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FRAMING THE DROP: LOSS AVERSION, TEMPORAL DISCOUNTING, SOCIAL NORMS AND WATER CONSERVATION

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Abstract

UN Sustainable Development Goal (SDG) 6 emphasises “Clean Water and Sanitation” for all (UNDP, 2006). One of the main objectives of SDG 6 is sustainable water usage to safeguard against water wastage around the globe. However, with limited clean drinking water resources and growing demand and consumption because of population explosion, urbanisation, and swift industrialisation, water scarcity worldwide has posed serious challenges to the availability and conservation of domestic drinking water. This crisis requires urgent behavioural interventions to address drinking water scarcity and conservation. While technology and science play a significant role, individual conservation behaviour is dependent on cognitive heuristics and biases. In addition, the combined impact of loss aversion, temporal discounting, and social norms on water conservation judgments and decision-making is worth considering. For example, framing water waste as an immediate, tangible personal loss can lead to significantly higher conservation behaviour than traditional framing that highlights delayed collective benefits. The application of theoretical understanding of prospect theory, construal level theory, social norms theory and choice theory in water sustainability and conservation can provide a practical, evidence-based framework for designing highly effective public policies and targeted campaign strategies addressing the drinking water crisis. This study utilises a systematic review of past research related to sustainable consumption and conservation of drinking water and pro-environmental behaviour, dependent on loss aversion, temporal discounting and message framing. The present study also proposes a new concept named Actionable Normative Loss Framing (ANLF), a three-pillared behavioural intervention framework to address water conservation behaviour. The study concluded that framing techniques can be effectively utilised to enhance water conservation behaviour.

Keywords: Water Sustainability, Water Conservation, Temporal Discounting, Framing Effect, Loss Aversion, Prospect Theory, Construal Level Theory, Social Norms, Message Framing, Pro-environment Behaviour, Actionable Normative Loss Framing (ANLF).

1. Introduction

Water is life, the most valuable natural resource on Earth (Sohu, J.M. et al., 2024). Life without water is beyond imagination, and it can't exist or survive. But this valuable and life-sustaining resource is depleting rapidly due to climate change, poor management, industrialisation, population growth, etc. (Rosińska, W. et al., 2024). Out of the total reserves of water, less than 3% of water is fresh water. The rising demand is exerting immense stress on the limited supply of fresh water, and it requires urgent remedial measures for sustainable use to save water for our future.

Let us take an example of New Delhi, the heart of India. Ironically, Delhi is the most stressed region in terms of water scarcity. There is a shortage of approximately 25% of potable water as against its demand of 1680 Million Gallons per Day for the population of over 20 million. Further, the population is expected to grow to 31.68 million by 2030, which could adversely impact the limited potable water supply in NCT

Delhi. The recent CAG report (2026) highlighted the grave situation of potable water in NCT Delhi. The majority (approximately 55%) of groundwater samples tested failed to fulfil the standards of potable water, depicting an alarming scenario. Hence, the people of Delhi in the future are going to heavily rely on the tap water supply by the Delhi Jal Board, and the government possesses limited supply and resources to meet this rising water demand. This requires immediate implementation of behavioural strategies and interventions to save water in Delhi NCT.

The objective of the present study is to investigate the impact of loss aversion, temporal discounting, and social norms on water conservation and decision-making by systematic analysis of available open-source literature.

1.1. Prospect Theory

According to Kahneman's Prospect Theory, humans tend to overweight losses more than equivalent-sized gains. The psychological pain of loss is almost double in comparison to the pleasure of a gain of equivalent amount (Kahneman, D. and Tversky, A., 1979). While researchers have applied prospect theory to behavioural economics using money as currency, its applicability to water as currency is studied rarely. Framing messages as Loss (eg., by taking a longer shower and ignoring wastage of water, you are losing Rs 1000 on the monthly water bill) vs Gain (eg., by taking a shorter shower and avoiding wastage of water, you are saving Rs 1000 on the monthly water bill) can trigger different cognitive mechanisms resulting in varied behavioural responses.

1.2. Temporal Discounting & Construal Level Theory (CLT)

Temporal Discounting implies overvaluation of benefits in the present compared to benefits in the future (Farias, A.R. et al., 2021). Individuals devalue future abstract rewards and overvalue immediate concrete rewards (Kahneman, D., 2011). Construal Level Theory of Psychological Distance (Trope, Y., & Liberman, N., 2010) explains the cognitive cause of temporal discounting, i.e., why we devalue the future. It highlights how the temporal distance (psychological distance) of events affects how people mentally represent the information or event (Zhuang, J. et al., 2018). People form abstract images while they think of events happening in a distant future (groundwater depletion next summer), whereas a concrete image is formed when proximate events (losing water today) are envisioned (Zhuang, J. et al., 2018). Malkoc, S.A., & Zauberman, G. (2006) proved that when we manipulate a future outcome to be more 'concrete' (lowering the construal level), temporal discounting significantly decreases. This study suggests that utilising an 'Immediate Loss' frame will force a low-level, concrete mental construal of water scarcity, thereby mitigating the temporal discounting effect and triggering a higher rate of water conservation behaviour.

1.3. Framing:

Framing refers to "selecting and emphasising certain aspects of a message to achieve a desired interpretation or perspective" (Koop S.H.A. et al., 2019). The individual response is greatly determined by how the message is framed. The framing effect employs our unconscious biases that have the ability to alter our behaviour. According to Koop S.H.A. et al. (2019), the main focus area of experimental research utilising framing messages can be classified into 3 broad categories: (a) hyperbolic discounting, i.e. direct impacts (eg., by saving water, you are ensuring uninterrupted water pressure throughout the day) or future impacts (eg., by saving water, you are ensuring groundwater availability for the next decade). (b) assertive language (use high modality imperative verbs like must, need to, stop) or suggestive language (use of low modality provisional verbs like consider, might, could). (c) appeal to intrinsic motivation (eg., Signing up for a water-saving program reflects your strong personal character) or extrinsic motivation (eg., Signing up for a water-saving program, you will receive a Rs 500 rebate on your water bill). Framing effectiveness is moderated by factors such as language intensity, personality traits, social class, psychological distance, and perceived risk (Dai, S. et al., 2024).

1.4. Social Norms Theory

Social Norms refers to standards imposed by society that are acceptable ways to act and which people follow to fit in (Perkins H.W., & Berkowitz, A., 1986). The core concepts of the Social Norms Theory are descriptive norms (what people actually do) and injunctive norms (what people expect, approve, or disapprove). These norms impact individual behaviour exhibited in our social circle (Goldstein, N.J., Cialdini, R.B., & Griskevicius, V., 2008).

2. Research Methodology

2.1. Past Literature Search Strategy

Past relevant research studies were systematically explored and identified that addressed cognitive biases (loss aversion and temporal discounting) and framing effects in pro-environmental decision-making. The primary search was executed using search engines, prominently Google, to locate **open-access peer-reviewed publications**, academic reports, and relevant preprints housed on repositories such as ResearchGate, ScienceDirect, Google Scholar, etc.

2.2. Keyword Selection

The search strategy utilised specific combinations of keywords derived from the core themes of the research title. The primary search terms included: "temporal discounting," "message framing," "loss aversion," "gain frame," "pro-environmental behaviour," and "water conservation." Boolean operators (AND, OR) were utilised to combine these keywords to yield highly relevant search results.

2.3. Inclusion Criteria

Inclusion criteria were devised to select the research studies that fit the theme of the present investigation as mentioned below:

- a) Explicitly focused on the application of message framing techniques (e.g., loss versus gain framing).
- b) Investigated cognitive biases, specifically temporal discounting or loss aversion, within the domain of decision-making and pro-environmental behaviour.
- c) Directly measured or analysed these psychological constructs in relation to pro-environmental actions or domestic water conservation behaviours.

2.4. Exclusion Criteria

Studies that solely focused on technological water solutions without a behavioural or psychological component were excluded from the final review.

3. Review of Existing Literature

On the review of the searched literature, it was observed that limited literature is available for the variables under study as per the inclusion/exclusion criteria. The majority of the included studies had utilised a WEIRD sample, clearly indicating a research gap for the Indian population. Here is the systematic literature review of the included studies:

3.1. Loss Aversion in Consumption Behaviour

Sohu, J.M. et al. (2024) investigated how Water Pricing, Perceived Water Risk affect sustainable consumption of water and how Environmental Regulations moderate their relationship. The study highlighted the role of Individual Innovativeness and Community Engagement as mediators. Over a sample of 429, selected using a stratified sampling technique, the data were collected using surveys (Adapted versions of scales), and the data were analysed utilising Structural Equation Modelling. The results showed a significant role of Water Pricing, Perceived Water Risk, moderated by Environmental Regulations, and mediated by Individual Innovativeness and Community Engagement (Sohu, J.M. et al., 2024).

This study contributed significantly to understanding individual-level water conservation behaviours by applying Prospect Theory (PT). PT posits that individuals are more motivated by the fear of losses than by the prospect of equivalent gains (Kahneman, D. and Tversky, A., 1979). In the context of Water Pricing, the findings confirmed that increased water costs encourage individuals to adopt water-saving innovations to avoid perceived losses, validating the principle of loss aversion (Sohu, J.M. et al., 2024).

3.2. Impact of Present vs Future Framing on Conservation Behaviour: Temporal Discounting

Zhuang J. et al. (2018) analysed the impact of time-framed messages (Present Vs Future) on water conservation behaviour moderated by Culture (USA vs China). The study involved a 2x2 factorial design and collected the required data using web-based messaging services with Questionnaires employing a 7-point Likert scale from a sample of 193 students. The obtained data were analysed using 2x2 MANOVA.

This study applied the concept of CLT and temporal discounting. The findings showed that present-framed messages (i.e. shortage of water happening in the proximal future) significantly resulted in a more positive attitude towards water conservation behaviour than messages that portray the same issue happening in the distant future (Zhuang, J. et al., 2018).

3.3. Language and Persuasion

Katz et al. (2018) carried out a comparative study of Assertive (You must conserve the water) vs Suggestive (Please consider conserving water) language on water conservation campaigns. The study utilised a longitudinal field experiment over 1500 households. Regression analysis was used to analyse the data. The findings suggested that the suggestive language has more impact on water conservation as compared to Assertive language.

3.4. Behaviour Influencing Tactics (BITs)

Koop S.H.A. et al. (2019) performed a meta-analysis of 52 research papers on domestic water conservation behaviour to identify Behaviour Influencing Tactics (BITs) for enhancing domestic water conservation behaviour. The study discusses 8 BITs consisting of Knowledge Transfer, Self-Efficacy, Social Norms, Framing, Tailoring, Emotional Shortcuts, Priming and Nudging (Koop S.H.A. et al., 2019). The study classified these 8 BITs into three categories based on information processing routes: Reflective route (System 2), Semi-Reflective route (Biases & Heuristics) and Automatic route (System 1).

The study found framing works via a semi-reflective route of information processing, which utilises various heuristic techniques in decision-making and judgment.

3.5. Loss Frame Vs Gain Frame: Context-Dependent Impact

Stepchenkova, S. et al. (2025) studied the effect of environmental attitudes, message framing, and cultural context on conservation judgments. Overall, the study found that whether messages are framed positively (gain framed) or negatively (loss framed) had little impact on individuals' judgement about conservation efforts. The framing effect only worked slightly better for littering behaviour when loss-framed messages were presented to the participants. The researcher thinks that this is because negative (loss) framed messages remind people of times they might have broken the rules, making them feel guilty. This feeling of guilt overpowers the positive feeling of leisure activities. The study found that the impact of framing is context-dependent. Our personal environmental values, beliefs, and social norms are more powerful predictors of behaviour than just altering the words in a message. The study also highlighted that Indian participants generally reported stronger pro-conservation judgments. Wang, X., Lu, S., & Zhao, Y. (2025) demonstrated that framing green appeals around personal losses captures higher psychological accountability and behavioural intention than highlighting collective gains. Cheng, T., Woon, D.K., & Lynes, J.K. (2015) carried out a field experiment that evaluated combining loss framing and social norms to nudge individuals into stockpiling emergency supplies. Loss framing consistently emerged as the more effective catalyst for immediate physical action.

3.6. Impact of Goal Frames on Pro-environment Behaviour

Noor, N.H.M., & Nordin, N.B., 2023 examined the impact of framing goals as Hedonic Goals, Gain Goals and Normative Goals according to Goal Setting Theory, on pro-environmental behaviour such as sustainable use of water. The data showed that all goals are positively related to encouraging pro-environmental behaviour. However, Normative goals (focused on acting appropriately and doing what is considered right by society) emerged as the major determinant of eco-friendly behaviour in university students (Noor, N.H.M., & Nordin, N.B., 2023).

3.7. Impact of Language Framing & Crisis Framing

Wardana, M.K., & Geubrina, M. (2024) investigated the language and metaphors used in orangutan conservation by different stakeholders like policymakers, conservationists, and local communities. The researchers highlighted framing as a useful tool to examine the impact of language on our perception and attitude towards pro-environmental behaviour. The study also focused on crisis framing, a technique to stress the severity, urgency and responsibility of a situation. For example, "We are in a state of critical water emergency. Continuing to ignore daily water wastage will result in a total stoppage of municipal water supply, leaving the entire area dry within weeks." Crisis framing uses the concept of loss frame (focusing on a negative outcome). Its primary mechanism is triggering high emotional arousal, fear and a

sense of immediate threat. The study found that crisis framing is widely used in environmental conservation campaigns to enhance awareness about threats of extinction to nature and species.

3.8. Impact of Positive and Negative Framing

Andreas, K., Bayu, L.P., & Ika, Y.L. (2026) studied how positive framing and negative framing affect sustainable green investment judgment and decision-making. It was observed that positive framing directly enhances investment in eco-friendly projects, though negative framing indirectly increases the trust of investors and subsequently enhances more investment in green projects. The researchers also highlighted that negative framing is superior compared to a neutral message to promote investors' short-term investing decisions in eco-friendly projects. It showed that it is always better to utilise the framing technique than being just neutral.

3.9. Message Framing & Capability, Opportunity, and Motivation Behaviour (COM-B dimensions)

Isaac, B.A., Martin, C.T., & Melissa, P. (2019) examined the impact of message framing on individuals' household intention to save water. The findings indicated that message framing about the threat of water scarcity is significantly more effective when paired with practical instructions on how to conserve water. The families who were given practical tips were found to be more concerned about water shortage and showed much higher intention to actually change their habits to conserve water. The researcher explained the cause of behavioural change using the COM-B model of behaviour change. The specific strategies worked because it directly enhances the three key areas: a) Capability- the practical tips and strategies to conserve water improve a person's psychological and physical capability (self-efficacy), making them competent enough to show the desired behaviour. b) Opportunity- the strategies highlight the physical and social opportunities available to save water. c) Motivation- actionable tips triggered both automatic and reflective internal drives to conserve water. Ultimately, the research showed that framing conservation messages that specifically target a person's capability, opportunity, and motivation is a highly effective way to secure their involvement and commitment to save water.

3.10. Assertive Language Vs Suggestive Language: Role of Audience Perception & Perceived Importance

Ann, K., Amir, G., & Luc, W. (2011) highlighted that the success of using assertive language or suggestive language in a pro-environmental campaign depends entirely on how much the audience already cares about the issue. The study results showed that if people believe that an issue is highly important, they respond well to strong, direct, pushy requests, i.e. assertive language, as they view the message as motivating and encouraging. On the other hand, if the audience does not have strong concerns and initial conviction about the issue, more suggestive and polite language should be used.

4. Discussion

The discussion section is grouped based on thematic focus and the cohesive framework of the above-mentioned literature review. The systematic literature review of limited open-source studies highlighted some critical questions which are discussed below:

4.1. How do temporal discounting and loss aversion interact when applied to environmental decision making?

Construal Level Theory posits that making a future threat more 'concrete', i.e., low-level construal, can trigger loss aversion. By varying the level of construal from high level (abstract) to low level (concrete), the temporal discounting significantly decreases (Malkoc, S.A., & Zauberman, G., 2006). In the study of Zhuang J. et al. (2018), Present-framed messages, i.e. shortage of water happening in the proximal future, significantly resulted in a more positive attitude towards water conservation behaviour than future-framed messages, i.e. shortage of water happening in the distant future. This is because the present-framed message triggered the formation of a more concrete mental image in contrast to future-framed messages that triggered 'abstract mental representation' (Trope, Y., & Liberman, N., 2010). According to Prospect Theory, individuals tend to devalue or avoid future abstract outcomes as compared to present concrete outcomes, supporting loss aversion and temporal discounting (Kahneman, D. and Tversky, A., 1979). We believe that applying Prospect Theory and Construal Level Theory creates a stronger framework for understanding pro-environmental behaviour.

4.2. Do intrinsic environmental values override the cognitive effects of message framing?

Is it enough to simply tweak the words as ‘loss frame vs gain frame’ or use ‘assertive language vs suggestive language’ or ‘present framed vs future framed’ or ‘positive frame vs negative frame’ for changing the behaviour? Stepchenkova, S. et al. (2025) rejected this hypothesis and confirmed that personal values and social norms are more powerful predictors of the behaviour than just tweaking with words. Framing is merely a ‘nudge’ that best works for low-involvement individuals, while highly environmentally conscious individuals act regardless of the message frame (Ann, K., Amir, G., & Luc, W., 2011). Normative goals (focused on acting appropriately and doing what is considered right by society) also emerged as the most significant predictor of pro-environmental behaviour (Noor, N.H.M., & Nordin, N.B., 2023). Irwin Levin (Goal Framing, 1998) classified message framing and highlighted goal framing, which focuses on the consequences of action or inaction. Paired with Peter Gollwitzer’s (Implementation Intentions, 1999) psychological research, the study proved that a strong motivational message (like a normative loss) fails unless it is accompanied by an immediate, low-friction, concrete "if-then" action step. The intrinsic environmental values (Personal values and perception, social norms, normative goals, etc.) set the boundary conditions of framing effect, specifically highlighting the threshold where environmental values override the cognitive effect of message framing (Noor, N.H.M., & Nordin, N.B., 2023).

4.3. How does the emotional arousal of “Crisis Framing” interact with the COM-B model?

Pro-environmental campaigns frequently use ‘Crisis Framing’ to emphasise the urgency, severity and individual responsibility. This technique relies on loss framing but triggers high emotional arousal, fear and a sense of immediate threat (Wardana, M.K., & Geubrina, M., 2024). However, this emotional arousal alone is not enough for sustained behavioural change. The COM-B model suggests that the motivation must be matched with the capability, i.e., psychological capability & physical capability (Isaac, B.A., Martin, C.T., & Melissa, P., 2019). The message framing for severe water crisis proved to be effective if paired with practical, actionable tips and strategies. Providing specific actionable strategies directly enhances the self-efficacy of individuals, leading to desired behaviour. If the Crisis Framing is utilised without providing actionable strategies, it can create severe psychological discomfort, leading to defensive avoidance to reduce cognitive dissonance, overwhelming anxiety and psychological reactance to accept the conservation message. It means that policymakers must ensure that every loss-framed message is firmly associated with specific actionable, practical and capability-enhancing strategies for conservation of water.

4.4. How to frame the Drop?

Effective framing to conserve water is not merely about altering the words and semantic structure of the sentences; rather, it requires a holistic and blended approach to apply the theoretical understanding of temporal discounting, loss aversion, normative goals and pro-environmental actionable tips. Traditional message framing often fails because it heavily relies on delayed gain framing (Save water for future generations; No water, No Future; Save water, it will save you later; Save every drop for a better tomorrow). According to Construal Level theory (Trope, Y., & Liberman, N., 2010), this temporal distance forces a high-level, abstract cognitive mental image of the outcome, which reduces the affective motivational power of the message, leading to higher temporal discounting. Utilising immediate loss frame (eg. Not fixing leakage of water tap will empty your overhead tank within the next few hours; Leaving the tap running right now is draining our local water supply; Every drop you waste this minute spikes your water bill significantly) will trigger the low-level, concrete mental construal, thereby decreasing the temporal discounting and increasing water conservation behaviour. Further, Kahneman’s Prospect Theory emphasises loss aversion as a more powerful cognitive bias in decision and judgement making. Conclusively, to make Framing more efficient, we propose the concept of Actionable Normative Loss Framing (ANLF), which consists of the immediate/present framed message paired with loss framing and normative goals, and simultaneously provides practical, actionable tips and strategies.

4.5. Actionable Normative Loss Framing (ANLF)

ANLF is a three-pillared behavioural intervention framework. The first pillar establishes urgency or the immediate threat of a negative outcome (Immediate Loss Framing), the second pillar indicates social/moral duty tied to collective social expectations (Normative Goals), and the third pillar highlights clear, executable steps to enhance self-efficacy (Practical Actionable Strategies). Here are some examples of ANLF that blend immediate loss with social accountability, paired with instant practical strategies:

Traditional Framing	Actionable Normative Loss Framing (ANLF)	
	Immediate Loss Framing Paired with Normative Goals	Practical- Actionable Strategies
Ignoring a running tap results in no water left for future generations.	Every second you ignore a running tap, you drain our collective local reservoir forever.	Turn off the tap while brushing teeth to save 10 litres a minute and be one of the 90% of pro-environment people.
Not fixing old water shower wastage empties your groundwater for the future.	You are wasting Rupees 5000 more per year than your pro-environmental neighbours due to an old shower.	Change your old shower to a water-efficient shower today to stop the loss of water.
Leaving the water leakage leads to depleting our groundwater in the future	Leaving the dripping/leaking tap right now, you empty our neighbourhood water supply by evening.	Fix a dripping/leaking tap immediately to save water for the whole day.
Flushing and wasting uncontrolled water in the toilet results in no water for the future.	Flushing uncontrolled water in the toilet is draining our fresh water supply this very hour.	Install a smart flush mechanism to use less water per flush.
Washing your car with a running hose impacts the future water supply.	Washing your car with a running hose right now leaves your neighbourhood's supply running empty today.	Use a bucket and sponge to wash your car.
Daily water loss in your kitchen will result in a low water supply in the future.	You are losing 2000 litres of water and 500 rupees more than the average of your homes in your neighbourhood this month due to daily water loss in your kitchen.	Install a low-flow, water-efficient kitchen tap today to stop this daily loss.

A similar message framing framework has been successfully utilised in various domains by researchers as discussed below:

Hallsworth, M., List, J.A., Metcalfe, R.D., & Vlaev, I. (2017) used a similar model to address the problem faced by the UK Government with respect to millions in unpaid taxes locked in late fees. The government sent letters changing to a normative loss frame: "9 out of 10 people in your town pay their taxes on time. By not paying, you are losing your status as a compliant citizen and will face immediate daily financial penalties. Click here to clear your balance." This simple change brought in £210 million in extra revenue in a single year, outperforming standard legal threats.

In one study carried out by Allcott, H., & Rogers, T. (2014), the utility companies wanted consumers to reduce peak-load electricity consumption. Opower (now Oracle) sent home energy reports comparing usage to neighbours (Normative Goals). They framed the metrics around loss: "You are wasting \$150 more per year than your efficient neighbours. Adjust your thermostat by 2 degrees today to stop the loss." It saved billions of kilowatt-hours of energy and is widely considered one of the most successful large-scale behavioural interventions in history.

In another study, Handshake, M., & Baxter, J. (2023) observed that employees ignore mandatory phishing training deadlines. The study utilized Automated platforms like KnowBe4. Instead of saying "Please do your training," the automated email says: "85% of your peers have passed. Because you haven't completed the 5-minute module, your department loses its 'Green Status' on the company dashboard tomorrow, and your external email access will be restricted." It drastically reduces compliance times from weeks to hours by introducing social friction and immediate loss.

We believe that ANLF will significantly enhance the water conservation behaviour of the individual if applied to sustainable water consumption and conservation behaviour. This concept directly addresses the intention-action gap and synthesises Prospect Theory, Social Norms Theory, Construal Level Theory and Choice Theory. ANLF will motivate the immediate behaviour change by highlighting the tangible losses of deviating from socially accepted norms, while providing a clear low-friction strategy to rectify the behaviour.

5. Future Directions

The existing research literature has overly focused on the WEIRD (Western, Educated, Industrialised, Rich & Democratic) samples having a 24/7 continuous water supply. In contrast, the Indian urban demographics are different and rely on intermittent water supply and rooftop storage tanks. Hence, there exists a critical gap in addressing the different psychological realities of the urban Indian population.

This review opens up avenues for promising future research questions: Does ANLF result in a statistically significant reduction in actual water consumption compared to traditional Delayed Gain/Loss Framing with respect to the Indian Urban population?

Future large-scale studies in regions prone to scarcity of drinking water (eg., NCT of Delhi, Pune, Bengaluru, etc.) will enable policymakers to adopt effective behavioural interventions for sustainable consumption and conservation of drinking water.

6. Conclusion

The crisis of depleting fresh water resources and resulting scarcity of drinking water around the globe poses a serious and alarming scenario in front of the global community, which requires immediate behavioural intervention to conserve water while supporting UN SDGs. This study utilises a systematic review of past research related to sustainable consumption and conservation of drinking water, dependent on loss aversion, temporal discounting and message framing. It emerged that the application of theoretical understanding of prospect theory, social norms theory, construal level theory and choice theory in water sustainability and conservation can provide a practical, evidence-based framework for designing highly effective public policies and targeted campaign strategies addressing the drinking water crisis. Based on the findings of reviewed studies, we proposed a new framing concept named Actionable Normative Loss Framing (ANLF), which integrates immediate loss framing and normative goals, simultaneously providing practical actionable strategies for water conservation. We believe that the framework of ANLF can significantly enhance water conservation behaviour. The present study concluded that the framing techniques can be actively and effectively utilised by the various stakeholders to enhance sustainable water conservation and consumption behaviour.

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