



ELECTION 2017

Growing the Benefits from Sustainable Irrigation



SMART




IRRIGATION
NEW ZEALAND



The vision – 2021

1. Increase the value derived from irrigated agriculture.
2. Grow the well-being of provincial New Zealand.
3. Realise the irrigated potential of Māori land.
4. Ensure the environmental performance of irrigated agriculture is sustainable for future generations.

Where we were, where we are, and where we're heading...

	2011–2012 ⁱ	2016–2017 ⁱⁱ	2021–2022 ⁱⁱⁱ
 Farm Gate	\$2.2bn (\$3,000/ha)	\$2.4bn (\$3,000/ha)	\$3.5bn (\$3,500/ha)
 Contribution to GDP	\$4.8bn (\$6,700/ha)	\$5.4bn (\$6,700/ha)	\$8.8bn (\$7,700/ha)
 % of GDP	2.4% (\$203 billion)	2.4% (\$227 billion)	3.1% (\$250 billion)

i. Value of Irrigation in New Zealand, NZIER 2014 based on 720,000 ha irrigated. ii. IrrigationNZ current estimate based on 800,000 ha irrigated. iii. IrrigationNZ vision based on 1 million ha irrigated with improved reliability of supply and increased irrigation efficiency.

Realising our vision

Realising Irrigation New Zealand's vision by 2021 will require:



A stable legislative and regulatory framework.



Access to development capital to support scheme modernisation and development.



Leadership and resourcing to develop a national framework to support the implementation of Good Farming Practices and Farm Environment Plans.

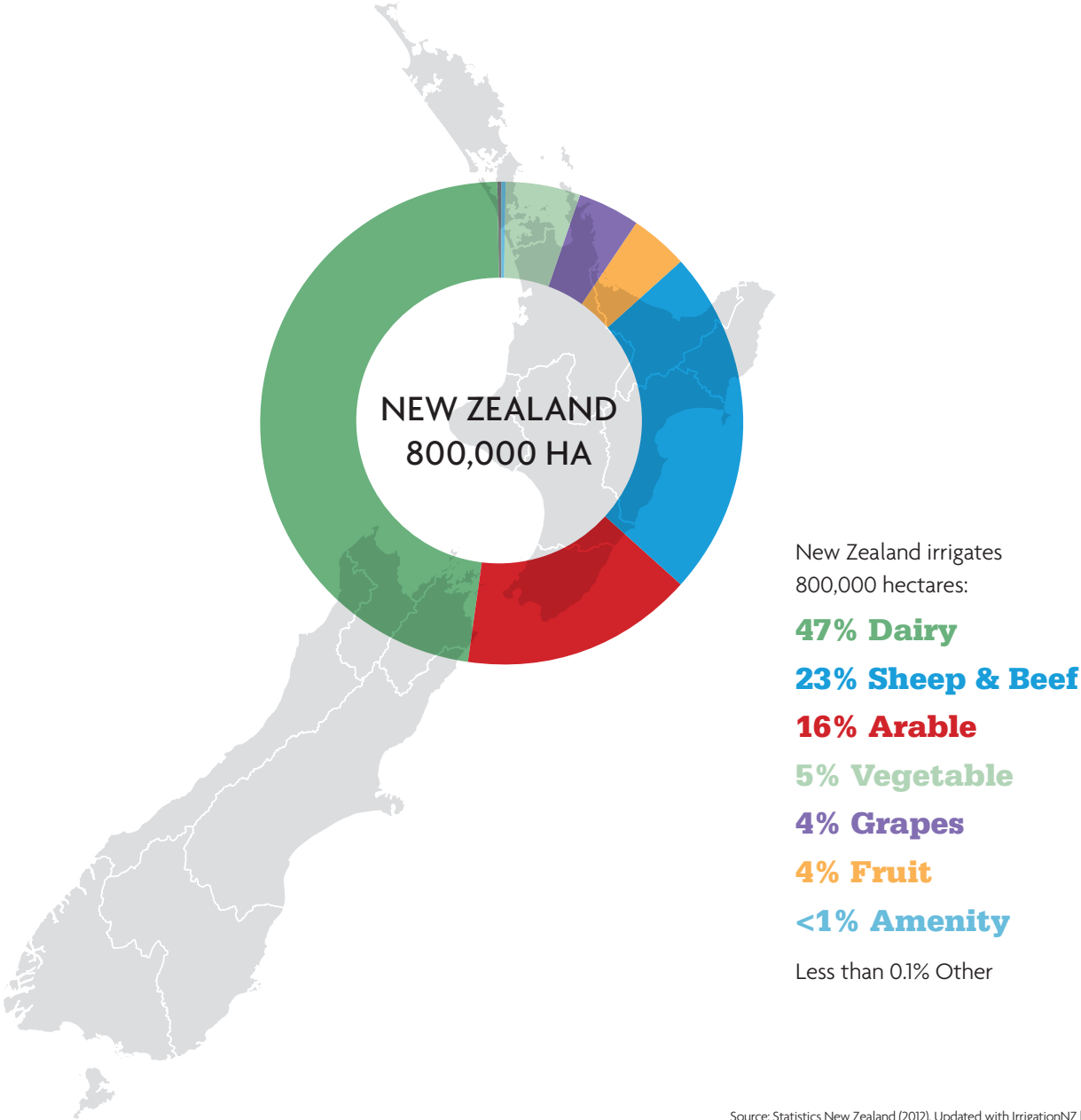


Building capability and capacity through knowledge and training.

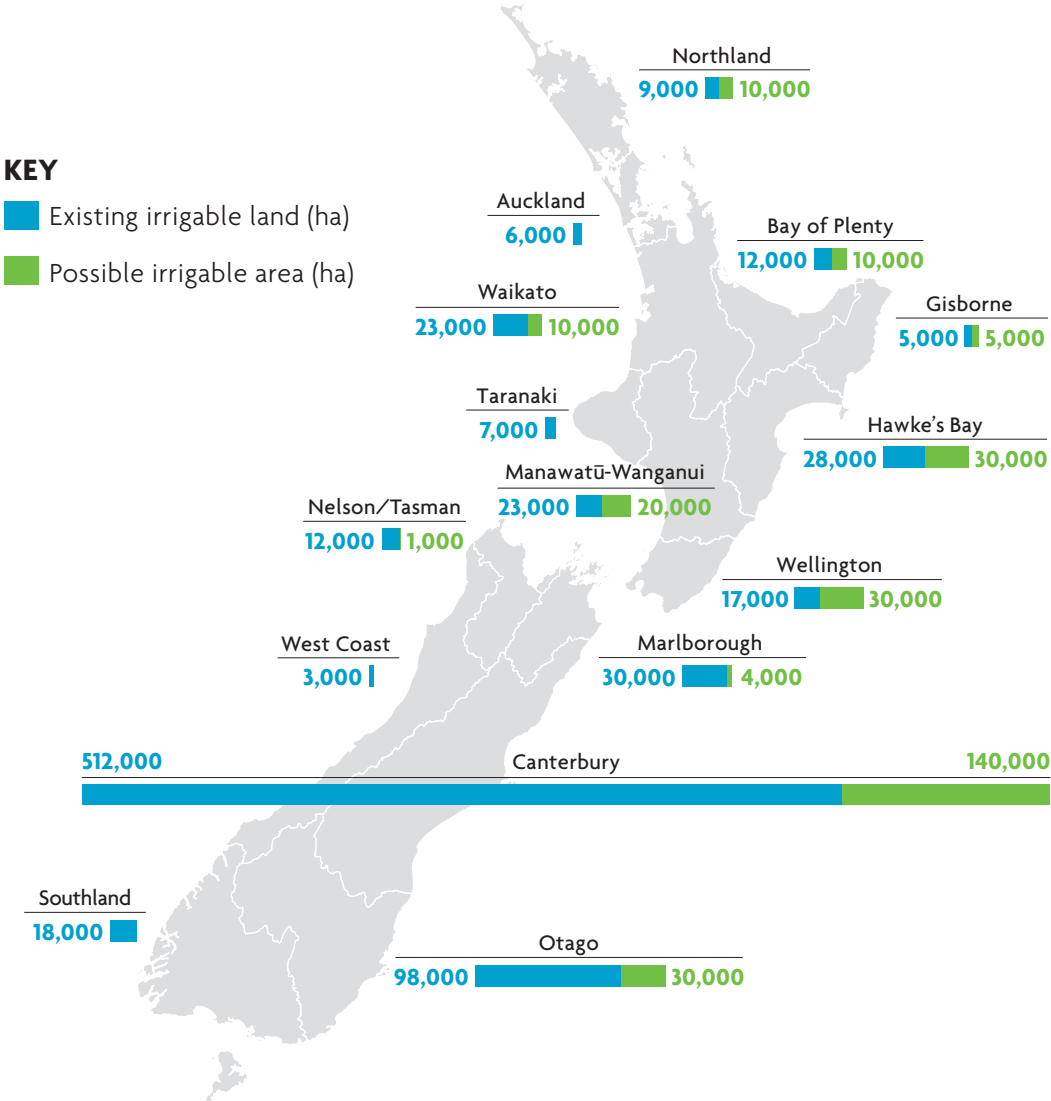


New generation SMART technologies, supported by readily available rural bandwidth.

Irrigated land use in New Zealand



Less water, more value through sustainable irrigation



New Zealand's Existing Irrigated Area and Future Potential

Source: Statistics New Zealand (2012), Environment Canterbury Irrigated Area Mapping (2016). Updated with IrrigationNZ knowledge.



Current situation

Irrigation is an important contributor to New Zealand's economy.

Our irrigated land contributes an estimated \$2.4 billion a year in increased value at the farm gate – over and above equivalent dryland farms. This value more than doubles as the increased production is processed through the economy for export and domestic consumption.

There is significant potential to increase both the economic value accruing and community benefits derived from irrigation. However, this potential also places obligations on irrigators to continue to improve water use efficiency, as well as strive towards the high standards of environmental performance that New Zealanders now expect. Our goal, on behalf of all New Zealanders, is to ensure irrigation is economically, socially, culturally and environmentally sustainable.



Central Plains Water Scheme

Photo: Central Plains Water Ltd & Fulton Hogan

Where we have come from

To realise our potential, we need to build on our achievements. Since 2011, New Zealand's total irrigated area has increased by 80,000 hectares. This has occurred primarily through the conversion of existing infrastructure to more modern and more efficient methods. This has delivered tangible improvements in efficiency and the management of nutrient leaching.



Change has resulted from:

1. New scheme developments which are designed, constructed and implemented within the RMA framework for the sustainable use and management of land and water. Limits established in regional plans are then translated into individual resource consent conditions and performance standards.
2. The capital upgrade of existing irrigation schemes from open races to piped and pressurised distribution systems that reduce distribution losses and improve water use efficiency.
3. The capital upgrade of on-farm infrastructure from border dyke flood systems and older inefficient spray systems to modern efficient spray systems, which use substantially less water for the same, or an improved, effect.

Work completed since 2011 has required a total capital investment of \$1.7 billion, made up of an estimated \$1 billion in irrigation system upgrades and \$0.7 billion in irrigation scheme infrastructure.





How we are meeting environmental obligations

GROWING OUR COMMITMENT TO IMPROVED ENVIRONMENTAL MANAGEMENT

Since 2011:

- \$600 million invested by existing irrigators upgrading to modern, efficient irrigation systems
- \$44 million invested in water measurement technologies
- \$18 million invested in installing precision irrigation technologies
- \$15 million invested in installing irrigation decision-making technologies
- \$10 million invested in audited Farm Environment Plans
- \$1.6 million spent developing IrrigationNZ training resources
- Over 1,600 irrigators have attended irrigation training courses.

We are committed to continuous improvement. All new irrigation schemes, and in some cases, existing schemes, have:

1. Individual consent conditions that require a very high standard of irrigation system design and water use efficiency, alongside Farm Environment Plans, as a condition of water supply.
2. Audit programmes in place, or are being established, to support the continual improvement of Farm Environment Plan management performance.
3. Developed, or they are implementing, nutrient management accounting and monitoring systems to reflect their individual resource consent conditions.

IrrigationNZ co-ordinates an extensive industry training programme. The continuing innovation, and application, of precision technologies has also provided a significant impetus towards the IrrigationNZ goal of SMART Irrigation (Sustainably Managed, Accountable, Responsible and Trusted Irrigation).

It is well-documented that precision agriculture technologies produce strong commercial results, alongside high levels of environmental performance. A number of farmers and growers who have implemented this technology have been recognised through programmes including the Ballance Farm Environment Awards. Continuing development of new sensor technologies networked through cloud-based applications will accentuate the roll-out of SMART Irrigation. The expansion of the rural broadband network capacity is also key to this.

IRRIGATION SCHEMES DRIVING ENVIRONMENTAL IMPROVEMENT

Eva Harris is the Environmental Manager for the Acton, Greenstreet, Barrhill Chertsey and Valetta Irrigation schemes. She supports the schemes' shareholders to implement Farm Environment Plans.

"The Farm Environment Plan process has already delivered noticeable improvements in both on-farm practice and environmental outcomes. The power of a collective approach, through an irrigation scheme, is that when our audit results come through, we can quickly identify common issues and then take collective action to address them."

Environment – our challenge and our opportunity



New Zealand currently abstracts around 2% of our water resource (if we include hydropower this rises to about 5%). Irrigation accounts for approximately 60% of this abstraction. By international standards, our abstraction rate is extremely low. Globally we're considered a water-rich country because of our extensive rivers, lakes and groundwater systems and ample rainfall. Worldwide rain-fall (precipitation) averages 800mm per year. But New Zealand experiences 2.5 times that amount, with average rainfall of 2000mm per year. However, we don't always have water where we need it.

Irrigation projects have environmental, as well as economic and social benefits. Irrigation helps build resilience to drought and improves soil quality over time. Water quality issues can be addressed through water storage as it provides the ability to maintain regular flows and augment streams that are struggling. On top of this, water storage allows groundwater users to move away from deep bores. We're already seeing this transition occur in the Selwyn District, prompted by Central Plains Water. This could be a key feature of the proposed Ruataniwha scheme.

Irrigators are addressing environmental concerns head-on. The majority of irrigators are meeting new environmental requirements by moving to Good Management Practices and many schemes are proactively coming up with community-led solutions to local issues.

FARM ENVIRONMENT PLANS MAKING A DIFFERENCE

Stepping back and viewing his farm through the lens of the Farm Environment Plan (FEP) has provided Oxford farmer, Scott Evans, with some surprising benefits. Scott, who owns three farms with his family, says completing the plan highlighted small improvements he could make to run his farms more effectively, while also protecting the environment.

"There were some areas I drove past every day and thought I should be doing something there but you get caught up in the daily grind. The FEP gives you a process and a timeframe so you get these things done. When you think about it, it's those little things that can cause a big impact on the efficiency of your farm and the environment."

"I don't want to have a negative impact on the environment. Doing the FEP and making these small changes has made me think differently about the impact farming has on the environment. Getting it sorted has a positive benefit for both the farm and the environment."

"One of the benefits of doing a Farm Environment Plan is that it gives you a really clear view of your farm – you can see exactly what you're doing well and where you need to focus for improvement; then it puts a timeframe for delivery around making those improvements. This is the kind of 'paperwork' that actually benefits bottom lines."



Oxford farmer, Scott Evans, with Paul Reese

Photo: Environment Canterbury



Economic benefits – wider than you think

Responsibly-managed irrigation projects are good for both the economy and the social cohesiveness of our communities.

As well as generating around \$2.4 billion to New Zealand's economy, the benefits from irrigation multiply for surrounding areas – for every \$1 an irrigator earns, another \$2 to \$3 of wealth is created in their community. It is estimated that irrigation contributes \$5.4 billion to the New Zealand economy every year.

Irrigated agriculture underpins many of the provincial economies on the east coast of New Zealand. Regional towns like Hastings, Blenheim, Ashburton, Timaru, Cromwell and Alexandra would be far less vibrant and less resilient without irrigation infrastructure. Future towns which will benefit from forthcoming irrigation projects include Amberley, Waimate, Timaru, Masterton, Waipawa, Waipukurau, Whangarei and Kaitaia.

Irrigation isn't just about dairy – it supports a range of land uses, particularly horticulture. Winegrowers and fruit and vegetable producers from Central Otago to Northland are dependent on irrigation for consistent, reliable production.

Having a reliable source of water is especially important for our farmers and growers. Irrigation, supported by water storage, allows growers and farmers to ride out global market conditions and climatic stresses, like drought and climate change. Irrigation also allows diversity of land use as a wider range of stock, crops, vegetables and fruit can be grown and farmed with reliable water.

FARMERS COLLABORATE TO SAVE SPRING CREEK

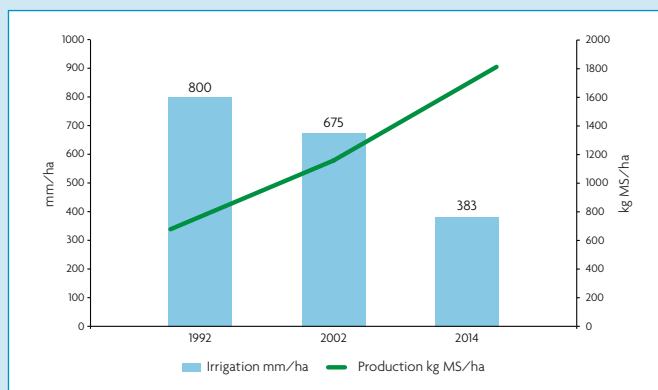
During the 2015 drought, the 20-strong Green Street irrigator user group worked with a neighbouring lifestyle block owner to keep water in their creek to protect wildlife. Despite having no water themselves (being on 100% ban), the irrigators negotiated with Environment Canterbury to release some of their consented take for environmental purposes. Without their intervention, Spring Creek would have run dry, fish and invertebrate life would have been decimated and the creek's habitat would have taken years to recover.



MID CANTERBURY IRRIGATORS LEAD THE WAY

Mark and Devon Slee are role models for sustainable irrigation practices and investment in new technology. The Mid Canterbury couple are among New Zealand's top performing farmers. As well as being early adopters of SMART Irrigation technology, the Slee's are committed to reducing their environmental footprint. Moving away from border dyke irrigation to modern centre pivots has allowed intensification of land with no increase in water allocation. The couple have reduced their water consumption by more than 50% over the past decade, while at the same time, doubling milk production. Key to their sustainable growth is soil moisture monitoring analysis, which allows them to only water the paddocks that need it. Where possible, existing shelter belts have been kept, and in areas where trees needed to be removed to accommodate irrigation, greater numbers of low-growing native species have been introduced.

Fourteen full-time staff are employed on the farm, a big jump from the two they began with in 1990. The Slee's place equal emphasis on environmental management, animal welfare, compliance and the community in which they farm, which led to their Supreme Win at the 2014 New Zealand Ballance Farm Environment Award.



VIBRANT COMMUNITY EMERGES FROM IRRIGATION GROWTH

Growing the irrigation network in South Canterbury has translated into a more economically-viable and diverse region. The \$32 million Waihao Downs Irrigation Scheme opened in April 2016, centred around Waimate. With this scheme, the Morven Glenavy Ikawai Irrigation Company now delivers water to around 26,000 hectares. Irrigation development has increased labour requirements, which in turn has attracted new families to the area. Rural school rolls have grown, particularly in Morven and Glenavy, and immigrant workers brought diversity to the southern community, creating opportunities to learn about other cultures.

The Morven Glenavy Ikawai Irrigation Company is proud of its environmental record. Water quality testing commenced at the outset, to proactively protect the resource. Irrigators have also worked with local anglers to support salmon spawning by providing feed for a spelt project.

Former chairman and recently awarded Officer of New Zealand Order of Merit, Robin Murphy, says "irrigation is just part of the community. We like to think that as a company that we are good neighbours."





Community – we're all connected

Whether you live in the city or in the country, your life is touched by irrigation. When you buy New Zealand wine, dairy, fruit or vegetables, their accessibility and price point is partly related to available water. In many cases, irrigation is the reason that product made its way onto the supermarket shelves that week.

Irrigation schemes contribute to the community in many ways. Some, like Opuha water in Timaru, may have a dual role of providing town drinking water supply. Others supply stock water for their farmers as well as lifestyle block owners and non-irrigators. Having an irrigation scheme in your backyard means access to water for firefighting purposes and several schemes have modified infrastructure to enable faster connections when a rural fire threatens.

Outside of the obvious water supply benefits, irrigation schemes are very aware of their community's needs and, where practical and safe, allow recreational use of water storage assets.

Community benefits from irrigation infrastructure include:



Provision of secure domestic water supplies for local towns and rural reticulation schemes.



Increased proportion of the population in full-time employment in comparison to the district and New Zealand averages.



Increased household and personal income in comparison to the district average.



Stable or increasing primary school rolls.



Higher proportion of community infrastructure properties (e.g. parks, halls, churches) per household.



Significantly higher building consent numbers.



IRRIGATORS LAUNCH POND AND WATER CRAFT FOR COMMUNITY USE

Irrigators in North Otago developed an irrigation storage pond for recreational use in 2014 and provided a selection of water craft for low-cost community use. Shareholders of the Lower Waitaki Irrigation Community provide locals with year-round access to the private pond for sailing, boating, paddleboarding and kayaking. Only a few minutes out of Oamaru, the project has cost shareholders more than \$150,000 with funds sourced from local irrigators, as well as community trusts.

Lake Opuha is another example of a water storage asset being used for recreation. Year-round Opuha provides South Canterbury residents with camping, fishing and boating opportunities.



The future – more crop per drop

Irrigation continues to provide one of the most exciting opportunities for growth and food security in New Zealand.

Increasing the value of irrigated agriculture, including partnering with iwi to help them realise the irrigated potential of their land, will significantly grow the well-being of provincial New Zealand.

A stable regulatory framework is required to provide the investment certainty for this.

On-going access to development capital, to assist future irrigation modernisation and development projects designed to operate within environmental limits and provide wider community benefits, is also essential.

Likewise, building human capability and capacity through more readily available knowledge and training, alongside increased adoption of SMART technologies, are vital in realising the potential for irrigation to grow our future. Improved rural bandwidth is key for both.

Positioning all of the above within a national framework that can tell the irrigation story will provide the wider community with confidence – demonstrating the environmental performance of irrigated agriculture contributes to a sustainable future.

Only by all parties working together – government, industry, iwi and communities, can the irrigation opportunity be fully realised.

Join us on the SMART Irrigation journey as we work together to better manage our land and water resources.

The role of IrrigationNZ



Since 2011, IrrigationNZ has invested more than \$1.6 million in developing knowledge resources and tools, supported by industry training. Irrigation technical standards and industry training materials have also been developed and are available to all irrigators.

This investment has positioned the irrigation industry well to deliver the water use efficiency and nutrient management standards required under the National Policy Statement for Freshwater Management (NPS).

“Sustainable irrigated agriculture is New Zealand’s future. Water storage and reliability of supply will future-proof the primary sector, enabling environmental outcomes, and increase GDP.” – *IrrigationNZ Chairwoman, Nicky Hyslop*

WATERSHED AGREEMENT MAY END IRRIGATION BANS IN THE FUTURE

A watershed agreement devised last year has been implemented this summer in a key horticultural area to ensure fruit crops get the water they need during dry periods. Hawke’s Bay fruit growers have negotiated to preserve access to water during critical growing periods, while still preserving the sustainability of the resource. The agreement, between Twyford landowners in Hastings and the Hawke’s Bay Regional Council, sees landowners in the catchment sign over existing individual water rights to become part of a group stewardship model under a global consent. A global consent allows a group representing landowners to decide when and where their collective water is used – with resulting efficiency gains. The agreement provides certainty and reliability of water, even during severe drought, yet still ensures environmental considerations are paramount.



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