

WATER CAPITAL MANAGEMENT AND GOVERNANCE AS LIFE GIVER WITH SPECIAL REFERENCE TO MANIPUR

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Abstract

Manipur is bestowed with abundant water resources. However, the scarcity of water supply is witnessed in all categories of water consumption. Despite the abundance of the annual average rainfall of 1880 mm and despite vast areas of water bodies in the state, only 38.6 percent of households get tap water (Census of India, 2011). India has water storage capacity of 225 cubic meter compared to the USA with 6155 and that of China with 2500 WSCP respectively.

Rural water supply covers only 2263 out of the 2868 habitats. Water Bodies are the main source of water supply. There is an immediate need for protection of Water Bodies and Wetlands in Manipur. Worst off, the irony in Northeast India is that floods and related effects are felt frequently. Dams seem to be constructed only to submerge certain human and nonhuman settlements. Therefore, the objective of this paper is to analyse the water management policies of the Government of Manipur in line with the national water policy/International Water Resource Management. However governance is a key component for successful water management. Scientific and technological aspects of water-related work are unlikely to be effectively implemented at the policy and management levels without an appropriate governance system (Tropp, 2007; 19-20) It will recommend various measures to meet the challenges meted to this water sector in Manipur that will come from its findings. The paper as recommended in interim report of the Steering Committee appointed by the Government of Manipur to recommend additional resource mobilization for the state of Manipur, 2017, wherein water to be treated as capital, as produced means of production; as a resource; not as a finished product. This will be further added with the findings of an Unpublished Block Placement Report of an Indira Gandhi National Tribal University Regional Campus, Manipur under the aegis of Department of Social Work.

Index Terms: *Water Bodies and Wetlands in Manipur; produced means of production; water to be treated as capital; as a resource; not as a finished product*

LEAD KINDLY LIGHT

1. INTRODUCTION

There is a poem that goes this way: Little Drops of Water

Steve Songs

**Little drops of water
Little grains of sand,
Make the mighty ocean,
And the pleasant land.**

**So the little moments,
Humble though they be,
Make the mighty ages
Of eternity.**

**So our little errors
Lead the soul away
From the path of virtue,
Far in sin to stray.**

**Little deeds of kindness,
Little words of love,
Make our earth Happy,
Like the heaven above.**

Water value is so high that it can be compared to Life Giver. For, there cannot be life without water as it contains oxygen. Everything that breathes needs oxygen. The earth has water in abundance unlike other planets. Perhaps Mars is expected to have existed with the hope of water bodies and so is the moon. Scientists are exploring these planets to find alternative to the planet earth for human settlement. However, as Indira Gandhi said: "As a child I always wonder what is wrong with the earth? This is beautiful." Meaning many are trying to find life in other planets whereas the planet earth has everything that we need but not ill treat with greed to react on us adversely. That is why Mahatma Gandhi said that the earth has everything but not to satisfy the greed of man.

People of Manipur are blessed with the largest lake (Loktak Lake) while there is a shortage of water at many places. Little drops of water, little grains of sand, make the mighty ocean. In Manipur, we have all these called water bodies and related resources. We have water resources but not a drop to drink in Manipur. Rural water supply covers only 2263 out of 2868 habitats in Manipur. It is attempted here with exhaustive water resource management to explain planning, developing, distributing and management to optimum utilization of water resources. This can be initiated through the schemes like watershed component of Pradhan Mantri Krishi Sanchay Yojana (PMKSY). The integration of technology within the watershed for optimum development of land, water

and plant resources in a sustainable manner should be taken care of as a matter of practical necessity. This is where there is a need of integrated approach where water is a system which interacts with other natural and social ecosystems. Thus there is a dire felt need to determine how water should be allocated for economic, social and economical services through bifurcated approach, allowing unnecessary polarities to dominate policy and practice: water quality versus quantity; land versus water; surface water versus groundwater; point versus non-point sources; energy versus water; supply-side versus demand management.

Various individuals have a view of using an integrated approach to overcome a silo or fragmented approach. Therefore, an integrated approach has to be taken to water, land use and ecosystems to secure an optimal use of both water and other water-dependent resources. The International Water Resources Management is based on broad and a necessary framework and guiding principle for sector-specific activities and competence and not as a substitute. This is to how to advance from single component approaches to integrated approaches to catchments keeping both biophysical and societal processes in focus (Falkenmark et al., 2004: 305, 306, 279 as cited by Neelam Trivedi et al eds., 2013) These are summed up in the most cited definition of IWRM and added that it reflects all key concepts identified in the outcomes expected from effective integration: 'A process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare an equitable manner without compromising the sustainability of vital ecosystems' (Global Water Partnership, 2000: 22).

United Nations provides a clear statement on the World Water Assessment Programme (2006: 47-48) of the relationship between, and the significance of governance and water.

SIGNIFICANCE OF THE THEME

Governance addresses the relationship between organizations and social groups involved in water decision making, both horizontally across sectors, and between urban and rural areas, and vertically, from local to international levels. Operating principles include downward and upward accountability, transparency, and participation, and equity, rule of law, ethics and responsiveness. Governance is therefore not limited to

‘government’ but includes the roles of the private sector and civil society. The character of relationships (and the formal and informal rules and regulations guiding such relationships) and nature of information flow between different social actors and organizations are both key features of governance. Water governance has emerged as perhaps the most important topic in the international water community in the 21st century, the 2001 Bonn International Conference on Freshwater, a precursor to the 2002 Johannesburg World Summit on Sustainable Development.

STATEMENT OF THE PROBLEMS

The source of water resources through rivers originates from the Hill regions of the state of Manipur. The problem of Deforestation in the hill areas are the major concern which impacts the state to heavy siltation and alarm the water flow of the rivers. “The problem is further aggravated due to the climate variability, as a result, the state is also facing erratic monsoon for the past few years resulting in a shortage of water supply every year. Every year, the state is facing the acute drought-like situation, particularly during the months of February to May, mainly owing to depletion of raw water at the source and drying up of all the water bodies like ponds, lakes, moats, etc”(Department of Environment, Government of Manipur, 2015). Moreover, about 2 per cent of the domestic water supply in the urban area is being supplemented by the private transporting tankers (Government of Manipur, 2015). At present water storage and distribution system in both the urban and the rural areas of the state are reported. Otherwise also, it is a daily glare of the people of the state.

DELINEATION OF THE THEME

Manipur’s quantum of rainfall varies from South West and North East monsoons; the average annual rainfall is 1116 mm in 1972 and 2646 mm in 1983 and 2887.6 mm in 1995. In the past 1961 to 2010 Manipur records total rainfall of 1435 mm. There has been a decrease in precipitation in the past few years. The average rainfall of Manipur in 2014 was recorded as 750.21 mm which is said way below in high-intensity rainfall area. Manipur falls under high intensity of rainfall area. Ironically it faces an acute water shortage particularly during dry/lean season i.e., January every year. Rainfall distribution varies widely with just 164.94 mm in Imphal West and

recorded highest at 2160.6 in Tamenglong. The highest evaporation was recorded at Imphal West with 325.5 mm and the lowest in the Chandel with 16.2 mm. The total loss of water in evaporation in Manipur was recorded at 196.03 in 2014.

Table 1.1: Annual Average Rainfall and Water Consumption Per Person Per Day, 2014

Country	Annual Rainfall	Per Capita Water Usage
India	10,83 mm	123 liters per person per day
Thailand	16,22 mm	219.5 liters per person per day
Singapore	2,497 mm	150 liters per person per day
UAE	78 mm	500 liters per person per day
USA	715 mm	1514 liters per person per day
Manipur	1,467.5 mm	Data not available

Country Annual Rainfall Per Capita Water Usage India is 1,083 mm, 132 litres per person per day (on planning paper) Thailand is 1,622 mm 219.5 litres per person per day; Singapore is 2,497 mm 150 litres per person per day; UAE is 78 mm 500 liters per person per day; and USA is 715 mm 1514 liters per person per day but Manipur is 1,467.5 mm and Data not available. Water use efficiency should be increased by optimizing the water use with the help of different state government’s agencies like PHED, IFCD, forest, and environment etc. to continue the availability of water for various purposes. The strategy is framed on water resources under state action plan on climate change to ensure integrated water resource management including conservation and protection for improvement of water resources, minimize wastage and more equitable distribution both across and within states. Manipur is conditioned like any other world scenario in terms of water resources, by the changing climate affecting the distribution of quality water resources upon

the livelihood of Manipur. Extreme water condition in the form of floods and droughts are common features in Manipur. Like anywhere else, the increasing population of the state to affect the distributive justice mechanism by way of overuse or misuse of water resources. The study concluded that artificial contamination or pollution of water in the State still has the potential to harm public health. Climate change and its impact on water resources indicating an intensification of the global hydrological cycle affecting both the groundwater and surface water supply, owing to the changes in precipitation and evapo-transportation, the state is affected adversely on the water balance. The experts point out that increased rainfall intensity during the rainy season leads to high level of runoff and the available topography of the state that reduced the groundwater recharge (Fifth assessment report of the International Panel on Climate Change—IPCC). According to the Department of Environment, Government of Manipur (2015), “The state has 167 wetlands (> 2.25 Ha) and 541 wetlands (> 2.25 Ha) covering 63,616 ha i.e., 2.85 per cent of total geographic area under different types of wetlands like lake/pond (61.5 per cent), river/stream (26.2 per cent) waterlogged (5.5 per cent), aquaculture pond (4.2 per cent) and others (2.58 per cent) (The National Wetland Atlas 2010, developed by Space Application Centre). Besides, it is reported that Manipur has 15 major rivers/streams having 166.77 sq. km of total area i.e., about 0.75 per cent of the total geographical area of the state. About 90 per cent of drinking water supply in the urban area of the state is from the three major rivers, namely Imphal River, Nambol river, and Iril river. There are four major river basins of Manipur state. These are:

The Barak River Basin (Barak Valley to the west),

1. The Manipur River Basin in Central Manipur,
2. The Yu River Basin in the east, and
3. A portion of Liyal River Basin in the north

Wetlands

Three valley districts of Bishenpur accounted for 30 per cent of the total district geographic area under wetland, Thoubal district accounted for 30.3 per cent of total district geographical area, and Imphal West district accounted for 2.6 per cent of the total geographical area under wetland as per the Department of Environment, Government of Manipur (2015)

Groundwater

Extensive open wells/tube wells are installed in the valley and are responsible for the exploration of ground water. However, groundwater in the deeper aquifer occurs under sub-artesian and artesian conditions (Central Ground Water Board--CGWB) clay nature on the top aquifer when being considered the development of groundwater is not that promising in a large-scale consumption.

A study conducted on the presence of heavy metals in the important water bodies of state following detection of most of the water bodies containing hazardous heavy metal contamination in major water bodies in the state (Manipur Environment & Ecology Department, 2015)

Imphal, Iril and Kongba rivers, and Loktak Lake, wells and some other water bodies in Thoubal district's Kakching area, which once feared for contaminations of high percentage of fluoride, were tested using various scientific equipment. The study also covered places such as Koirengai, Khurai, Heikrumakhong, Khuman Lampak, Minuthong, Mongba Hanba, Singjamei, Keibi, Saombung, Khewa, Top Khongnangkong, Pangong and Lilong. The team also studied water bodies of Karang, Thanga, Takmu, Loktak Patyai, and Keibul Lamjao which are parts of Loktak Lake. The study stated that heavy metals are associated with exposure to lead, cadmium, mercury, and arsenic. Heavy metals can be very harmful to health if found in drinking water. These metals have been extensively studied and their effects on human health regularly reviewed by international bodies such as the WHO. The study was conducted during the period between 2013 and 2014, where it was found that the percentage of heavy present of the metals in these water bodies was found lower than previously anticipated though they were found dirty and so they are not harmful to human health (Manipur Environment & Ecology Department, 2015). One liter of water in Imphal river was found containing iron rate between 0.019 ml and 1.068. There is no harm in using water containing iron rate between 0.1 ml and 1.0 ml. Not a single water body in Manipur was found containing at this level during the study. Contamination of fluoride from 1 m to 1.5 ml per liters of water is damaging to health, but water bodies in the State were not containing at this level (Manipur Environment & Ecology department, 2015)

It is asserted that systematic and explicit research on water governance is relatively recent, though. Governance

is defined as: “It embraces the relationships between governments and societies, including laws, regulations, institutions, and formal and informal interactions which affect the ways in which governance systems function, stressing the importance of involving more voices, responsibilities, transparency and accountability of formal and informal organizations associated in any process (Tortajada, 2010: 298)”

The invocation of the imagery of ‘World water crisis’ though not necessarily accepted to garner views on need for more attention to governance but evidence to verify what the nature of the ‘water crisis’ is. Thus, necessitating principles or criteria to assess different water governance models. For such purpose, through a report for Global Water Partnership 12 principles of water governance have been identified: 1) open, 2) transparent, 3) participative, 4) accountable, 5) effective, 6) coherent, 7) efficient, 8) communicative, 9) equitable, 10) integrative, 11) sustainable, and 12) ethical. Globally (to use Fukuyama word) the IGNTU through the work report of department of Social Work based line survey on 42 villages on Tuitha river (glocally meaning good water) that flows these villages.

Churachandpur Model

KNOWLEDGE BUILDING ON PROTECTION OF RIVERS AND STREAMS

Objectives

To give awareness to the participants about the importance of rivers, streams and other water bodies

To give the knowledge of the participant about the harmful cause of the polluted water

To discuss and make a plan for the upcoming programme
Explaining in detail about the project its mission, vision and aim

To encourage the participant, to become an agent of change in the society

To let people understand that indigenous people hold the key to protecting the environment

To let the participant understand and know the roles for indigenous communities

Process

Knowledge Building

About 53 people from the 42 project village participated in the knowledge building where most of them are the village chiefs and village authority.

The programme was of 2 sessions. The first session is about knowledge building programme which was taken up by Mr. Dennis on the topic, “Protection of Rivers and Streams”. The points that he mentioned and explained are as under:

The first point he talked about was indigenous people hold the key to protecting the environment. Indigenous peoples’ contribution is essential in designing and implementing solution for ecosystems. Traditional knowledge and heritage can contribute to environmental assessments and sustainable ecosystem management. What is the key? It lies on ancestral and traditional knowledge, culture, heritage and tradition concept of stewardship. He elaborated that in Genesis chapter 1, God created human being to protect the environment and our lifestyle must be in accordance with God’s word. He then played a short video of Wangan Maathai (A Kenyan social, environmental, and political activist and the first African woman to win the Nobel Peace Prize) the Green Belt Movement. The workshop commenced with the second point i.e., Indigenous People: Connecting the past and the Future. Indigenous peoples are critical to sustaining the diversity of life on earth. Indigenous peoples are at the frontline of resisting the drivers of the global environmental crisis. Indigenous people conserve and preserve biological diversity as knowledge holders and sharers. For generations, indigenous people have accumulated intimated knowledge of the ecosystem.

The third point was on “Indigenous Communities and Sustainable Development Goals.” He mentioned the 17/2023 agenda for Sustainable Development. He also added that everyone must have awareness, understanding and action awareness of the environment and within ourselves.

The fourth point was about the Roles for Indigenous Communities towards Agenda 2030. They are: a) Change Maker: Indigenous Community has the power to act and mobilize others; b) Innovators: Indigenous communities have the direct knowledge and insight into issues the community faced, and they best understand the problems and can offer new ideas and alternative solutions; c) Communicators: Indigenous Communities are crucial in communicating the development agenda to all the local

level, as well as across countries and regions; d) Leaders: When indigenous people are empowered, they can change in their communities and countries.

The 5th point was on: “Transforming Indigenous Community Space”. He further emphasizes about healing our rivers and streams. If we are to heal our relationship with rivers, the traditional ecological knowledge and perspective held by indigenous people is essential. Ensuring communities play a leadership role in forging river conservation solution is vital.

The sixth point talks about reviving nature with hope. For this point, he shows a short video clip on how villagers in drought prone Bundel Khan revived their river using MGNREGS fund. The seventh point was on “where can we begin?” a) Connect b) Communicate c) Conserve d) Community.

For the eighth point he plays a short video on “I will be a humming bird” by Wangari Maathai.

The ninth point talks about “What is the way?” They are a) participation b) advocate c) Create Impact d) Lead a Change

For the tenth point, he explained about leading change on the fronts. Changing our mindset can lead to change in greater things.

He wound up the workshop with “Weaving Change Through Action Together by the community and for the Community.”

In the second session, the students’ social worker along with the co-workers conducted an activity.

It was divided the participants into 4 groups: A B C D which consist of the following villages

Group A

Lajangphai, Salbung, Saidan, K. Nivangphai, B. Ebenezer, Bethel, N. Zalenphai

Group B

Pearsonmun, Hebron Veng, Gangpimuol, Vaal Veng, Sielmat, Hmuia Veng, Beaulahlane

Group C

Rengkai, Muolvaiphei, N. Zoleng, Zenghang

Group D

Seken, M. Shemuol, M. Ihahvom, Mualkot

THE SCOPE OF THE STUDY

The analysis of the study involves extensive and intensive coverage of theoretical underpinnings and empirical history viz., based on Block Placement Report carried by department of Social Work, IGNTU (Regional Centre, Manipur). Where intensive field visits with interview

sampling questionnaire method of 42(forty-two) project villages revealed that majority of the respondents were from the age group of 30-40. Through this study it is found that as many as 9/10 of the rivers/streams are extremely polluted. This pollution in the surveyed area is not necessarily caused by the village people but more from the outsiders who dumped their waste at midnight or early in the morning to avoid recognition. Thus the surveyed respondents in most cases insist on government intervention to tackle this situation. In the village society level Joint Action Committee was formed to prevent their rivers from such occurrences. The surveyed villages stated that since the river/s are polluted in such a manner as stated, they refused to use for consumption (different categories). Thus revealing the unsatisfactory condition of the river, as quality of the river water deteriorating compared to the past. This is attributed mostly to the government apathy to village people and their welfare by not even providing garbage truck as demanded by the people and so instead people construct bore wells in their own cost. Awareness to sinking ground water level and importance of rivers, harmful consequences of waste water etc are lacking. As per information gathered stone quarry effects the flow of the river water as the workers used to dump the waste stone during rainy season when the water current is strong, affecting the people living nearby as those unwanted stone blocks the flow of the river water. The water catchment area in Gelmol village supplies the downstream areas through canals and pipe. It is reported to be maintained by the concerned authority which is at the distance of about 10 kms from the town. Lastly it is reported by the survey that out of the 42 villages surveyed there is only one village called Saihenjang village which is declared as Plastic Free village and this can be replicated as Model Village.

METHODOLOGY

The following tools and techniques are used:

1. Interview

It is very interesting to note that a face-to-face interaction between two or more people usually happened. This include the student social worker along with the field supervisor and the co-workers under the 2 projects that is women First and Leading from the south project where women first project focuses on only for girls and women and another project that is leading from

the South project the student's social worker along with her co-workers conduct the personal interview and focus discussion in all the project 42 villages.

2. **Listening**

In this process a two-way traffic conversation is involved usually. First the student social worker listens to what the respondent is saying and note down all important information. As the social worker along with her co-workers conduct the based line survey, the respondent responds to what the social worker asked. Besides, they also add few more things which they wanted to share for the development of the community.

3. **Observing**

The student social workers applied the techniques of observation during the field work. Since the students' social worker work on 2 different projects, observation takes place on the two different ways. In one way the student social worker through this process (observation) understands that the condition of the Tuitha river which flows through Lamka areas is presently in a bad shape/conditions. In another project the students learn that many women benefit from the WFI project as it provides economic sustainability for the beneficiaries.

4. **Questioning**

The student social workers with the help of the field supervisor and the co-workers prepared a questionnaire for the two-project village for based line survey. During questioning based on the questionnaire a survey for both the 2 projects was conducted. Additional questions were also asked related to the projects.

5. **Supporting**

During the field work in RWUS the students' social workers help the members in different ways to make them feel secure somehow.

6. **Informing**

In order to make the project successful the students social worker applied the techniques of informing during the field work by giving the people information about the project through explaining to them how to conduct the upcoming activities and their roles.

7. The student's social worker also applied the tools of relationship where the students build a

rapport with all the members of the agency. Interaction as two-way traffic responses builds good rapport among them. The students also build rapport with the people in the field especially with the village chiefs as they are the one whom the students get permission to carry out the activities (base line survey)

Observation

The Block Placement Report carried by department of Social Work, IGNTU (Regional Centre, Manipur) observed that the river which flows through Saihenjang village is one of the cleanest waters out of all the 42 villages. This Model Village maintained the river by preventing dumping of waste in the river. Besides, they also built a well and dumped the water and filtered it and store the water in the tank to reduce the iron content in the water and thereafter supplies to the villages.

From this project the students learnt that the map of the rivers and how it connects to each other. Interesting information is contributed about the catchment areas of Gelmol village which is 10 kms far from the town whose people utilize this water by paying Rs. 150 per month.

Ironically Villages like Ngathal, Khomawi, Dorcas Veng, Salbung, Lanva, Hebron Veng, water is most polluted out of the 42 project villages. These wastes include industrial waste, animal waste, human waste, agricultural waste (chemical waste), plastics etc.

Villages like Molvaiphei, M. Lhahvom, Zen Hang Lamka etc. faced challenges of the poor condition of the bridge. Sehken village is the village next to Khuga dam where the river starts from.

FEEDBACK

Implications and Findings

In a move that would boost the tourism sector in the northeastern state of Manipur, Union Minister of State for Environment, Forests and Climate Change, Anil Madhav Dave said that the Centre would develop the Loktak Lake—the largest freshwater body in eastern India. On the conclusion of his two-day official visit to the border state, he said that as soon as he reached Delhi, he should be in touch with all Ministries which are connected with the project. He would even take the issue to the United Nations.

Everyone is responsible in reviving our dying river. The government should provide garbage truck to each village in order to prevent dumping of waste in the river.

Conducting more awareness programmes on waste management would make change for better conditions of the rivers and streams and environment.

Each concern village authority should conduct cleaning drive in their respective village for fast recovery of our dying river.

Rigid notice should be published related to dumping of waste with a penalty.

Each house hold must keep a waste bin in front of their gate so that it will reduce plastic waste.

The government should replace the old wooden bridge with the new one, as the people who live near the river face problem in transportation because of the old weak bridge.

The government should improve the infrastructure related to protection of rivers.

As water is very important for human being for different purposes, reviving of our river is very important so that we will be able to consume the river even for drinking.

CONCLUSION

**So, our little errors
Lead the soul away
From the path of virtue,
Far in sin to stray.**

**Little deeds of kindness,
Little words of love,
Make our earth Happy,
Like the heaven above.**

Water is the source of life, at least to all water creatures including mankind (to the extent of water utility without which man cannot survive). So in this context the above stanzas of the poem attract critical appreciation i.e., the criticality of the approach to water management and its appropriate application of related treatment. Little errors or mismanagement of water leads to crisis though it is termed mismanaged without evidence to offer what the nature of crisis is. So, this is a clarion call of governance as discussed in this paper. It is in this context of integrated approach of water governance that it could be sin to treat one area or component that can affect the other areas as enunciated by several theorist's framework. A critique of specialization termed as justice by Socrates/Plato where one specialization on quality of water and another on quantity etc. can also conjoin in integration of specializations resultant effect might precisely can be unity in approach similar to the functions of river course

i.e., inundations, deposition etc. but what that impacted the most is the lack of humaneness of approach and treatment, the over exploitation of ecosystem that would never happen 'a little heaven on earth.'

Measures

In order to check the state being caught in the clutch of water crisis, there is every need to immediately enforce strict laws on water treatment in the water state policy. Actions to stop jhum cultivation ban on felling trees for commercial purposes and widespread construction of check dams. More constructions of dams and reservoirs, no encroaches in the wetlands, no private activities on the river banks, dredging of river beds and construction of community ponds.

Strong water policy and creation of an Agency/Body to look after coordination of different water resource-groups like wetlands, lakes, water supply schemes, and dams etc.

Water should not be looked upon and treated as capital, as produced means of production, as a resource, not as a finished product for immediate consumption. This changed perception should urge us to undertake the exercise of water budgeting: a new economic discipline. As Manipur needs a water revolution and water security plans at various levels. Despite the abundance of the annual average rainfall of 1880 mm and despite vast areas of water bodies in the state, only 38.6 per cent of household get tap water (Census of India, 2011). Shortage of safe drinking water is a chronic issue. To tackle this issue, the Manipur Water Policy, 2015 prepared in line with National Water Policy, 2012, should be strictly enforced. Water bodies are the main source of water supply. There is an immediate need for protection of water bodies and wetlands from increasing encroachment and diversion.

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