. Further, the policy opens up a whole new area of study related to water management: for example, flood forecasting, de-salination of water supply, drought mitigation strategies, agricultural impact on water management, mapping of aquifers, research for improved technology, etc.

Certain qualitative costs also exist in the implementation of the policy. Upon the immediate implementation, there will be a certain level of discomfort and opposition to the policy, as will be discussed in the subsequent chapter.

Infrastructural costs will have to be borne by the individuals in the establishment of the network of pipelines, installation of water meters, acquisition and installation of machinery for the distribution process, etc. Supplementary costs have to be borne by the Government in the form of initiative to promote the policy, and the cost of spreading awareness among the people. These are, however, a one-time expenditures. Once information about the policy has been disseminated and the policy has been implemented in full force, the costs of maintaining the system will reduce. The capital expenditure felt at the implementation stage will be reduced to a maintenance fee that is to be taken care of periodically. This maintenance will serve to keep the system functioning, and is thus a necessary and profitable expenditure. The capital expenditure plus the future maintenance costs of the system are nominal costs with respect to the benefits. In other words, in the long run, the benefits of the policy will far outweigh the costs imposed in its implementation and maintenance.

Further costs are felt in the nature of loss of liberty of the individual with respect to independent transactions. However, the fact that the policy allows for free trade within the market among individual and commercial entities proves that there is a mere regulation of such independent transactions, so as to maintain an optimum level of utilisation of the water resource.

This consideration can be made: in a situation of free market, in order to obtain the water resource, an individual has to arrange for the acquisition of the water from the water source to his place of residence. This would involve some middle-men methods due to which some cost is incurred, as a result of which the utility derived from one unit of water becomes lesser. However, in a system where the Government provides the middle-men methods in the form of River-Basin Management Authorities, at a subsidized rate, and all that the individual has to pay for is the cost of establishing and maintaining such Authorities, then the utility derived from the same unit of water is considerably more. In other words, the benefit accrued through the adoption of this policy is more.

Thus, no matter which way one considers it, the benefits gained by implementing this policy are definitely more in terms of monetary benefits through quantitative benefits, as well as qualitative benefits through the satisfaction of the consumer and optimum and efficient utilisation of the water resource, as opposed to both the quantitative and qualitative costs felt by the individual.

¹⁰⁵ Draft National Water Policy, June 2012, Report Summary, PRS Legislative Research



10. Transition path

10.1 Constitution of India and other Existing Laws

In India, the right to water as a quality of life is guaranteed by Article 21 of the Constitution of India¹⁰⁶. Article 39(b) and (c) of the Constitution of India enshrines the constitutional goals of State functions; they state that the ownership and control of material resources of the community should be distributed for the common good, and that the operation of the economy should not result in concentration of wealth and means of production, to common detriment. In other words, the Constitution itself justifies that some level of control is mandated over the allocation of property rights of water, and its distribution.

The word 'distribution' in Article 39(b) has been given an expansive interpretation. It has come to be accepted to include 'nationalisation'¹⁰⁷. 'Nationalisation' is also a distributive process as it prevents concentration of wealth in the hands of a few and, thus, benefits the society at large¹⁰⁸. A judicial pronouncement¹⁰⁹ has elaborated that the idea of nationalisation of a material resource in the community cannot be divorced from the idea of distribution of that resource in the community in a manner which advanced the common good.

Thus, the establishment of River-Basin Management Authorities at various levels for governance over river bodies would serve the purpose of the Constitution quite accurately.

Inter-State rivers and river valleys are included in the Union List, Schedule VII of the Constitution of India, which means that only the Centre has the power to legislate on these matters¹¹⁰, whereas water with respect to water supplies, irrigation and canals, drainage and embankments, water storage and water power are included in the State List, i.e. only the State can legislate on these matters¹¹¹. However, in order to implement this policy in India, a few formalities in the form of administrative reforms are necessary:

- i. The States should be divested of their powers to freely bargain with each other for the use of shared rivers. The River-Basin should instead be managed by an integrated management Authorities which converge to form an All-Indian River Sharing Authority for control and coordination of river water policy and for formulation of National River Water Policy. This implies a delegation of powers of the States' responsibility under Entry 17 of the State List.
- ii. On the other hand, it is necessarily implied that the Centre delegate its powers under the Union List in order to empower autonomous River-Basin Authorities to govern the River basins of the country.

¹⁰⁶ Narmada Bachao Andolan v. Union of India, (2000) 10 SCC 664

¹⁰⁷ M.P. Jain, GET CITATION, p. 1376

¹⁰⁸ *Tamil Nadu v. Abu* 1984 AIR 326

¹⁰⁹ *Maharashtra State Electricity Board v. Thana Electric Supply Co.*, AIR 1990 SC 153, at 165

¹¹⁰ Entry 56, Seventh Schedule, Union List – The Constitution of India

¹¹¹ Entry 17, Seventh Schedule, State List – The Constitution of India

The Constitution of India, under Article 246 Entry 56 of the Union List (List I) provides for regulation and development of inter-State rivers and river valleys to the extent to which such regulation and development under the control of the Union is declared by Parliament by law to be expedient in the public interest. Further, through Article 262¹¹² and Entry 56 of the Union List has vested the power to legislate on inter-State rivers and river valleys and any disputes arising out of such rivers, on the Parliament. In this respect, the Parliament has enacted two Acts:

1. River Boards Act, 1956:

It provides for the establishment of a River Board to *advise* the Governments in the regulation and development (control, conservation, utilisation, irrigation, development of hydro-electric power, flood control, promotion of afforestation, control of soil erosion, prevention of water pollution) of an inter-State river or river valley. Section 2 of the said Act declares that it is expedient in public interest that the Central Government should take under its control the regulation and development of inter-State rivers and river valleys to the “extent hereinafter provided”. The Act, however, has been rendered as a dead letter by not appointing River Boards¹¹³.

2. Inter-State Water Disputes Act, 1956:

It provides for the Constitution of an ad-hoc quasi-judicial Tribunal for the *adjudication* of any dispute arising between two or more States with regard to the waters of any inter-State river or river valley. This excludes the jurisdiction of all Courts of law, including Supreme Court.

While the River Boards under the River Boards Act has not seen much recognition and functioning, the Inter-State Water Disputes Act has been actively involved in the creation of Tribunals for specific disputes like the *Cauvery Water Disputes Tribunal*¹¹⁴ in the dispute between Karnataka and Tamil Nadu regarding distribution of water from Cauvery River.

Historically, India has followed a system of **customary rights**¹¹⁵ and **riparian rights**¹¹⁶ for the acquisition of water by an individual. However, these forms have proven insufficient for the management of river water resources. Till date, no general guideline for the sharing of river water between states has been worked out¹¹⁷.

Thus, the distribution of water of the Inter-state Rivers is either worked out through negotiated agreements between river states or through the awards of water dispute

¹¹² “Parliament may by law provide for the adjudication of any dispute or complaint with respect to the use, distribution or control of the waters of, or in, any inter-State river or river valley” – Article 262(1), The Constitution of India

¹¹³ DD Basu, Vol. 8, p. 9113

¹¹⁴ In *Re: Cauvery Water Disputes Tribunal, FIND CITATION - case*

¹¹⁵ “An easement may be acquired in virtue of a local custom. A custom is a usage by virtue of which a class of persons belonging to a defined section in a locality are entitled to exercise specific rights against certain other persons or property in the same locality. To be valid, a custom must be ancient, certain and reasonable and must be construed strictly. All that is necessary to prove is that the usage has been acted upon in practice for such a long period of time and with such invariability as to show that it has, by common consent, been submitted to as the established governing rule of a particular locality.” – Halsbury’s Laws, p. 451

¹¹⁶ “Indian Law recognises that every riparian owner has the right to the continued flow of waters of a natural stream in its natural condition without obstruction and unreasonable pollution... Indian legal system also recognises a common law riparian right to unpolluted water.” – Halsbury’s Laws, p. 453

¹¹⁷ Supra n. 105



tribunals. Tribunals in India mostly favor the use of the doctrine of equity. This has resulted in the building of strong precedents through case law. Other principles that may be looked into as and when the State comes up with general guidelines: riparian principle, chronology of use, principle of causing no harm to the downstream entities, contribution of the state to the basin waters.

10.2 The Need for an Integrated Management

This situation warrants the creation of river basin authorities for managing interstate river basins: includes holistic and integrated planning, implementation of projects, operation of water systems, monitoring. However, while there are river basin authorities in India only the Brahmaputra authority has been given the power to manage the water resources¹¹⁸.

At present, India has several bodies at the national level, such as the National Water Resources Council, the National River Board, Central Water Commission, National Water Development Agency, Inter-State Water Disputes Tribunal etc. There is a proposal before the National Water Resources Council and the National Water Board for a Water Regulatory Authority that fixes and regulates water tariff system in each state, and Water Users' Associations which manage the distribution system in their jurisdiction¹¹⁹.

Although these bodies and proposed bodies have been thought of for legitimate reasons, this policy provides for *one* administrative body at the central level. By eliminating the diversification of functions and vesting all authority in *one* body at the Centre, the Government lessens a significant amount of its spending for the administration of these bodies. Further, the presence of several bodies over one subject matter will result in a lot of time being spent in proposals, consultations, deliberations, recommendations, amendments, counter-proposals, etc. between the bodies themselves. In order to avoid this kind of monumental expenditure in terms of finances and time, the individual bodies should be restructured in such a manner as to *merge* the functions of every single central body into one body that covers every aspect of river management.

10.3 The Establishment of River-Basin Management Authorities

The Constitution of India under entry 56 of the Union list and the River Board Act, 1956 provide the legislative framework for such an institution. The dormant River Boards Act may be revived and amended so that an all-encompassing jurisdiction, regarding water and water management of rivers, is conferred upon the River Board created under the Act, and not just advisory jurisdiction as is the present situation. This River Board will be in the nature of a regulatory authority for every river basin Authority, and will have the effect of an integration of every aspect of management, allocation and distribution of river water. The River Board may otherwise be suitably renamed a **National River-Basin Management Authority (NRBMA)**. Further, the Governing Council (executive body) of the NRBMA will have a separate wing vested with judicial powers, which would be equivalent to a permanent Tribunal established under the Inter-State Water Dispute Act¹²⁰.

¹¹⁸ Ibid.

¹¹⁹ Ibid.

¹²⁰ "For the settlement of inter-state river water dispute, the Draft Constitution of India initially contained similar provision in the 1935 Act. But during the consideration of the Draft Constitutional provision, Dr. Ambedkar proposed an amendment for the necessity of setting up a permanent institution to deal with disputes, the incidence of which was bound to increase with full utilization of such waters for the purpose of irrigation and generation of power in independent India.." - Durga Das

Insofar as administration is concerned, the NRBMA will be vested with the authority to formulate policies for the management of river water resources. This policy will be adopted by it in order to achieve efficiency in the allocation and distribution of the resource. In order to accomplish this, a hierarchy of Authorities need to be established, in accordance with this policy. The Authority immediately subordinate to the NRBMA would be the **Regional River-Basin Management Authorities (RRBMA)**. One RRBMA will be constituted for every major river basin that runs through the country, for example: Indus, Ganga, Brahmaputra, Krishna, Godavari, Cauvery, etc. They will comprise of representatives of the members of Authorities of the riparian states to these river basins. Further, the RRBMA will also include those large commercial entities and industrial enterprises that use water from the respective river basin to satisfy their water utilization purposes. Thus, there will be 20 RRBMA in India¹²¹. Each RRBMA will have a judicial wing to its Governing Council, which will settle disputes between riparian states of different river basins. The NRBMA's Governing Council and a General Body of the people, which consist of representatives of these RRBMA.

The NRBMA also requires the constitution of several Authorities at the State level, as per this policy, in order to facilitate effective devolution of powers and stakeholder participation, as has been outlined in the previous chapters. For this, it shall have to encroach upon the State List (Entry 17), which only the State has the power to legislate upon. However, this power has been conferred upon the State Government "subject to the provisions of Entry 56 of List I"¹²². Further, Article 257¹²³ states that the Executive power of the States can be exercised only in a manner as not to impede or prejudice the exercise of the Union Executive power. In other words, the Union Executive can give such directions to State as is necessary for the purpose for which the Union Executive power was exercised. The Union Government can thus exercise these powers in order to direct the States to adopt the policy of the NRBMA, and to allow the NRBMA to establish Authorities at the various state levels.

Presently, at the State level, the need for irrigation associations and increasing farmer participation are being felt. There have been reported cases of 'considerable achievement' of irrigation associations in three projects: the Mohini Cooperative in Gujarat, the Pani Panchayats (Mula Project) in Maharashtra, and the Pipe Committee of Pochampad in Andhra Pradesh¹²⁴. However, most attempts similar to these are clumsy and ineffective, and failed in India¹²⁵.

With the adoption of this policy through NRBMA, the State, as per directions from the Union Government, will have to allow for the establishment of several **Local River-Basin Management Authorities (LRBMA)**; each Authority may be construed as a sort of **Pani**

Basu, *Commentary on the Constitution of India*, 8th Ed., Volume 8, LexisNexis Butterworths Wadhwa, Nagpur, 2011, p. 9113

¹²¹ There are 20 river basins/draining areas, large and small, in India. The list of river basins is available at: http://nca.gov.in/nb_basin.htm

¹²² The Constitution of India

¹²³ Article 257(1): "The executive power of every State shall be so exercised as not to impede or prejudice the exercise of the executive power of the Union, and the executive power of the Union shall extend to the giving of such directions to a State as may appear to the Government of India to be necessary for that purpose": The Constitution of India

¹²⁴ *Functioning of Water Users Associations or Pani Panchayat in Orissa: Principle, Procedure, Performance and Prospects*, Sushanta Kumar Mahapatra, Madras Institute of Developmental Studies, Chennai

¹²⁵ *Ibid.*



Panchayat¹²⁶. These are the local self-governing bodies that govern the water distribution and management at the local level, i.e. at the village level. Thus, they will run on the lines of a Panchayat system. They will take on the functions of the Panchayat system with respect to Articles 243G and 243H. Article 243G allows for the conferring of powers, authorities and responsibilities to the Panchayats in order to implement schemes for economic development and social justice. Further, Article 243H authorises Panchayats to constitute Funds for crediting moneys received by or on behalf of Panchayats. If these powers are conferred on Pani Panchayats as well, they will be able to perform such functions as local management Authorities in their full capacity, as has been discussed in preceding chapters. For this kind of power to be conferred, however, there should be a Constitutional Amendment to include Pani Panchayats within the ambit of 'Panchayat', in the respective Articles. The corresponding bodies at Municipalities will be the **Municipal River-Basin Management Authority**. For the purpose of convenience, 'LRBMA' will include both Local and Municipal River-Basin Management Authorities, in this document.

Thus, the LRBMA will be empowered through the policy of the NRBMA, and through Constitution, to achieve financial self-sufficiency, and will be the decentralised body performing the function of distribution of water. The members of the General Body of the LRBMA will directly be the members and commercial entities of such village, thus increasing stakeholder participation. The Governing Council of the LRBMA will be the elected representatives of the village. This kind of participation will involve the people directly, thus enabling local problems and disputes to be solved at the local level, through the judicial wing of the LRBMA Governing Council.

Several LRBMA's in a particular District will form the **District River-Basin Management Authority (DRBMA)**. The General Body of DRBMA will constitute the elected representatives in the Governing Councils of all the LRBMA's of the District, while the Governing Council of the DRBMA will constitute elected representatives from every LRBMA. The judicial wing of the Governing Council will resolve disputes among the LRBMA's, as well as appeals from the decisions of the LRBMA's.

This DRBMA will be subordinate to the RRBMA's of the basin whose water it utilises. Thus, a State will constitute several DRBMA's, each of which will be a part of their respective RRBMA's. Every RRBMA is subordinate to the NRBMA. The NRBMA is thus the peak body for river-basin management in the country, and exercises all jurisdictions in this respect. It receives appeals from the RRBMA's. Any dispute that cannot be settled in this framework can be forwarded to the Apex Court of the country. Further, the financial structure of this system will be in the form of a pyramid, whereby the subordinate Authorities will supply funds to the higher Authority in order for the implementation of schemes of a scope outside that of the subordinate Authority.

10.4 Implementation

A sudden shift from the current paradigm will cause a lot of hardship for the people who will find it difficult to appreciate or work the new system proposed here. It is important to keep in mind that the interests of both the people and commercial entities must be balanced and maximised. The scheme of this policy proposes a structure that is similar to the structure currently existing in the Government: the Panchayati Raj system at the grass-root level, the

¹²⁶ A Pani Panchayat is a Society registered under the Societies Registration Act, 1860 consisting of all the farmers within the command of a minor or sub-minor canal, or of a Lift Irrigation Point. – AVAILABLE AT: <http://india.gov.in/scheme/scheme-pani-panchayat>

State Government at the regional level and the Union Government at the Centre. The network of pipelines as outlined in this policy can be incorporated by utilising the existing State municipal and village water supply pipeline, and constructing new pipelines wherever necessary. The water meter instalment can happen along the lines of the instalment of electricity meters.

10.5 Response from Society

It is the general nature and human tendency to oppose change. Change, sub-consciously, has always been viewed with distaste and disapproval. It is thus quite reasonable to infer that the common people at the grass-root level will be the class of people who will oppose this policy. They will dismiss it as an unnecessary modification to a system that has been deep-rooted within their culture for centuries, without even judging the merits of the policy for themselves. In order to ensure that the policy gets implemented in full form, it would be a better approach to incorporate the policy into the nation from the Central level. As has been discussed above, through Constitutional provisions and amendments, the NRBMA can be set up, following which the subordinate Authorities are set up through a gradual percolation of the policy structure at every level. Until this is done, the system will tend towards a more centralised structure, with the NRBMA and RRBMA managing the river basins unilaterally, without popular support.

In the meanwhile, the opposition by the common people can be tackled by a wide-spread awareness initiative that will approach the common man and provide him with information about the policy, its structure and benefits. This will involve significant advertising, promoting and initiative, in order to reach every man in the Country. In this manner, having been furnished with every aspect of the policy, the common man will apply his rationality and realise, for himself, the benefits of the policy, and will thus adopt it.

Gradually, the LRBMA must be set up in the villages and municipalities through popular vote and participation from the masses. This may be conveniently achieved by ensuring that the elections to the Pani Panchayats are done at the same time as the elections to the Panchayats in each state. However, the independence of Pani Panchayats from the Gram Panchayat has to be maintained and there must be no duality of posts held in both the local bodies. Further, local industries and commercial entities must be brought on board and a fixed number of seats for their representation must be provided for in the Pani Panchayat.

Initially, there is a high possibility that certain political groups may revel in populist propaganda. They may incite regional sentiments and polarize the population within the basin area. Further, political constraints may exist in that national parties will not be willing to let go of the control of water, due to the advantages they receive in the form of vote banks, etc. However, persistent Government propaganda and the vibrant civil society that India is blessed with will ensure proper dissemination of information among the masses; over time, the idea of the River-Basin Authorities, and the Authorities themselves, will gain in strength and come to be a part of the administrative set-up. No political party will dare to oppose the will of the people.

However, the opposition might not be from political parties alone. Various interest groups in the form of big industries, large land-holders or even the States themselves may resist the policy, if it amounts to a reduction in benefits, real or perceived. The case of the *TISCO*¹²⁷ may be cited as an example wherein TISCO vehemently opposed a reduction in the benefits

¹²⁷ Tata Iron & Steel Co. Ltd. V. State of Bihar 2004 (3) BLJR 1948



it received from the charges levied on the use of water from the Chandil Dam on Subarnarekha River. In this manner, riparian owners and other beneficiaries of water under the present water laws may oppose the introduction of an equitable structure of river-basin management as proposed here. Compensating such users cannot be justified for the simple reason that water is a common resource and belongs to no one. Instead, the Government propaganda must be used to persuade them to alter their views in this regard. A certain degree of coercion is admitted here, but is absolutely necessary for the greater good of the community and the nation.

10.6 Conclusion

Thus it can be seen that in order to fit this policy into the Indian framework, only subtle changes are necessary in the present administrative system. Further, a transfer of powers is necessary from the Government to the independent Authorities in order to carry on their functions of water allocation and distribution. There is no necessity for a sudden or monumental change in the administrative framework of the nation. The policy is a people-friendly policy and involves a significant amount of representation at the local level, due to which political parties will be bound to work for the welfare of the people from the grass-root level itself. The policy will thus enable the people to see which leaders work for their welfare and are able to effectuate efficient distribution of water, and elect such people to the Governing Council. There are no 'losers' per se, in this policy; however, to an extent, corrupt politicians become the losers, as they will be unable to avail of vote banks and easy seats of power within the system, without working for it. Opponents to the policy can be brought on board through careful persuasion, by showing the benefits to the common man. It is a policy that will appeal to the common man immensely, and any vested interests can easily be brought on board the policy system, by the benefits he receives through the system.

Thus, this policy is an efficient and effective way to manage and distribute river water resources of the nation.

Attachments

PERFECT COMPETITION:

A market structure is the type of market in which a firm operates. It can be distinguished by the number of firms in the market and the type of product they sell.

A competitive market is one wherein each individual firm has a low degree of influence over the price of the product. The competitiveness of a market depends on the power of individual firms to influence market prices. The less power the firm has to influence the market in which its product sells, the more competitive the market is. Perfect competition is an extreme form of competitive market structure wherein each firm has zero market power, i.e. they have to accept the price set by the market forces. In this form, there is no need for firms to compete against each other since the ability of one firm to sell a product does not depend on competition from the other firm, but on the forces of demand and supply in the market.

There are certain conditions that ensure no firm or seller can influence the price of the commodity in the market through his/her own individual action; these conditions are what make the market a perfect competition market structure¹²⁸:

1. Large Number of Firms:

The presence of a large number of firms in the industry is one of the conditions for the existence of perfect competition. In this situation, a single firm in the industry then becomes like a drop in the ocean; its influence in the determination of the price of product is absent. The output of an individual firm constitutes such a small fraction of the total output of the whole industry that no amount of increase or decrease in the output of the individual firm will affect the total supply of the product of the industry. Thus the individual firm takes the price of the product as a given datum and adjusts its output accordingly, to earn maximum profits. Thus, a firm under perfect competition is a *price-taker* and *output-adjuster*.

2. Homogenous Products:

This condition is that the products produced by all firms in the industry are fully homogenous and identical. In other words, they should be indistinguishable from each other, making them perfect substitutes for each other. The elasticity between the products of the firm is infinite. This is because, if there are many firms producing differentiated products (through different brands, trademarks, patents, etc.) then each firm will have an influence over the price of his own variety of the product. The control over price is thus eliminated only when all firms are producing homogenous products.

3. Perfect Information:

¹²⁸ H.L.Ahuja book. GET CITATION. pp. 428-429



Only when buyers know fully the current price of the product in the market, sellers cannot charge more than the prevailing price. Similarly, only when sellers know the market price will they be able to extract full value through price and not charge lesser. This will happen only when the buyers and sellers are fully aware of the ruling price in the market. This situation is the perfect information situation, i.e. there is perfect information in the market.

4. Free Entry and Exit:

There must be complete freedom for the entry of new firms or the exit of existing firms from the industry in the long run.

EFFICIENCY:

An economy's resources are allocated *efficiently* when it is impossible to reallocate them so as to produce more of some product without producing less of some other product. In other words, an allocation of resources is productively *inefficient* when it is possible to produce more of some product without producing less of any other product¹²⁹.

In a perfectly competitive market structure, an idealization of the market economy leads, in equilibrium, to an optimum or efficient allocation of resources. This result is often referred to as **Pareto optimality**.

RIVALROUS AND EXCLUDABLE GOODS:

A good is rivalrous if no two people can consume the same identical unit, i.e. if the good is consumed by a person, then no one else can consume it.

A good is excludable if people can be prevented from obtaining it. For excludability, it is required that the owner be able to exercise effective property rights over the good in order to determine who uses it – typically only those who pay for the privilege.

Thus, a good is non-rivalrous when the amount that one person consumes does not affect the amount that other people can consume. A non-excludable when, once produced, there is no way to stop anyone from consuming them.

COMMON RESOURCE:

There are some resources that can be used by everyone but belong to no one. Such resources are called common resources. No one has an exclusive property right over the resource – it can be used by everyone. Nothing can stop a person from consuming such a resource. However, such consumption reduces the availability of the resource for others. Thus, a common resource is rivalrous and non-excludable. For instance, no one has an exclusive property right to the fish in the ocean, common grazing lands, clean air, water, etc. Common resources often show a pattern of overexploitation, which has been explained through the *Tragedy of Commons* problem.

COASE THEOREM:

¹²⁹ Lipsey and Crystal, *Economics*, 12th Ed., 2011, Oxford University Press, New York, pp. 272 - 273

“If two sides to an externality – the one causing it and the one suffering from it – can bargain together with zero transaction costs, they will produce the efficient use of resources.”¹³⁰

In essence, one of the two sides has to possess a property right which forces the other side to bargain. Coase, in his theorem, has proved that it is inconsequential as to which side has the property right; the same result will be obtained independently of who owned the property right. Property rights will determine who gets most of the surplus on the bargain, because they determine who has to pay whom. But since both sides bargain for their own self interest, the allocation of the resource in order to tackle the externality will be independent of where the property right is residing.

EXTERNALITIES:

¹³⁰ Lipsey and Crystal, p. 283, Same as Footnote 3.