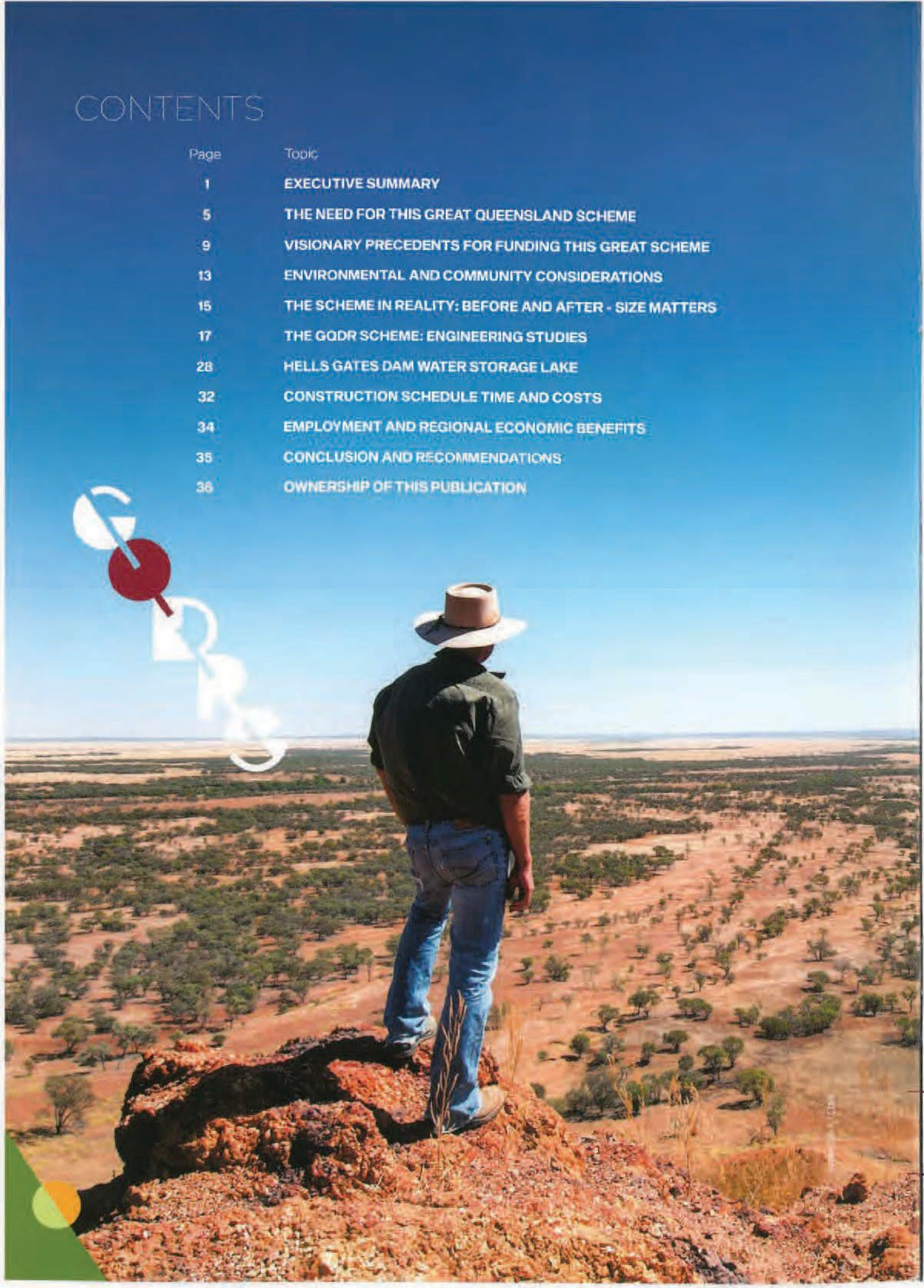

2023
THE
GREAT
QUEENSLAND
DIVIDING
RANGE
SCHEME
GQDRS
GQDRS 2nd edition, January 2023
GQDRS • MASHEAD Design & Creative



CONTENTS

EXECUTIVE SUMMARY

The 'Great Queensland Dividing Range Scheme' wlllun theImmense quantities of mon.soonal and cyclonic rain that pours downIn North Queensland on the Atherton Tablelands durl119 the 5ummer months to produce electrlcrty from a 2,000MW hydro power plant and to Irrigate the fertile lands both east and west of the Great Dividing Range. This can be achieved by building ıı 100m-hlgh con<:rete dam on the Upper **BurdekIn** River at Hells **Gatos.**

At lhe base of this dam lhe Scheme's hydro power pl nt would be operated m conJunctlon with the solar and wind power plants schedulttd to be built in north Queensland. Tog ther, they can achieve a continuous. cticap, green electricity supply which will racilltate development of a large hydrogen/oxygen industry able to produce hydrogen at int"rna1ionally competitive prices.

> The water storage lake created by theHells GIltH Dam has a capacity of 32,000 glgalitres (GLJ or 32 million **megalitres** (ML).

This lake cari store the monsoonal and cyclonic rainwater from not only the Upper Burdekin River. but aJso from th.e Upper Herbert River and, If desired, part of the monsoonal and cyclonic downpours flow1r1g into thl' North and South J<;)hnston River . and the Barron River, using undergrouod pipeline-s to connect to the Herbert River.

By caplunng the huge ralnfaJI on the eastern side o' the Great Dividing Range and redlstnbuting O to all-year-round river flows to the east and west, not only will Nature be able to regenerate an<l redevelop ils glorious variations of flora and fauna across th North Western plains but also the regional economics of many communities will thrive.

Tho1oom-high Hells GatesDam will act as a flood m,tigntion dam. Water 1rom its storage lake will conlinue to f10W into the Uppe-r Burdekin downstream of the dam, aHer passing through the turbines 01' the hydro power plant. Excess monsoonal and cyclonIc rainwater, not reQuIred for electricily production or ecological and environmental flows In the Upper Burdek.in, Is diverted to flow, in the deepened bod of the Clarke River, towards the Great Dividing Range.

From here, water flows by gravity through ι 12m-diarrie·ter tunnel over 90km through the mountains. The tunnel wu exit at the upper tributaries of FlindersRiver,on the western side o'f the Great OtvidIng Range. The exit Is more than 100m below the Flinders riverbed, which w1.1 need around 50km of deepening and channelling.

ror this irrigation water to flow lo the North and Central Wostern reg ons *of* Queensland a connection will t>e built from the Upper Flinders River to Prairie Creek. ,v'hich also requires channelling. From Prairie Creek the wates flows *via* Torrens Creek Into the Thomson River to Longreacll arld heyond.

> The water flowing to the western side of the Great Divldiny Range can irrigate two million **hectares** of **fertile land.**
>
> The Scheme can become a reality only when the Queensland Government. in co operaUon with the Federal Government, eatabllahe• a Statutory Authority that takes over the **ownership of the 'Great Queensland Dividing** Rango Scheme• from tts founders.
>
> The project le self.funding and thus requires no callonthe State or Federal Governments' **budgets.**

TM Great Queensland Dividing Range SCheme presented here Is tho result of intensive studies on a *pro bono* basis over more than two years by Its conceptual founders Sir Leo Hielscher AC, Sir Frank Moore •o. Mr Ian Macallister and Mr Detlef Sulzer.

The Scheme is financially feasible and enormously positive economically for both the regions and the State

EXECUTIVE UMM Y

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billion. Funding for the Authority during the 10 years of design and construction, in excess of its earnings from electricity generation, is estimated at $2.5 billion. The total funding of $22.5 billion would need to be raised as required by the Authority.

One revenue stream available to the Authority will be from water users with an estimate of 15,000GL priced at 13 cents per 1,000 litres equivalent to $130 per ML. Revenue from the hydro power plant at the base of the dam, generating four million megawatt hours (MWh) at S'30 pr MWh PfVl'id•• ., lnG01119 or S5ZO m1tkoo Pe' annum A sec011d IOOMW l1Ydto *power* plant al tnt Wf"l1"fn tunrlf'l e,,t w,11 g...,e,are electrtclty -.1\ied at $50 m1lho11annually.

Not1J that ware, *charges In tfla Murray/Darling River* basin *currently* range *between* 50 *cents* and *80 cents* per *1,000 litres* ar *Ihacomp/lat/on of t/lis* report

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for maintenance and administration are estimated at $520 million per annum, leaving $2 billion available for interest and redemption of debt. The debt is eliminated in the 15th to 20th years after completion of the project.

The Statutory Authority therefore becomes responsible for the development, design, construction, operation, and maintenance of the project. The $22.5 billion funding **an** be raised as - - - - - **lt111 NIM OIM•lllenll**

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EXECUTIVE UMMARY

Economic benefits

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The Scheme provlclea for more thafl 10,000 **wen-paid** 1obs In Ila conatructlon years. Thereafter. new hydrogen inductri..- and pastor-al opp0:rlunlti•• - not ••••t• th.a •ubstantulfly expanded potential for agricultural and norucurtural exports - wit! provtde al\ ll'Jcome to an **Increased** population **eslnnated al** 200,000 **people and** will uod•rpin lhe economic uplift to the nonhw.. tem region■. and the Queenst.and and national economies.

Environmental and community aspects

In **evaluating** thts major o.nlrallructute p,oje"', W• _,... alwa aware of tlu,Important n- to re-cl the divine connection between nature and humans in First Nations cutturn,. •s well as thtt increasing concerns to not further damage the world InwhJc:h we live.

The t lells Gates Dam's storage lake will cover an area of aboul 1.200 square kilometers (km - equivalent to 80 per cent of the area of Mo.relon Bay In Southeast Queensland - and w,11reQu1re several kJ1ometres *of* supplementary ·saddle dams' a11d related earthworks to 1Jlav;1.1e and fill k>w-lying undulating ridges. Very few affeclcd mine!i and stations have been ldentifedin thearea, Around 30km of the Gregory Ottvelopment Road would be re-routed with throe nr,dges I sru,n aqnsol m1t11&N tak-

Wasr ol the Groat Oovld1ng J.'ang• lor example, along lhe baflks of-the Fhnders River a vast area of magntficent black soulnterspersed wrth softer red sandy so,li;can be irrigated to form a veritable 'Garden of Fden· from Hughettden to JuHa Crt!ek. and, likewise, to the south towards Longreach and beyond. To limit held evaporation. automated sub• surface irrigation systems will constantly monltor In-ground n'loi5ture content at variou:sdepths.

A lull **appraisal** of sites of First Nation,o significance Is beyond the scope of this report proposal but the massive now lake, alone, will create many opportunities for local peoples and the environment. The lake will become a sanctuary for wildlifeand ecotourism. Management of the **lake**• Uff9.!!!ldings will cre ew job-prospects for Indlger10us°"youth and'"provldeUemendou.s opportuni!,!e9 **to develop and build a good lifestyle with work facilities adapted to cultural requirements and the environment.**

THE NEED FOR THIS
GREAT QUEENSLAND SCHEME

The Burdekin River is the largest in Australia by measure of the amount of water dlschatged Into the ace.an. The highflow rates of the Burdekln River In summer can be compared with t.he fk>w rates of the largest rivers In the world, such as the NIie, the Yangtse or Amazon, with average flows of 30.000 cubic metres per second (cumsecs), equivalent to 2,SOOGL per day.

Suchnows, caused by intense monsoonal rainsand strong cyclonic storms. have perlodlcaUy occurred andcontinue to be common m northern Queensland during the summer months.Presently, most of this ramfall flows into the Coral Sea. In winter thi:,re ,s often no rainfall at all, causing the riverbeds to dry up.

Using the rainfall data published by the Australian Bureau of Meteorology, the CSIRO Technical Reports Qf 1991and 2014, and the Queensland Water Information Service D;iit.1 ondaily raiofo'!s and river flow volumes, lhe annual flow volume::s for the Herbert River and the Burdekin River are assessed. These give for the Upper Herbert River, at th& location where the Herbert River leaves the Atherton Tt1blelands an average annual flow of about 7,000 gigolitres (GL) and for the Upper Burdckin River at the location Hells Gates,anavera_qe annual flow of about 15,000GL. Brtnging the flow o1the two rivers together an average, annual flow volume of about 22.000GI is obtained at Hells Gates on the Upper Burdekin River.

At prese.nt, this large and precious volume of water flows into the Coral Sea and Pacific Ocean during the summer months, l&avlng next to no water for the dry season during the winter months.

TheGreat Queensland Dividing Range Scheme intends to construct alarge,100m-high dam on the UpperBurdekln R1verwith a 2,000MW hydro pawer plant at tho base of the >lolls Gates Dam. **Tho dam will:**

- withhold the excessive summer rainwater of the Upper Burdekln and Upper Herbert Rivers, preventing these fromflooding local areas,
- mitigate annual flooding downstream of urbanandregional areas. arresting the annual flooding of Ingham and surroundingdistricts, and
- stop the sllt and chemlcally•laden, warm flood waters from flowing to and settling on the Great Barrier Reef.

The water storage taktt created by the lOOm-high dam will have acapacity of around 32,000GL. It will be sufficiently large to act as a flood mitigation lake that can balance 1he seasonal and annual ralnfall Irregulariti"es. which are QUlte extreme.

Mnsured differently

The JZ.OOOGL slorogo !Pt would, In more familiar dlmonlllons. olr.tc fromBn•IMln•'•tel>lo lht Gold Cent bo<der w;1hNSW- 100km long_ 11km Wida- ilnd l2m deep.

The Scheme will be Australia's largest project since the completion of the Snowy Mountains Scheme

Benefits both east and west

About 5,400GL of the stored water will be released annually through the turbines of the 2,000MW hydro power plant at the base of Hells Gates Dam, giving a continuous all-year-round flow in the Upper Burdekin downstream.

Water flowing though the turbines will generate four million MWh of electricity annually. This can supplement the generation from the envisaged large solar and wind power plants to be constructed in the state's northwest and meet demand at night and on still, overcast days.

North West Queensland's stable, continuous, cheap, and green electricity supply will facilitate the development of large, internationally competitive hydrogen/oxygen industries.

When completed, the Scheme wlll provide, *Inter* a/111, about 14,000GL of water, flowing by gravity through the Great Dividing Range in a 12m•dlameter, 90km-long tunnel to the western regions. The water can be uaed to irrigate the fertile lands of regions along the Flinders River and south towards the Thomso.n River, potentially a va&t area with magnificent black soil interspersed withsofter red sandy soils, covering 20,000km^2 (equivalent to two million hectares).

Upgrading pastoraJ land, developing new farmla.nd and, rnosl importantly, developing arge new aariculture and horti<:ulturc r.xport industries, extending from west of Charters Towers *to* JuUa Creek on(i $OUth to Longreach and beyond, will ovontually support a populaUon growthor 200,000 people.

I he Greal Queensland Dividing Range Scheme's full benefit to Queensland will o&come apparent as "ew grazing and farmland emerge!,, *very* large horticulture orojects develop. arida new hydrogen industry starts tomaterialise on the western side of the Range. This will have a flow-on effect, increasing the populallon ot small lawns a!"ld haloing them to grow into thriving cities wfth n1irports to bring thelrproduce 10 the growingmarkets or Asia.

A TWO-STAGE SCHEME

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During its construction phase, the Scheme will provide well-paid employment for around 10,000 people in the regions alone, in addition to supply chain needs

The Scheme's plan is 10 avoid Ille highmountain challenge by drllling through the mountain range, taking full advantage of modem technology, such as verylarge and effective Tunnel BoringMachines (TBMs), huge excavators witha 90t scoopa, large draglines, 400t dumptrucks, large and powerful bulldozers, etc.

Similar tunnolling eqlLpmenl n2:s been usedonBrisbane's maJor tunnel protects, and sunilar earthmoving equipment is used today in OueensJaOO's open-c1;t coalmines. The engineering technology and the undcrstand'Tlg of our environment ha$ increased tremendously over recent decades .1nc1thornr.,.n be few examples br.ttor th;m thR European expertise whichhas forged nowcr and largor tram;-Alpinc tunnels through Switzerland. connecting the northandsouth ol the European Umon

W•are t"a po•ltlon today ta <hts-1_gn1oKocule and finance thi1mammoth proi.ct economlca"y, lo lha benefit ol lhe p,eople o.f QucC!IQWld, the peopleof Au•tr•ha-a,,d the peopla af tha world.

The Scll•mq w,Oboono al the large•t lnfn1 1rtructurc projoa.1.1 tn Au.strall.a·s hJ.lory ,nd wll b■ inte.-mdionally recognised rO,Its 5trategk vision andtaohnological prow&ss_

A \9301VISION FULFILLED

Tho Oro.I QIJNnwt.nd Dividing Range SchərM Illftlls Ill• vision of the ongirlOI 'Bradfiel6Scheme' f;r,;t pn,posed ill1938 by Or John B dftol:l t>iO. n,mernbe<ed for lhe de1ign and construction of the Sydnll)' H•rbour Bndge Ol)d Bnsbane• Slofy Bridge- just two of his successful n•U•n-blJRdlng""gloaering prv)ads.

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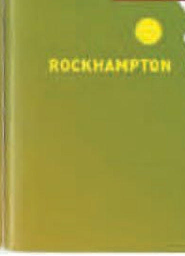
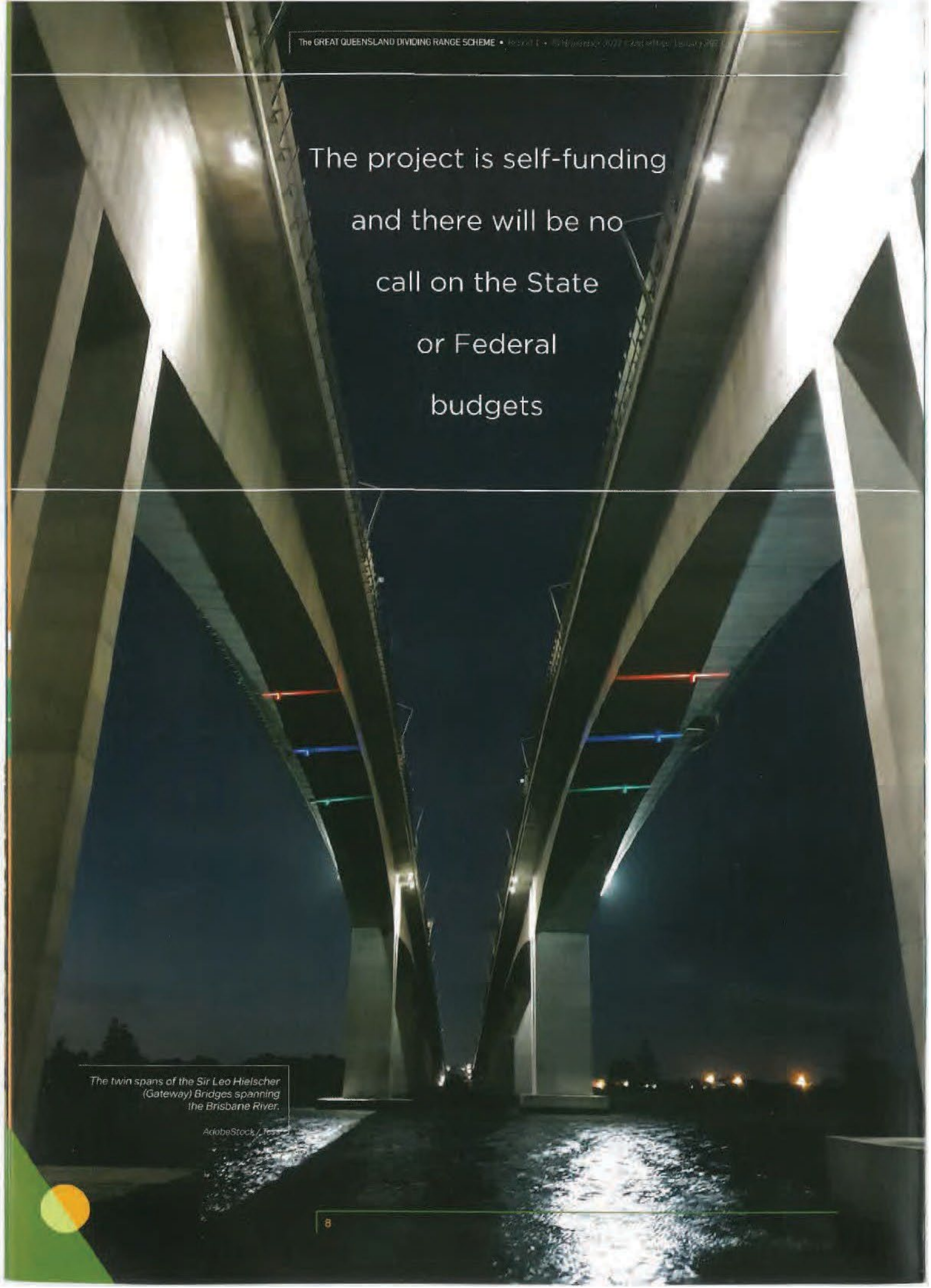




The twin spans of the Sir Leo Hielscher (Gateway) Bridges spanning the Brisbane River.

AdobeStock /

VISIONARY PRECEDENTS FOR FUNDING THIS GREAT SCHEME

To proceed with theGreat Queensland DividingRange Scheme, It is essential to co-ordinate the project's aspiration with the State and Federal Governments' considerations. A newStatutory Authority - like the Snowy Mountains Authority - needs to be created. It wlll beresponsible for, inter alla, the funding of the project.

It will award the project design and construction contra.cts and willsupervl•• the project co.natructlon to completion. tt will take on the responaiblUty of the ownership, operation and maintenance Or the project.

It is essential that this Authority is staffed With senior executives withsuperior qualitie5 to ll\'Vard and supervise the design and construction contracts of the entire scheme. Government Ministers need to be on the AuthorHy's Board. A staff of 25 people with anannual salary structure envtsaged at $15 million 1s required for the construct.on phase. The total tuoding required for the design andcons1ructton phase of the project has baen ligt,lly estimated at $20billion.

rurther funding required by the Authority for the durauon of the construction period of up to 10 yearS - in addition lo Its potential earnings from electricity Qtmerauon when u·n dam a:nd hydropower olant are completed prior to the 90km tunnelbeing(inished - Is estimated at $2.5 bllllon when considenng an approximate 3% interest rate_

Th lotal runds of S?.2. billion will be rai9:ed as required by the Authority via theQueensland Treasury Corpora1ion. This Is possible. as the Authority, being a statutory body similar to a local authority such as a Harbour Board, will have thf'! power to do so

Toe revenue available to the Authority willbe from the electricity generated at the hydro power plants at the base of the100m·high Holls Gates dam and at the tunnel exit. This electricity io soldat S130 per MWh, when alternative electricity generation has stopped due to lack of sunshine and wind_

This revenue willIncrease substantially, with futute electricity generation bocoming dependent more and more on aun and wind power, whjch is not always avallable to cover consumers' electrlc:Ity demand. Altern.ative ele-ctricity generation needs to be supplemented by other electricity supply sources like battery andhydro power to avoid blackouts.

Hydro power wtll become more >valuable thanbattery power, having the additional advantage of meetjng customers' electricity dc.rnan<:1 for longer periods than battery power's present capabillties. Gas, being a fossil tucl, will have only a transl1iona1 period of usage.

QUEENSLAND PRECEDENTS

Important projects to recall – all financed without any contribution from State or Federal budgets, and without remaining debt – include the following, in which Sir Leo Hielscher AC, Queensland's Under-Treasurer at the time, played a pivotal role:


- rehabilitation of the Mt Isa—Townsville railway in the early 1960s


- development of Queensland's coal mining industry


- development of the State's aluminum industry


- development of Queensland's international tourism

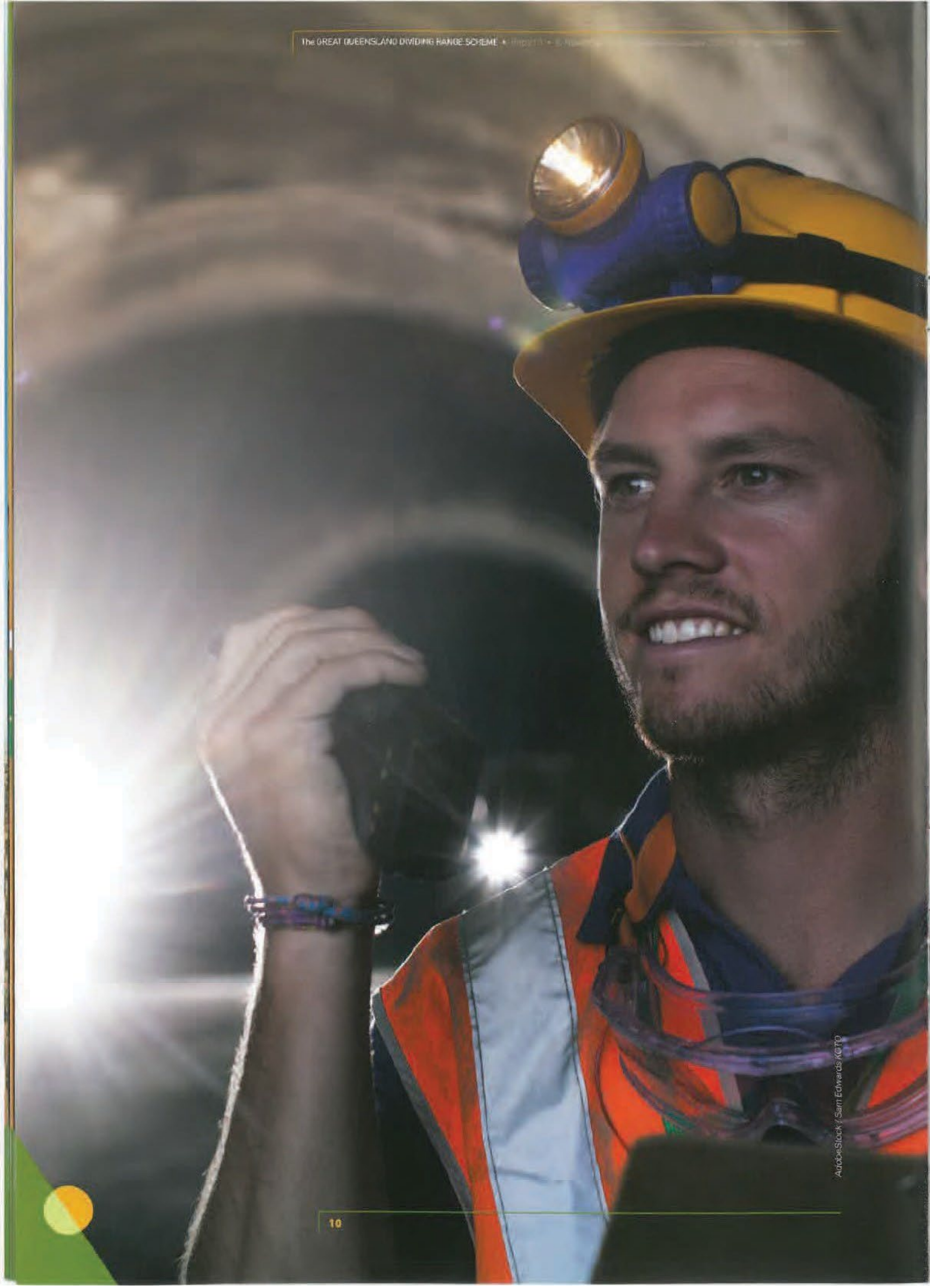

- building the Queensland Cultural Centre


- Expo'88 and Southbank redevelopmen


- creation of the Gold Coast film industry


- building Lucinda bulk sugar terminal and 5.76km-long wharf


- the Gateway Bridges across the Brisbane River



The main 2,000MW Hells Gates Dam hydro power plant is envis;iged to generate at full capacity for 2.000 hours annually giving an income of $5io million, At the southern exit or the trans-Dividing Range tunnel, the supplementary IOOMW hydro power plant will Incroaso the annual electricity revenue for the Authority by a further SSO million.

The revenue avaJlable to the Authority rrom the us r's o'f th,emgation water has been basedon selling around 1.000GL to agriculhJrat landowners, industry, and towns in the areas a.'ong the Upper Burdek'in River, east of the Great DNiding Ra.ngo, downstream of Hells Gates Dam. A furtheJ 14.000GL Is being sold 10 I•Mowners, i,dustry, and towns on the westerns1do of the Great Dividing Range Selliny the watr.r at 13 cents par 1,000 litres(equivalent to $130 per ML) willproduce an anr'luat revenue of $U)5 billion. Total annual income will beS0.57 billion+ $1.95 billion=-$2.52 billion.

It Is Importa11t t·o know Ihat Irrigation wa1er chargesm the Murray/Darling basin presently range between 50 cents and80 cents per 1,000 litres The reason tor those higt1 r water charges appears to be that landowners *in* the Murray/Darling basin have 1n the past sold their water hcenses to large overseas investors - 40% Chinese and 20% Canadian Super Fundsa. ndowners nowmust pay for their water at the price determ nett by these t11vestors. The Great 0ueen ar1d Dividing Range Scheme will require the water licence to stay with the farm or industry, lo not give rise to a Sirnitar price escalation.

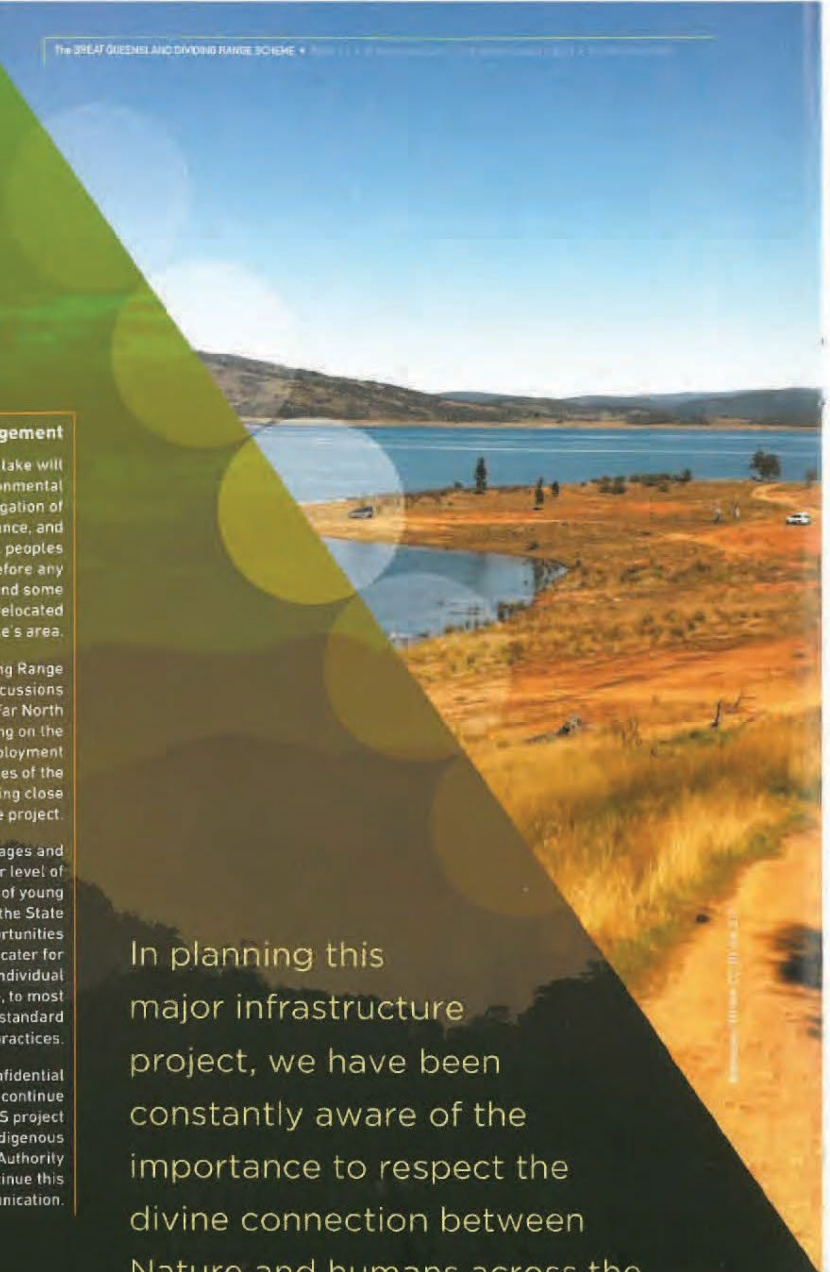
A major stumbling block tor the Brad1ield Scheme In 1938 wos that any water Which might have been moved across the Great Oivlding Range would have been prohibitively expensive compared with the irngation water fhijn fr0irtly av,flilable In the Murray/Darling basin - a fact no longer true In 2023.

Tt1e Authority's 01Jtlay fer administration, operation, and maintenance of the Scheme, once completed, has been estimated at S520 millionannually. It leaves the Authority wi1h $2.0 billion available towards interes1payments and redemption of c'ebt. The debt is ehm1mIted in the 15-20 years' period following the comple.t n of the projecL

This project is both financially feasible and economically enormously positive for Queensland

It needs to t,e emphasIsed that the Queensland Treasury Corporation has used innovative funding - with benefiting parties to pay - in many of the major developments that brought the State finances and the OuNnsland economy from virtually zero in 1964 to one of the best regionaleconomies In the world by thetime of **Expo'88,**

When it was possible in the past, there is no logicalreason why Ihe same cannotbe achieved today. There needs to be the will to do sol



Consultations and engagement

Creation of a 1,200km² storage lake will have some negative environmental impacts. A thorough investigation of sites of First Nations significance, and full consultation with the local peoples concerned, will be required before any locations become submerged, and some roads and dwellings need to be relocated from the fullest extent of the lake's area.

The Great Queensland Dividing Range Scheme has been in deep discussions with Indigenous leaders in Far North Queensland, concentrating on the substantially increased employment opportunities for and lifestyles of the Aboriginal peoples living close to the entire project.

Aboriginal heritage, languages and cultures must have a higher level of importance in the education of young First Nations peoples in the State education system. Job opportunities for Indigenous youth must cater for and facilitate the particular individual needs, from their heritage, to most productively interface with standard contemporary work practices.

Discussions are very confidential to this stage and should continue between the present GQDRS project team member and the local Indigenous leaders, until a Statutory Authority is established to continue this important communication.

In planning this major infrastructure project, we have been constantly aware of the importance to respect the divine connection between Nature and humans across the First Nations cultures in the region; equally, it is our great concern to not further harm the world in which we live

k ENVIRONMENTAL AND COMMUNITY CONSIDERATIONS

Tho goneral problem Naturehas In northern Queensland, In developing Ito c:tlverslty and beauty of faunaand flora, •• that massive rain falls during the 1ummer months, with hardly any falling in the winter months. Only the toughest vegetation can survive such conditions, thus allowing the topsoil to be washed away by the stron_g monsoonal and cyclonic rains.

This happens particularly in the region covered by the Great Quecnstand Dividing Range Scheme. By constructing the 100m-high tlood mitigation dam on the Upper Burdekin River at Hells Ga;:es. a massive r31nwater storage lake is created with • capacity of 32,000GI It gives the opportunity to cotch lhe huge ra'nfalls and allows these to be rechstrlbuted for an all-year-round wa1er flow In the Upper Burdekin River and to provide an all-year-round irrigation water flowingIn some of the intermittent waterways west of the Grei'lt Dividing Range.

The large lake will createnew opportunities for Abortginal peoples and for the environment. Management of the lake and its surroundings will create new job opportunitie: I for young first Nations peoples. Tho lake will becom& a sanctUllfY for water wildlife andccotourl rn. The 14.000GL Irrigation water flowing annually through the tunnel to tha fcrtilCJlands west of the Great Dividing Range. with rich black soil interspersed by rod sandy soils, will change the water-starved land, in the regions of lhe Flinders ;md Thomson rivers into a virtual Garden of Eden.

The Irrigation water canservice an areaof 20,000km² - equivalent to two million hectare& - of fertile landon the we stern •ide of the Great Dividing Ran9e.

The lands' Irrigation-will uao *ONLV* the water coming from the trana-Dfvlding Range tunnel, withexisting rivers and creeks used for primary distribution of the Irrigation water.

Onward distribution of water to the farmland, industries, towns, and communities will ba by means of covert channels and large underground pipes to minimise evaporation.

Devek>pment of a large, competitive hydrogen Industry is essential for Auatratia's reduction of carbon **dioxide.** It can be achieved **by using** the electricity from solar and wind power plants supplemented by the four million **MWh**electricity generated annually by the Hells Gates Dam's own hydro power planL

From lhe Inrormatlon avallable at present, it is not possible to assess whether iJ.net positive or anet.negative environmental impact is obtained by the implementation of the Great Queensland Dividing Aango Scheme. However. there are strong grounds for believing that the benellts of bringing the excess monsoonal and cyclonic rainwater to the water-starved but fertile wttstorn side of the Great Dividing Range will outwc,.gh some or the negative environmental Impacts such a large project mayincur

Hetplng **reed growing demand**

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INTENSIFYING ENSO

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Connecting to sue Ingham

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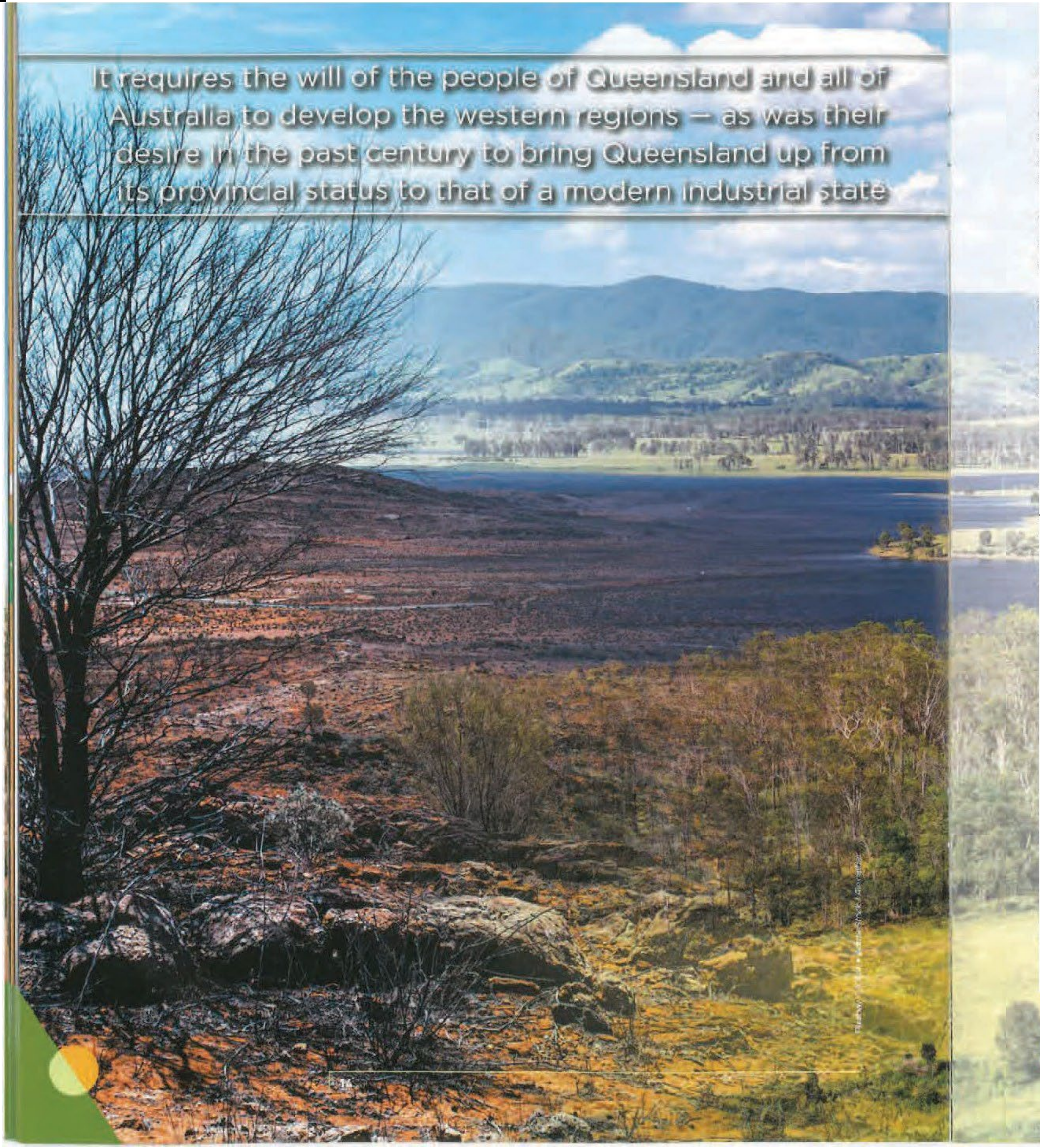


... THE SCHEME IN REALITY:
BEFORE AND AFTER - SIZE MATTERS

It will notbe ellsy to obtain polittCal enthusiasm for a project that takes eight to ten years to complete, even When 11does not require supPort from Staleor the Federal Govornmant budgets. Howeve.., lh.e protect cannot become a reality without the support of both governments - bothneed to form a Stalulory Authority for the GrORt Ouconslard D1v1ding Range SchOme, which takes on the design and construcuon of the Schomo, its ownership and ongoing operation and maintenance.

The **Great Queensland** Dividing **Range** Scheme lo not the llrot such project scoped 1Ince Dr JohnBradlleld's Ideas of the late 1930s - but Its mammoth scale offero the greete1t number of poaitivasocial, economic and efficient energy outcomes.

Some years ago both Governments supported tho dovalopmont of a dam projocl on the Upper Burdekln R,ver at Hells Gates. to catch the monsoonal and cyclonic rainfall of the summer months. The North Queensland Water Infrastructure Authority (NOWIA) in Canberra was given the task of designing the project but,unfortunately,the vision of bringing Irrigation water to the waste,n side of Lhe Great Dividing Range was lost.

TOO SMALL IS NOT ENOUGH

Tho tJO\VIA propo-:,ed only :I small dam with anov9rllow spillway and astorage lake capeacy oC only 2100GL-far ?ouswall to store any tJ&eful quan111y or It a i:,gnHlc.anl summer ra,nfall llow,ng nth,,Upper Burde,In R,ver at Hells Cates.

That concept's mocte1 alsoCOUid not provide any Irngat10n water to the western side of **the** Great I);vt<I,ng Range. 1he Queensland Government **asked** Professor Ross Garnaut w,1h an oxecullve panel to subsequenllv m;,kean Ind,.oendent asseument of tho NQWIA proooaal, the relatl..,.. menta of which wen, viewed with some skopt1cu;m

On p119e 18 of lhls OODRS report, s.e• ogo1n31 the elovot1on view of the Hells Gates Dam **and** 111a&soctateo spillways, thedasnea red linelndlcatos tne much o"'er Slll ne,gnt 01 !hat•st p,oposaJ's dam. with ,ts even more reduced la<e level shown beneam.

Thal lesser dam'sprOf.&Cted lake level ol around 360m AHO11**alSll** clearly sho.vnIn the **detaM&d**conto,r Maps op pages t6 and 28--29ol thisreoor1 101co"'l)onson with the G1ea1Oue nsland Olvidng_Ranoe Scheme dam'•much**more** substantlll 4I7-420m Al-lDcto.-ag,, l■ke levels

C..tni«lon oltlilo **amaller** clllmprojec1-uld forever de1troy the opportunity lo **bUlld**the Great 0.-nsland DMdtngRange Scheme•• tOOm-hlgh dam at Hells Gates and realise at last Dr JohnBradlleld's vision tor Irrigating we■tern Oueenatand'• vast plaina.

HOW MUCH WATER?

Great attention was given by Professor Garnaut and the panel to obtain the present day, annually mean water flow volumes of the Upper Herbert and Upper Burdekin Rivers. Complex models were developed, by both the CSIRO and the Queensland Government Department of Regional Development, Manufacturing and Water, to assess how much of the massive, but highly variable, cyclonic and monsoonal rainfall, could be used for agricultural, industrial and other requirements.

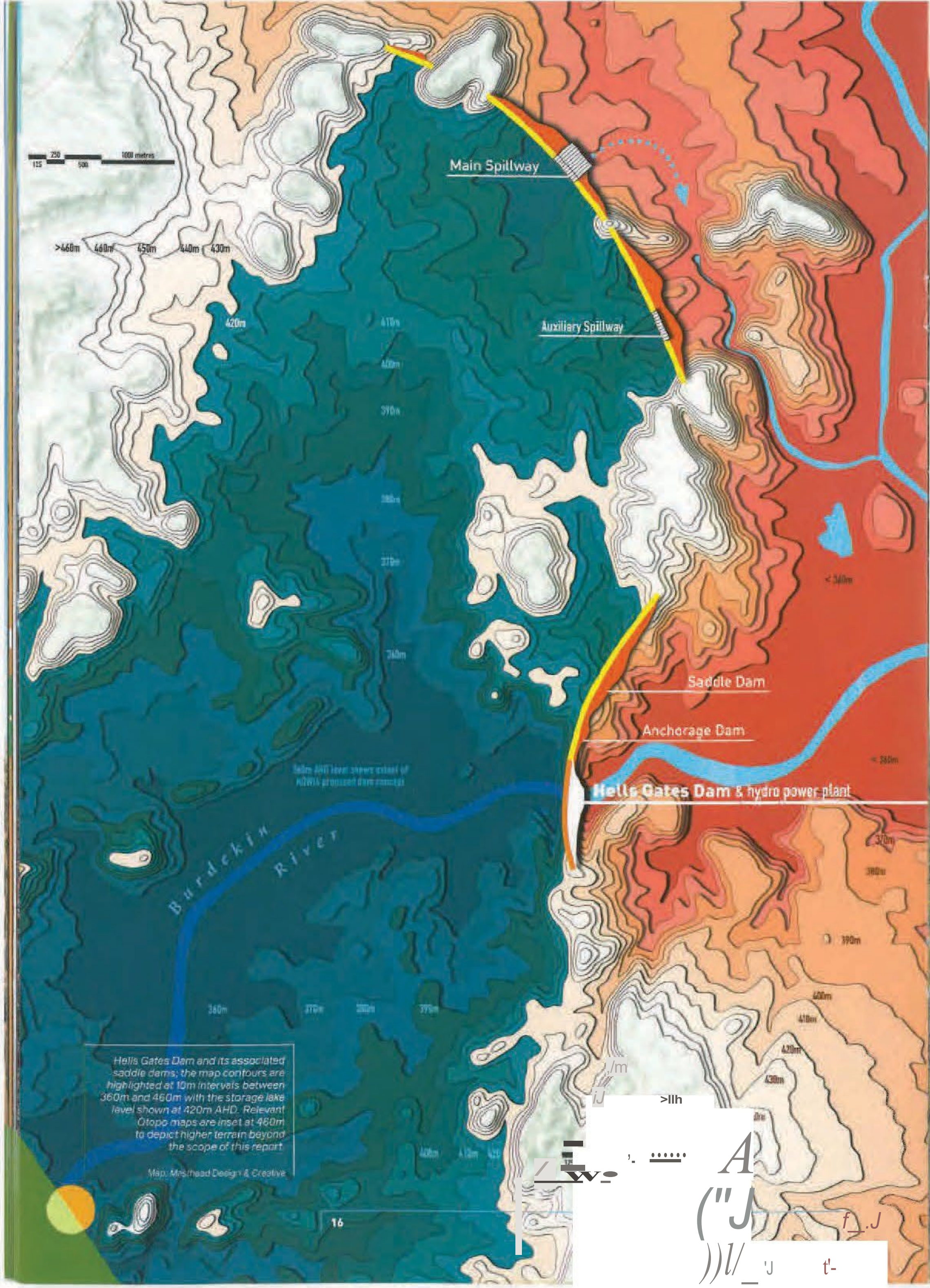
The uncommon flow of the Burdekin River – having flows as large as the largest rivers in the world in some summer months and none during some winter months – requires most complex modelling techniques to assess the water availability for irrigation and town water supply, etc. required all year round. The massive but highly variable monsoonal and cyclonic flows in the Burdekin River are of short duration and far too short for the models to consider that this water was available all year round. Only a small percentage of this massive water flow appears to be part of the Model's annual mean water flows availability assessment.

The Queensland Government Model assessed that the mean water flow of the Burdekin River at Hells Gates is 1,657GL annually and the CSIRO's Model gives 1,50?GL. The actual annual water volume flow in the Burdekin River at Mount Fullstop – 10km upstream from Hells Gates – during the year 2022 was 1,421GL. This is 1??GL or 11.4% less than the annual mean derived by the CSIRO Model or 236GL or 14.2% less when referring to the Queensland Government Model.

However, 2022 was a very unusual weather year for north Queensland as no significant monsoonal or cyclonic rainstorms occurred there, in contrast to the massive rainstorms and flooding which occurred in almost every other part of Australia.

Prof. Garnaut and his panel's assessment of the Bradfield or Bradfield-like schemes – using water flow models which consider that the monsoonal and cyclonic rains are today no longer available for usage in a Bradfield scheme – come to a natural, logical conclusion: to not build any Bradfield or Bradfield-like scheme.

The fact remains, however, that a 100m-high dam at Hells Gates can do a much better job providing valuable monsoonal and cyclonic rainwater to meet agriculture, industrial and environmental needs than the mathematical models allowing this massive water volume to simply flow back into the ocean. The 100m-high dam at Hells Gates can catch the massive monsoonal and cyclonic rainwater and then distribute this into rivers, providing an all-year-round continuous flow – generating four million MW of electricity annually and providing more benefits to the users of water and the environment than capable of being envisaged in the narrow focus of these models.



Hells Gates Dam and its associated saddle dams; the map contours are highlighted at 10m intervals between 360m and 460m with the storage lake level shown at 420m AHD. Relevant Otopo maps are inset at 460m to depict higher terrain beyond the scope of this report.

Map: Masthead Design & Creative

THE GQDR SCHEME: ENGINEERING STUDIES

Construc11on of the Hells Gates Dam

To capture and harness the massive volumes of aummer rainwater flowing down the Upper BurdekIn andUpper Herbert Rivera It Is necessary to builda concrete dam. at least100m high, across the Upper BurdekIn River at Hells Gates.

The riverbed 1s undulating ard varies in depth considerably at Hells Gates. The founding depth for1he dam - and tne hydro powerplant •1 Its base- has been assumea, ,n the absent ol geological drilling data. at 315m Australian Height Datum (AHO), To construct the Hells Gates Dam to a crest levelof 423,m AHO with.ı maximum storage water level or 417m, requires that the embankments have•height cf about 430m AHO

Al Hells Gates. the southemembankment has the requisite hei ht, butohe steep terrain on the northbank of the river is onty 400m AHD h.!)h, and this must first be raised with onanchorage structure to 430m AHO. rrom here, the Hel,s Gotcs Dam needs 10 be conrinuod witha saddle dam. !Omto 30 m "' height, unto! an embankment height of 430m AHO 1s reached, at apprmom;1tely 2 5km tot he northea1,t - for whlch, see the elevation dirowlng and artist's impn:sslon o, tho following pages.

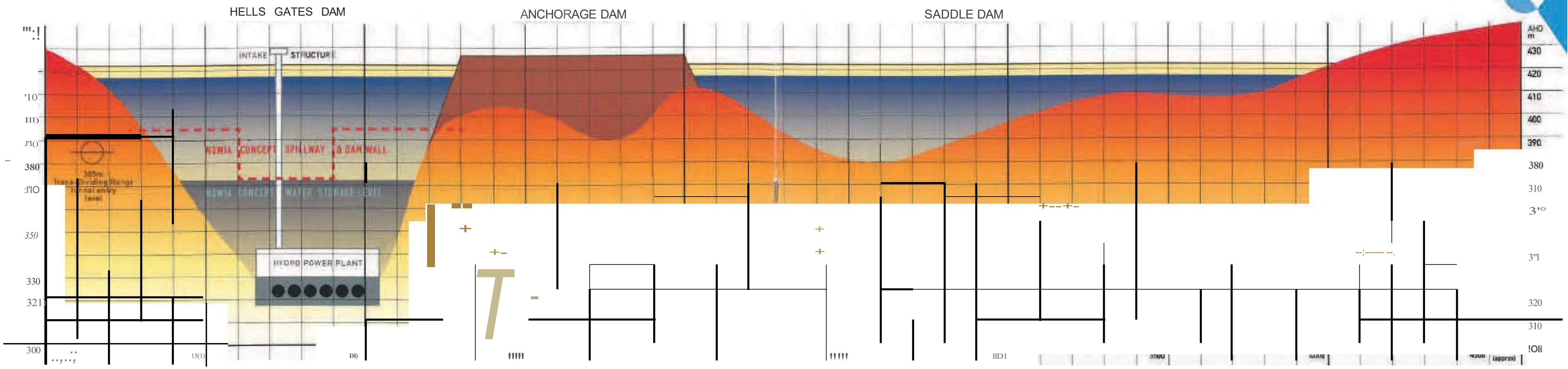
WELL·CREDENTIALLED

The engineering studies for tht Orul Queensland DiYiding Rangf SchffI'II andthe Hells Gates Dam w•ro done by Coru;uttin9 Civil U'lgineer Detlef Sulz.er.

The authors of this port exprtn 5Ptcial thanks to Prof. Or Ing, Hans• georg Balthaus, prtsenll,y a lecturer al Berlin's Techflcail Univer1ity and th• former Man.girig Olractor of Hochlie1 EnQinHring GmbH. in Essen.Gennany, 'li'hoidentified arees nffdin9 particular attention and gave acMct regarding aspects ol leclln,c.,I feasiblhly.

Tho ploplo mvotved nave Infotmed the authon of lheir kHn Int.rest in the Gnat Queensland Dividing Range Scheme and their obihly. with th• conl.od o.ttel Sulzer. lo provide adviceandsupport to M'.j,adYanca this projtd. Wi1l1 lhelr wortct.¥id1. h19hly skilled englnHring team and their experience gain.cl on tht C01\S,l.rudion or the 57.51<m-k>ng Golthard ea.. Tunnels in Swilz.er1and.

Typical Burdekin River panorama.



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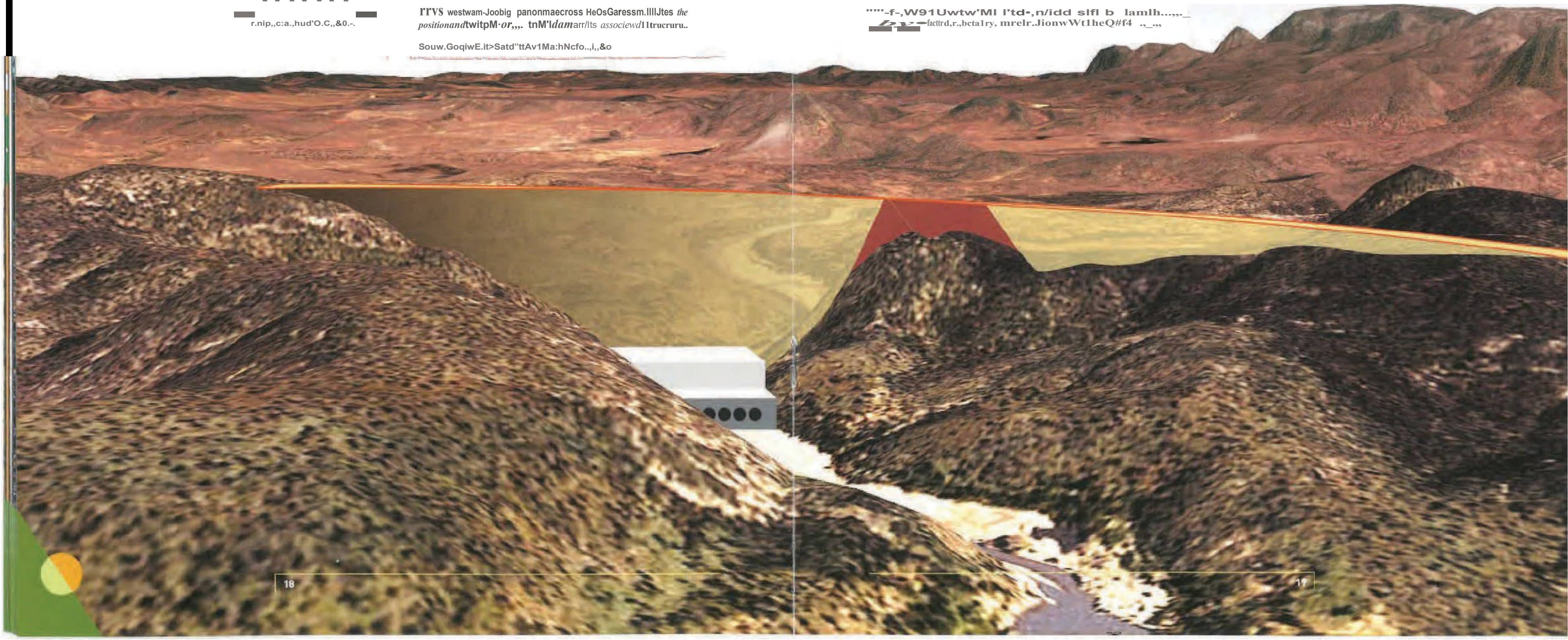

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Original drawing: Detlef Sulzer
Graphic: Masthead Design & Creative

Background image: Mount Surprise
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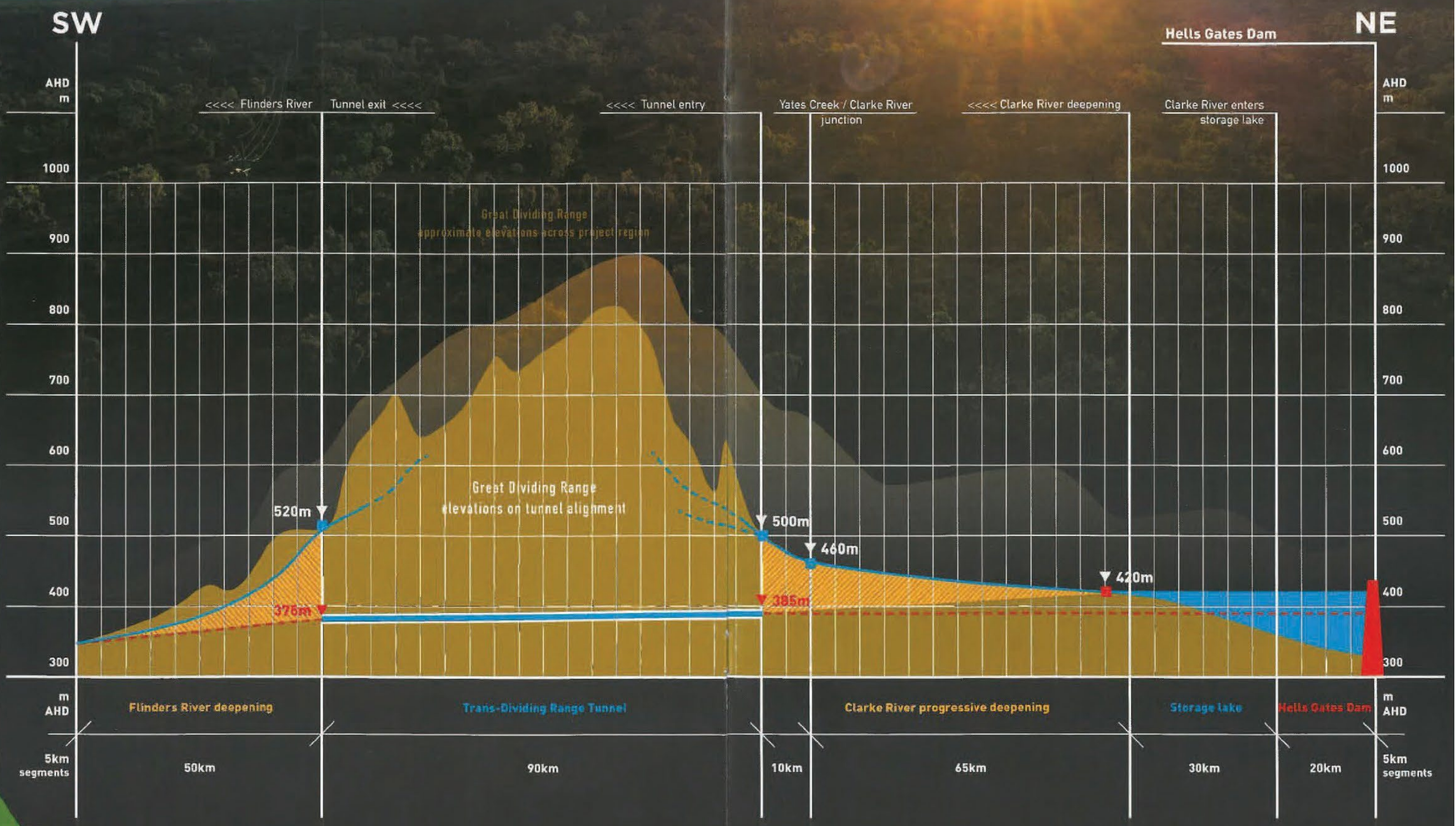
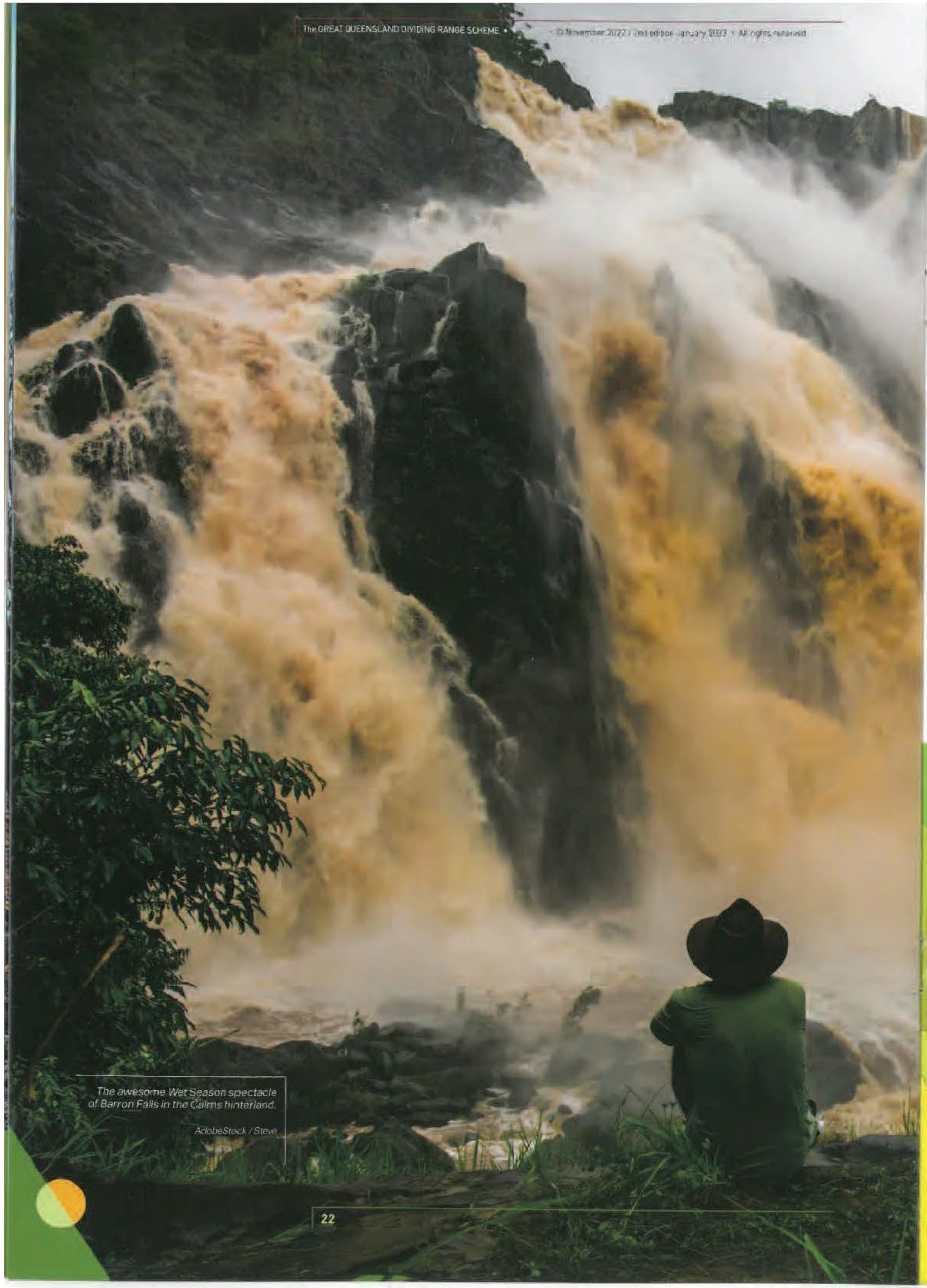




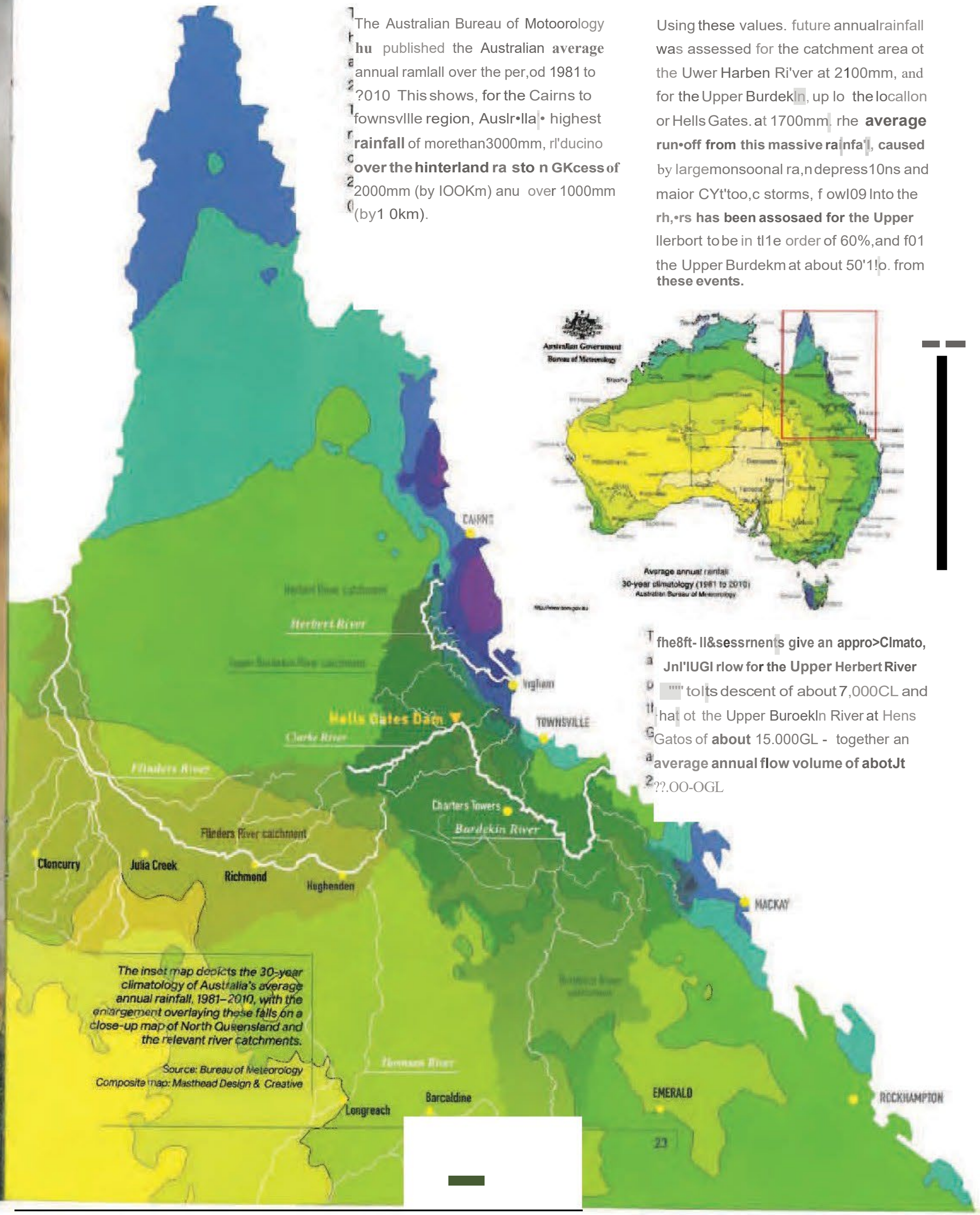
The awesome Wet Season spectacle of Barron Falls in the Cairns hinterland.

AdobeStock / Steve

H Us Gales D m,,, inf ll Infto

The Australian Bureau of Motoorology hu published the Australian average annual ramlall over the per,od 1981 to ?2010 This shows, for the Cairns to fownsvllle region, Auslr•lla • highest **rainfall** of morethan3000mm, rl'ducino **over the hinterland ra sto n GKcess of** 2000mm (by lOOKm) anu over 1000mm (by1 0km).

Using these values. future annualrainfall was assessed for the catchment area ot the Uwer Harben Ri'ver at 2100mm, and for the Upper Burdekln, up lo the locallon or Hells Gates. at 1700mm. rhe **average run•off from this massive rainfa'l, caused** by largemonsoonal ra,n depress10ns and maior CYt'too,c storms, f owl09 Into the **rh,•rs has been assosaed for the Upper** llerbort to be in tl1e order of 60%,and f01 the Upper Burdekm at about 50'1!o. from **these events.**



fhe8ft- ll&sessrnents give an appro>Clmato, Jnl'IUGI rlow for the Upper Herbert River """ tolts descent of about 7,000CL and hat ot the Upper Buroekln River at Hens Gatos of **about** 15.000GL - together an **average annual flow volume of abotJt** ??.00-OGL

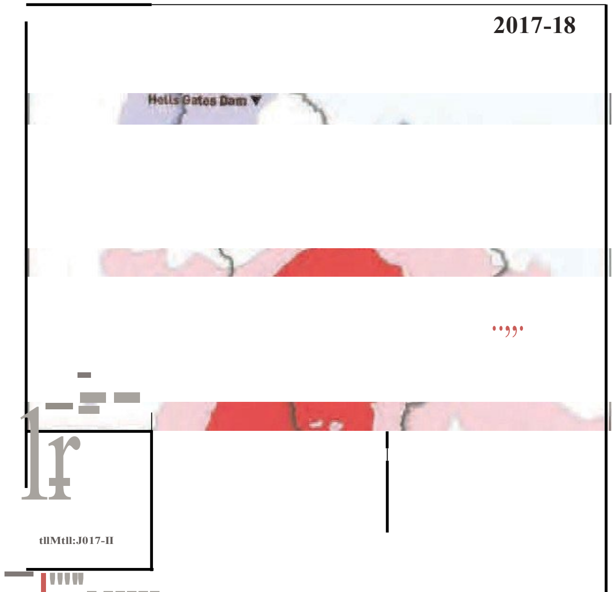
The inset map depicts the 30-year climatology of Australia's average annual rainfall, 1981–2010, with the enlargement overlaying these falls on a close-up map of North Queensland and the relevant river catchments.

Source: Bureau of Meteorology
Composite map: Masthead Design & Creative

The rainwater inrlow to the Hells Gates Dam will come from the catchment areas of the Uppor Horbert and Upper Burdekin **Rivers.**

F,rom the source tributaries of the H4;1rbert River to the point where the river t\..rrns eastwards. descending from the Atherton Tablelands, has a catchment **area of around 6,000km'.**

The Uppe(Burdekin River, from its source to Hells Gates, 220km downstream. has a catchment or around 18,000 km'.This Is **15% of the total Burdekin River** catchment area ol 130,000km•.



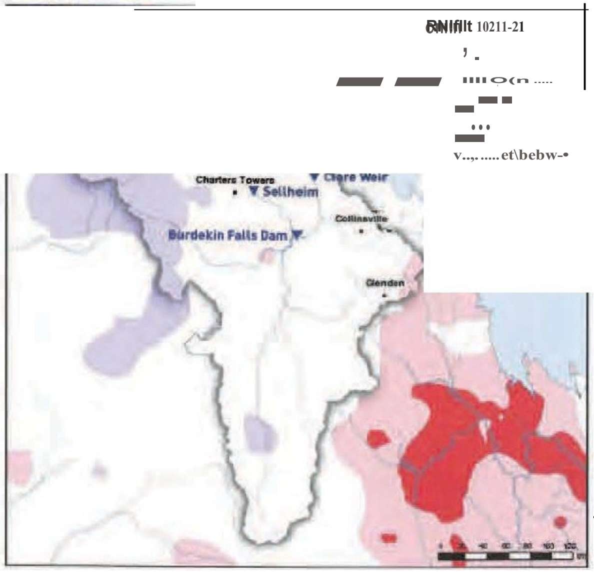
Rainfall in thcso Hells Gates catr.hmenl areas is considerably higher than in the remaining Burdekin River catchment

the Burdekin catchment area.

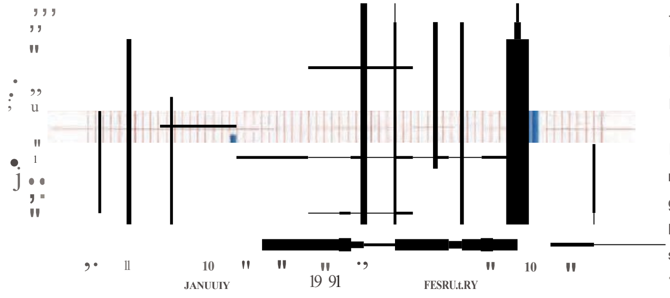
areas to the southeast. This is shown b

the areas shaded blue tn these maps of

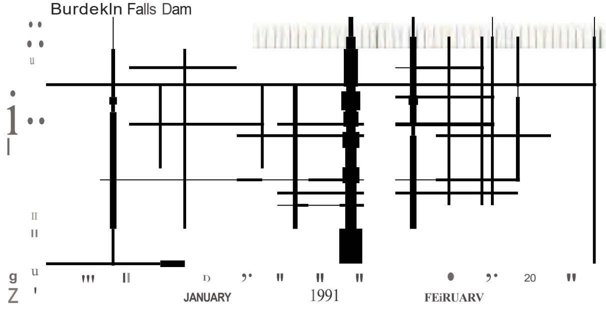
Jn these maps highlighting Uut Burdekin Basin. the deciJerange orrantal in the Burde/fin Rwer c.Jtchmoot Is shown for 2018(M)ove) and 202l(bolow/,re,pecOvely, both9QMm.4p8onWI5oogo...-o rt., ,.._. .l!wl'fJJQ'1'r.:mgsr.n.msro,the now ll-. ontt-e p.g,.. Sotlot:A.'.Aif/allt)cll&a.J0:



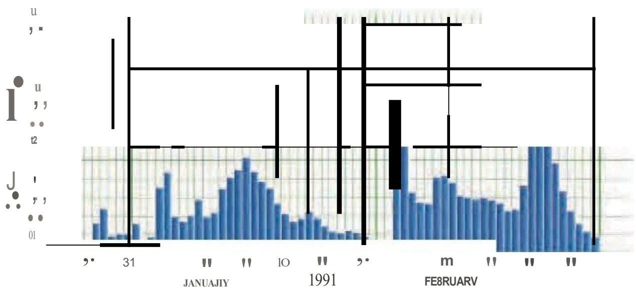
Burdekin River at Sellheim



BurdekIn Falls Dam



Burdekin River at Clare Weir



These v•lues agree well with the data published by CSIRO on rainfall and water flow in the Upper BurdekIn in Its Technical **Memor'andum 91/15 of December 1991.**

In January / February that year. three massive monsoonal rain deprnssions gave rainfall of 1,600mm In the Upper **Burdel(jn Region: a typical entire summer's rainfall in just two months. 1his Intense downpour gave a flow** volume of 19,S00GL at Sellhcim, which **has been calculated as equivalent to** 14,600GL at Hells Gates, more than 100km upstream of Sellhe1m.

These flow volumes also compare

favorably with a later CSIRO Technical RePort of 5 December 2014. This gives strcamflows of 60,000GL to 80,000 GL,

the Uppc.r Herbert and Upper Burdek.in

and ayield of 10,000GL to 15,000 GL,

ror major rivers in an area wt1ich includes Rivers.

*GraphsMfa showth4'd11ifywsrer flow** *mMesac-,ments of the 8urdtdcln River trt three measurement starlOllSIn·Yle f,rst n,,,,omonths of 1991: location of the..stat.k,,n.,1:5mown in the mops ontheoppos Ite .*

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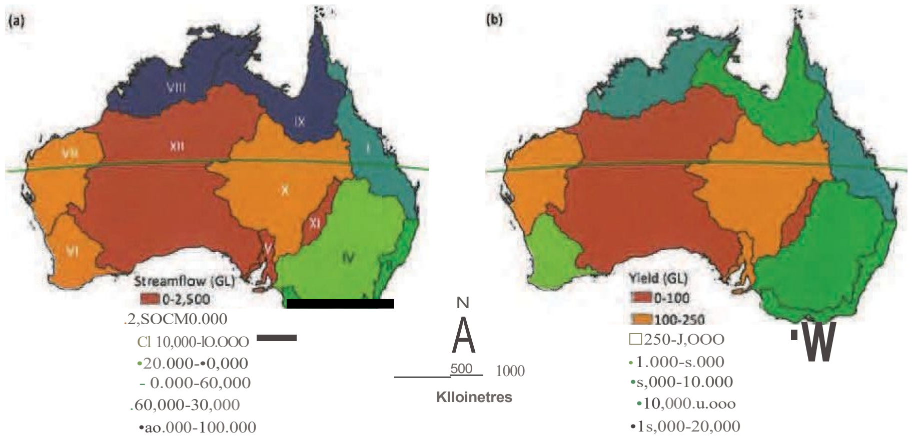

Figure 1-2 Prior estimates of streamflow and potentially divertible yield for the major drainage divisions of Australia
Broad scale exploitable yield estimates assume 64% efficiency of conveyance and delivery to field. They do not account for environmental, social or economic considerations or the availability or proximity of soil suited to irrigated agriculture. The roman numerals in figure (a) indicate the AWRC drainage division number. These are: I) North-East Coast; II) South-East Coast; III) Tasmania; IV) Murray Darling Basin; V) South Australian Gulf; VI) South West Coast; VII) Indian Ocean; VIII) Timor Sea; IX) Gulf of Carpentaria; X) Lake Eyre; XI) Bulloo-Bancannia; XII) Western Plateau. Source: Data sourced from Petheram et al., (2010)

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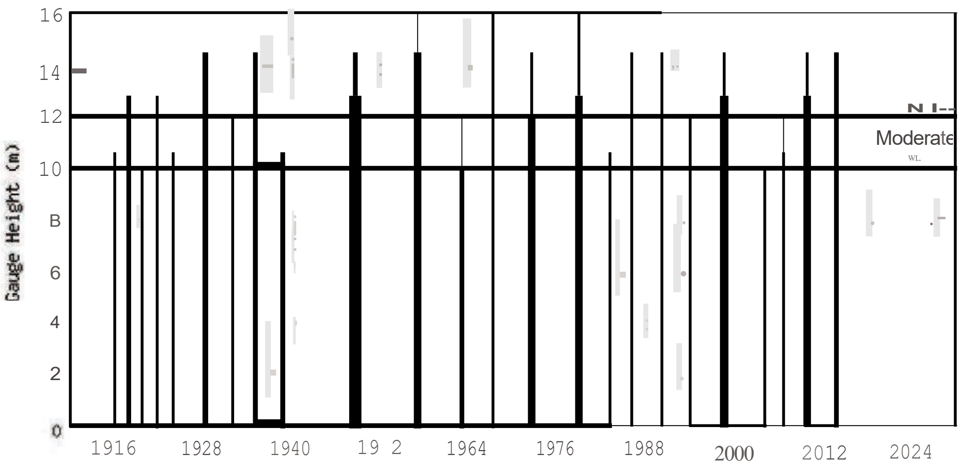


QUetnslan.d Water Inform;nion Service

Oalty rain and river flow measurements **are taken from the p1Jblications of the Queensland Water Information Service**, for the Upper Ilerbert P ver and Upper **Burdek.in_Rive**,

At m asurmg sta 1on Glen E;:i.gln, near 1he Herbert Rivo.r's descent, 1.257mm rainfall and a total water tlov.· volume or 6GL was recorded In 2022 **Fot the Upper Burdokm River at statiori Mo.unt Fullstop near Hel!'iG4'1tes.,rainfall** of 1,065mm and flow vol11mc of 1,421GL **was measured**

Theso values correspond well With annual **rain and now measununents ror years without major monsoonal rains art.d cyclonic stom,s. the run-arr reduces to betw tm 10% and 20%**

Ailnough 20U brought devastating rarn and flood• to many parts of Australia, **it sa.w no monsoonal rains nor any** cyelones for northern Queensland.

This !lilies an indicanoo of the VO!labllfy **o• ramtall and nver rlowvs from year to year**

Records or the Hoben River's highest annual **floodpeaks of** Ingham fro'l'l 1916 to 2017 (In th graph on the oppas,te page) **show the frequency of flooding occurring** ₘ **end around In9ham, with inunoatjon at Minor levels or above m most years.**

Tno h11ge storage capaciiy of 32,000GL of tho Hell• Gates Darn's la e givos the opportun,ty to store the water at ayear wrth exceptfonally high rainfall to bal8nce yosrs w,Ih rninimal rrunfa/1, o;t,ch as 2022

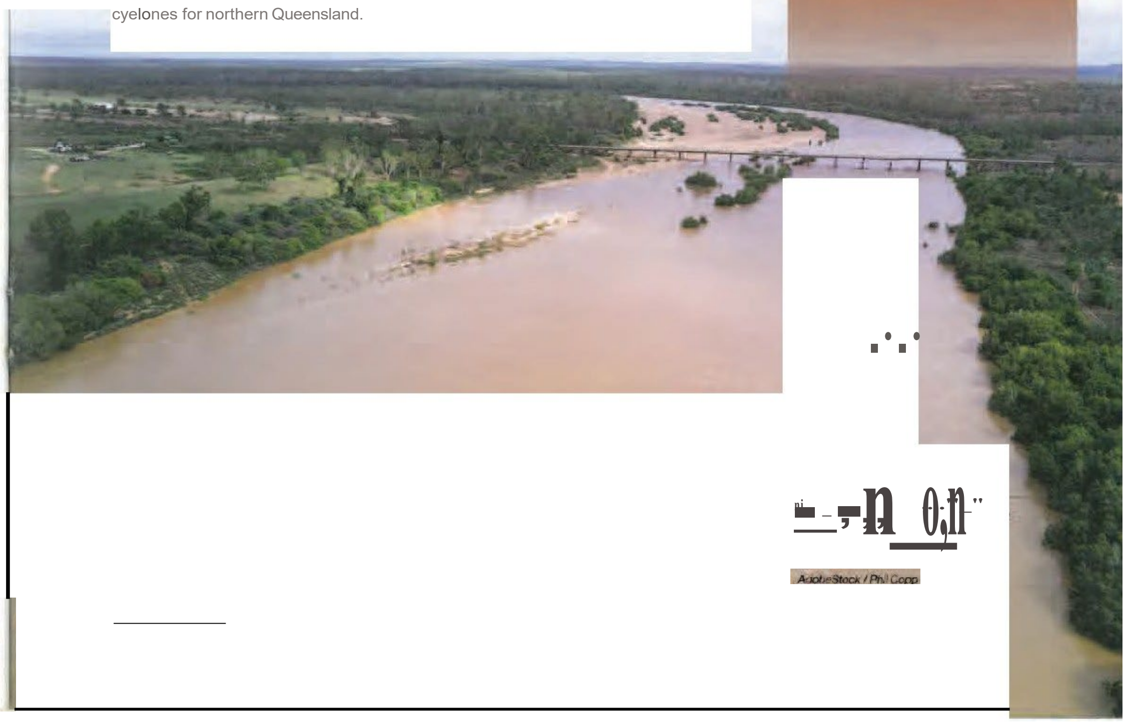
The monsoonal and cyclonic ra1nwate1 not requiredby me electrrclfy generation, **onvlronmanta1 flows and land** Irrigation **Of** the Upper Burdo Jn River can now lo the **western side of the Gresl 01v1dfng Rao9e.**

HELLS GATE TO MITIGATE

Hells Gates Dam is designed primarily as a flood mitigation dam and not as an irrigation dam.

Diverting the 7,000GL flowing from the Upper Herbert River to the Upper Burdekin River and into the dam will arrest the frequent annual flooding of Ingham and surroundings.

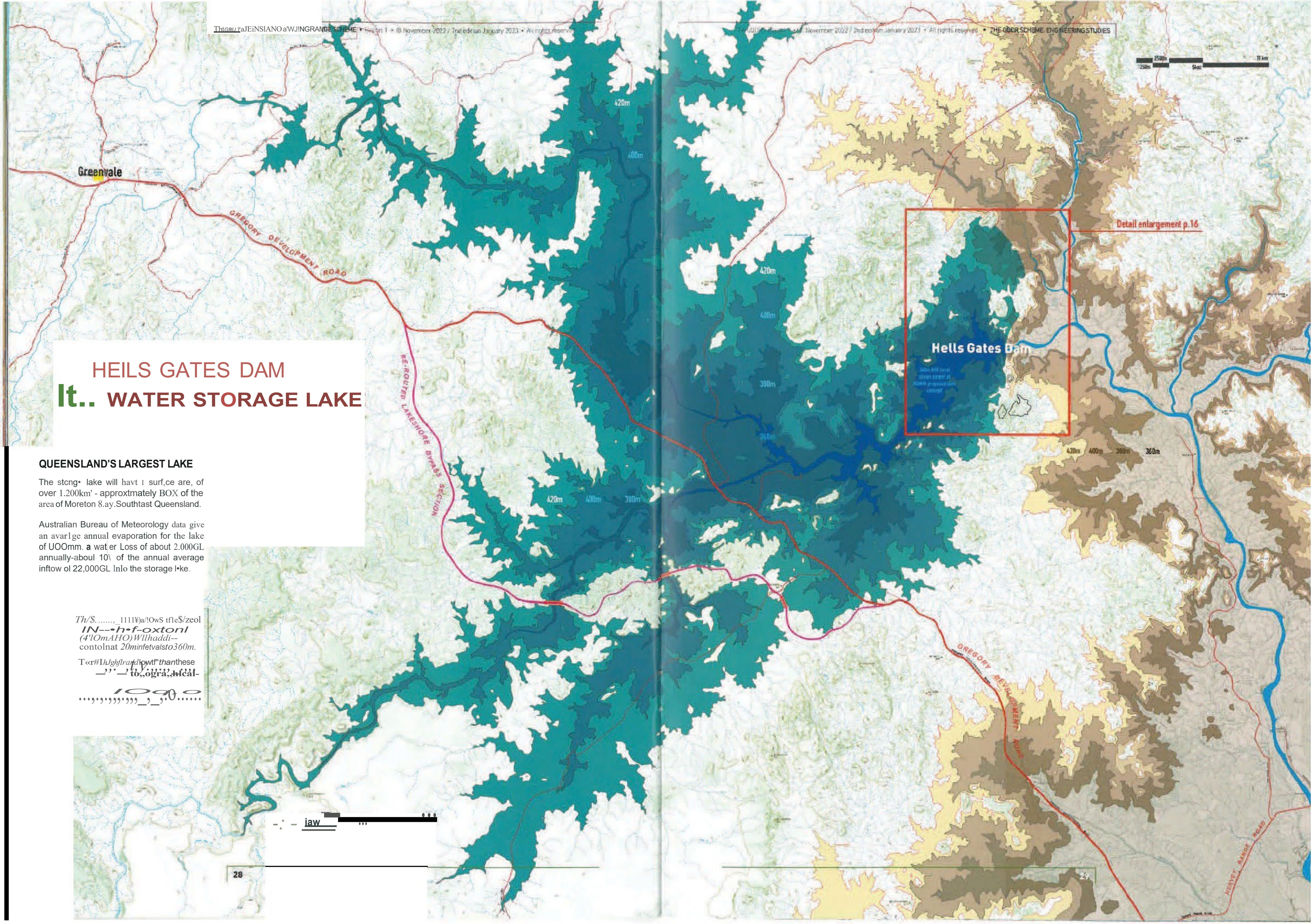
From the storage lake 5,400GL is released annually into the Upper Burdekin River downstream of the Hells Gates dam for its continuous all-year-round flow



AdobeStock / Phil Copp

... • © November 2022 / 2nd edition January 2023 • All rights reserved • THE GOOR SCHEME: ENGINEERING STUDIES

HEILS GATES DAM
It.. WATER STORAGE LAKE



QUEENSLAND'S LARGEST LAKE

The stcng• lake will havt ı surf,ce are, of over 1.200km' - approxtmately BOX of the area of Moreton 8.ay.Southtast Queensland.

Australian Bureau of Meteorology data give an avar1ge annual evaporation for the lake of UOOmm. a wat.er Loss of about 2.000GL annually-aboul 10\ of the annual average inftow ol 22,000GL lnlo the storage l•ke.

Th/$.......,_1111¥)a/!OwS tf1e$/zeol IN--•h•f-oxton! (4'lOmAHO)Wllhaddi-- contolnat 20minfetvalsto360m.

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Sp1llw yd si n

1he Hells Gates Damspillway design requires n outflow capacity of 40,000 1,;.umsec, which1s four times larger than thatrequired *tor* tho Wivonhoe Dam.

Tha op,llway design ,s basedonusing tho same lar9e steel gates as used for tho Wlven'1oe Dam whlch 40 years ago were tha largest avallableworldWidc. Ei,chgatels 16.6m highand12m w1d&. Wivenhoe, w11han outflow capacity of 10,000 cumsec, required five gates. The Hells Gales sp,lway witl require O such gates for an outflow capacity or 40,000 cumsec. For the event that the garos are non•operabonal, an au.x,tia,y spillway Is des,gned and constructed aJong the same slrelch of saddledams.

The gatod spillwoy and the nux•ltary spillway can **be** constructed **away** rrom tho main rlamby locating tiam atddihonnl Olldd o domo to the northwest of Holts Gates, where lhe outflow falls lnro thR Tomahawk and Dougie.,;CrcokG, which In turn flow 11110 lf1e BurdckinRiver downstream of H•lls Gates dam

Watllrro/ggQ fromtheWi"""1oe0am soNwoygatcs.

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Hydro PO'llll'r pl nt

Conslrucllon of a 2,000MW hydro power pant at the bottom ol lho Het-8 Gates dam **will** be an int.ograJpart of thedamconstruction. Th s operates in conjunction wrth mafor green proJocts like solar plants and wind farms, These are scheduled tor northern Queensland.

The hydro pow r plant will generato electricity to rneet demand on overcast or windless days. In general, hlgheat electricity demand occur, dally for about two hours at sunr1nandat sunset when solar and windpower generation is low andneeds to bti **aupplemented.** In additiOtl, there are periods or monsoonal rainand cyclo"ic winds whenno green electricity production is possible, **andthehydro-powered** electricity generation need• to operate for aeveral days.

To cover these periods, anclcctrfctty generation requJrement of four million MWh annually was a ses od for tho hydro power plant.This is supp too by running all turbines of th plnnt for 2,000 hours, reqsirlng about 5,400GL of water to now through the turbines. This wlff produce acontinuous daily flow in theUppor 8urdokin downstream of Hells Gates dam and will fac!Utate the irrigation of existing andnew farmland along tho Upper Burdekln Rtver. It wilt al,:o provide water supply security 10 Townsv1lle and ChArters Towers

Another, much $maller hydro power plant will bebutlt at the exit of the 90km-long tunnel, utilising the continuous rlow or wa1er under pressure out of the tunnel. With a capacity of about100MW and operating fot 300 days a *year,* this hydropower plant canproduce 720.000 MWh - electricity which can be soldat a revuurnble price to fund communities of the newly irrigated land.

Tunnel cor,1tr1.1c11on

The tunn1:1l through tneGreat Oiv1d1ng Range will havts a diameter of J2 metres and e length ol about 93km.

Thickness of the inner 11,er of lhe **tunnel depends** co the homogeneity and strength of the rock beingdrlled **through** It can vary from a steel reinforced shotcrete cover to precast conctete elements 400mm thick tormlng a ring, pliced bytheTBM An,nner tunnel ciameter ot 11.2m was assumed for the pre,l11nary design calculatjons.

The rock volume to be excavated and ext,acte-d from the tunnel up to '15km is 11million cubic metres.

The Irrigation water needs to flow at a speedo(4.3m/sec (15 km/h) through lho tunnel. to bring14,000GL a year lo tho western side or the range. The ftow **speed** In the tunnel is higher when the water levelln tho storage lakereaches Its maximum. It **gives** the Authorfry the option to tet more water flow through tho tunnel or lo control the flow by adjusting entry tunnel gates.

To obtain these flow speeds through tho 90km tunnel it s essential for the water *to*have a'hydraulit:ally smooth lo very smooth' now througn the tunnel. This requires application oJa specIaJ epo)Cy-resin paint onto the surface or **the inner** tunnel liner.

Tunnel construction time is assessed usmg two TBMs, one from each end. The assumpuon of a conservauve advancement of one metre *per* hour for eachTBM, and a worl<Ing day of 20 h01;rs, gives anaverage oaily tunneling advancement of 40m. To comptete the tunnells thus 2250 daysor 6.2 years.

Many ot.ner tunnels or 12m dlam te, designhavebeen constructed for roadand rail traffic mthe congested cities of Australia, Asia, Europe, and USA. However. for the transportation of wator,only a few tunnels have been hull!In Africa, the Middle East and USA.

The feasibility of a 50k11'l-long, l2m-demeter tunnelis currently bomg 11Ssossod In Col1lornia. lo bring fresh water from tncSacramento River, under theSacramento•San Joaqwn 0er1a, to tho St.ito's wato"supply centre for Southorn California,

Deepening riverbeds

For water to flow by gravity from the HollsGatos Oam storage lake via 1he Clarke River and Yates Creek to the tunnel entrance, it Is necessary to deepen the rive<beda by from Sm to 125m, varying over a total length of about75km It will <equlre an excavallon volume or 230 miilioncubic motres, which would be placed along the channels' flanks.

The Fltnders River reQulres deepening up to 125m **below tho** present riverbed over 50km to reach the tunnel exit A rock volume of 90 mlUionm[1] neods to be excava1ed

Further tunneling and bod deepenlng Is required for the construction of lhe 20km connection between lhc Upper Herbert and Upper Burdekln Rivers, and lha 15km connection from tho Flinders River to Praine Creek., to provide the natural flow between those rivers. Prairie Creek needs also be **deepened, or a** channel built for the connecuon to Torrens Creek.

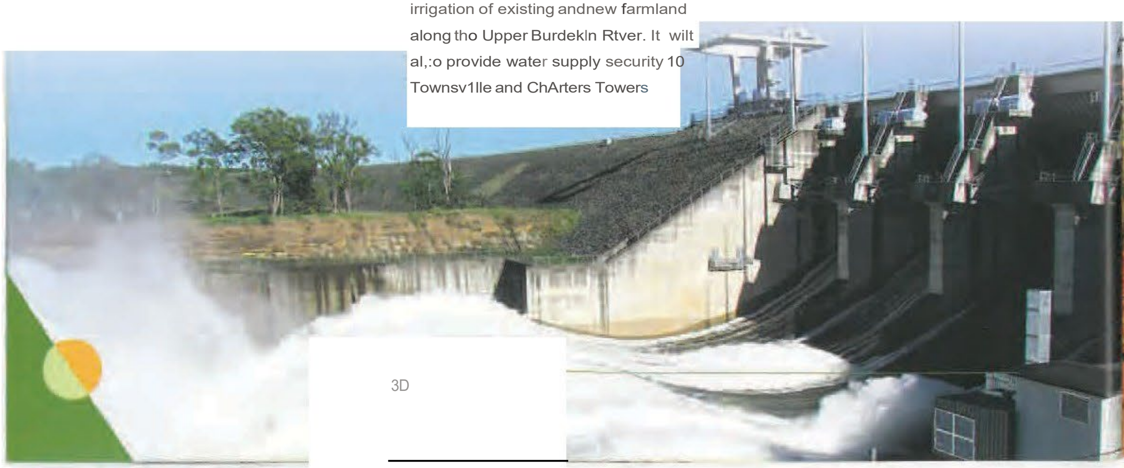
Irrig I on west of tlle Ange

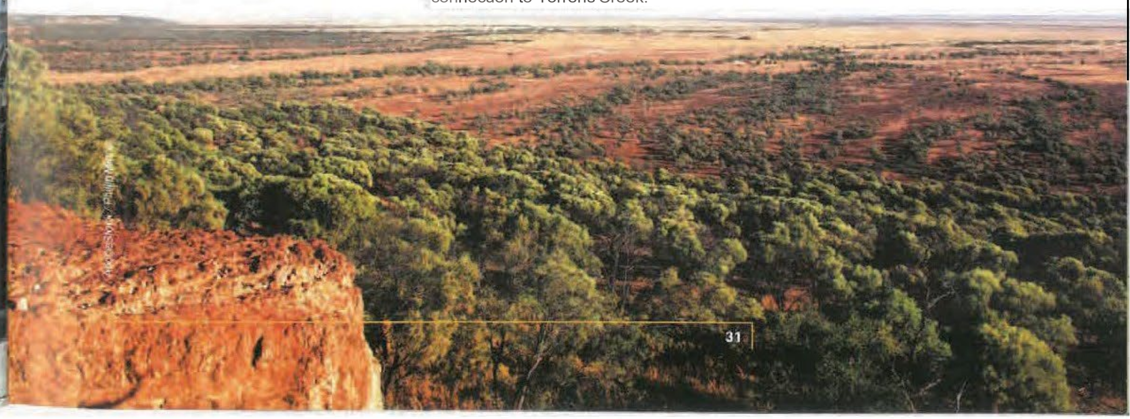
Nowater **will**be taken from the natural flow of the Flinders River, Prairie Creek, Torrens Creek and Thomson River for the envisaged imgation.

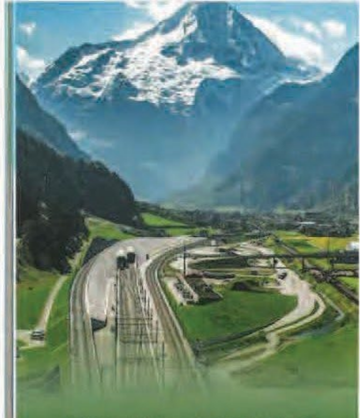
TheFlinders River has III very irregular flow. andl1.s riverbed,s ortendryfrom Hughenden fo JulioCreek. Alonglhi9 stretch, the nver provloe opportunitiea to pond large quantities or the Irrigation water received from tne ea!tern side. From these ponds the irrigation water can be distrlbuttd via covereo channels and underground, large-diameter corrugated steel pipelines, made onsite, to the farm communlus.

Climatic conditiO'ls of Nonh **West** Queenslandmak e l nocessary to limit rieldevaporation as far aspossible. This therefore needs to be asub-surface supply, water appUed by automated control systems w hteh are monitoring continuousty the ground moisture content at various depths. Thi-s will avoid excessive irrigatlon, causing unnecessary evaporation and sallnation of the farmlond.

Thesecosts arenot included in the project construction cost **estimates.** Loan packages arranged by the Statutory Authority woutdbe a means ot enabling new communities to have these facilities andlicence rights.







SWISS-ITALIAN EXPERIENCE

A cost-per-kilometre direct comparison of the Great Queensland Dividing Range tunnel proposal with the Gotthard Base Tunnel — a pair of 57.5km-long tunnels, each with a 9m diameter, which opened in 2016 after 15 years of construction — can be only a guide.

That project's per-kilometre tunnelling cost of around CHF (Swiss Francs) 91 million — or AUD 143 million in 2022 dollars — reflects the more complex engineering challenges which had to be addressed beneath the European Alps. Moreover, the tunnels were designed for passenger and freight trains travelling at 320km/h, with all the associated safety features — such as access, crossover and evacuation shafts — required for public transport operations.

With only maintenance access required for this Scheme's water tunnel, we therefore believe the cost-per-kilometre estimate to be realistically indicative.

CONSTRUCTION SCHEDULE
TIME AND COSTS

First, a two-year design perlOd ,ncludos tne geologlcal drilling, s1te establishment, construction ot access roadand siteservicesand. subfect to designprogress. procurement of crltical equipment and machinery.

The construction time of the mainHells Galtt Dam, with thehydro pow ,plant at its base, has been estimated at four years. Both willbe completed two lo three years earller than the tunnel. Constructing a temporary dam across the Ctarke River at a suitable locHtion can allow the storage lake to be filled ror the generation or electricity rrom the hydro power plant, before worl<.on the tunnel Is completed. /\bout S1billion can thus be earntKt from selling this electricity, pdor to totaJ project completlO.n.

A two•yoar contingency period hns been bullt In lo the eight-year constnx:.tlon time, to cover weather events likemonsoonat rains and cyclon1c storms. when no construction work on sitecanproceed.

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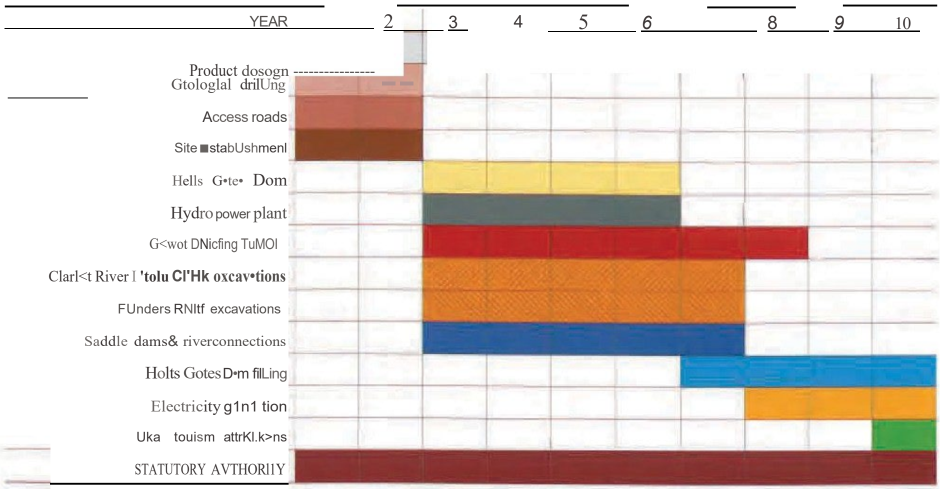
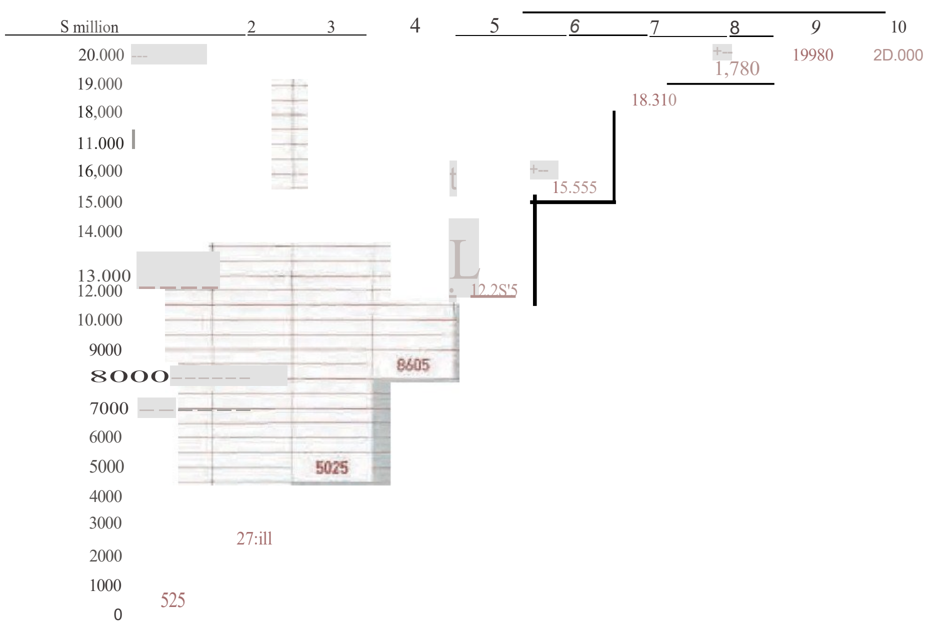
PROJECT CONSTRUCTION TIME SCHEDULE



PROJECT CONSTRUCTION COST ESTIMATES

Project component	Estimated cost ($ million)
Rock drilling (S200m) • Project design ($500m) • Site lacilities ($150m) • 300km new access roads construction ($300m)	1150
Hells Gates Dam construction	1500
2000MW hydro power station	1000
90km tunnel construction@ $100mlkm	9000
lOOMW hydro power statlon (southweslem tunnel exit)	200
Clarke River / Yates Creek excavation lo tunnel entrance (220 million m' 0 SlS/m')	3300
Ainders River excavation to tunnel exit (90 million m'@ $15/m')	1350
Saddlo dams (5km @ S1OOmlkm)	500
Herbert River> Burdekin River connections	500
Ainders River> Prairie / Torrens Creeks connections	500
Contingencies (incl. costs forland acquisition and relocation or roads submerged by **lake)**	1000
TOTAL	**20,000**

PROJECT CONSTRVCTION COSTS SCIIEDULE



EMPLOYMENT AND REGIONAL ECONOMIC BENEFITS

Employment which will be created during the main construction activities over a period of six to eight years will be in the order of 2800 people, of which about 2300 are working mainly on site and 500 working in cities on the design, planning, administration, and procurement of major items.

The supply of materials, machinery, consumables, food etc required by the people working onsite will give an employment multiplier effect of 3.5. This gives a work force of around 10,000 people having well-paying jobs. Considering that each employee likely supports a family of two to four persons, a population growth of 30,000 to 40,000 people can be anticipated.

It is more difficult to estimate the population growth for the period after project completion. In theory, 20,000 km² can be irrigated with 15,000GL annually. However, the irrigation water demand per hectare varies widely on whether the land is used for grazing or the production of agriculture/horticulture.

Considering farm sizes of 1,000 hectares, potentially 2,000 new irrigated farms can develop. Subject to what is being produced by the farm, it can require three to eight people to run the farm. Adding the farmers' families gives a population growth of about 200,000 people.

CONCLUSION AND RECOMMENDATIONS

The Great Queensland Dlvidin9 Range Scheme wlf be among the largest Infrastructure projects in Australia. It will withhold the massive monsoonal and cyelonlc rainwaters, presently flowing into the Coral Sea and Pacific Ocoan, by constructing a 10Qm..high dam on the Upper Burdekin River at Hell.s Gates. This **dam will be primarily a flood mitigation dam, ha11lng a wat&r storage lake capacity of 32,000GL.**

Annually 5,400GL of water from the storage lake will flow through the turbines of lhe 2,00UMW Hydro power pla11 at the base of the dam. This will generate annually four million MWh of electricity andgive anall.year•round flow *in* the Uoper Burdekin River.

Water not required by' the Upper Burdekin River *for* environmental, irrigation and community water supply needs, will flow by gravity In deeoened riverbeds towards the 90km tunnel which spans the Grea1 DIVidong Range. On the western side or the Rango the wator reaches the Rindcrs A1ver ond, to the south. Prairie Creek, Torrens Creei< and the Thomson Rlvar to Irrigate the vast area or maynirtceru black fertile son In these regions

A new Statutory Authority, liketheSnowy Mountains Au1hority, needsto becreated, Il taJ<es over the profect and will be responsible for. *inter a/ia,* the 'undlng of the prOject, will award tho project design and construction contracts and w111 supervise the project construction to completion. It will take on the responslb11ity of theownership and for ttle running and maintenance or the project.

The total of $22.5 bilhon will be raised as required by the Authority v a the Qu,oensland Treasury Corporation. This is possible, as the Authority, being a Statutory Authonty, similar to a locaf Authority. like aHarbour Board, etc, has the pawer to do so.

The prajut is tl!Hible finandally and enannously po.sitive economially.

The project reqwru nocau on th• State or Federal **B11J191t1.**

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Sir Leo Hielscher AC | Sir Frank Moore AO | Mr lan Macalli■ter | **Mr Deller Sulzer**

The sooner this Scheme is developed, the better for the people of the North West and Central West of Queensland, the State of Queensland and for the entire Australian nation

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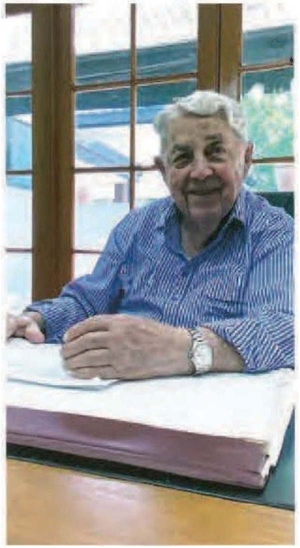
THIS PUBLICATION



Ian Macallister

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Sir Frank Moore AO

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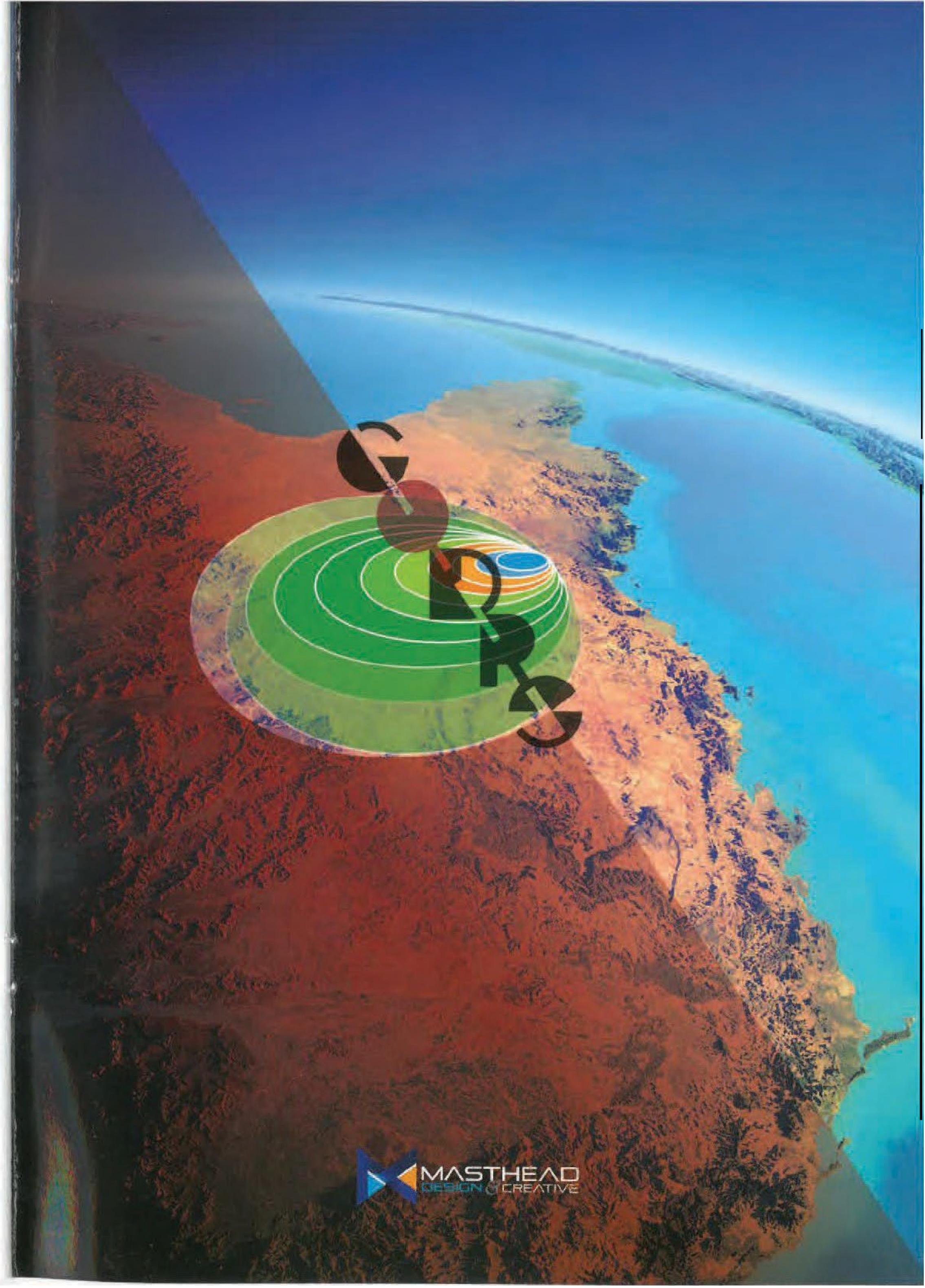

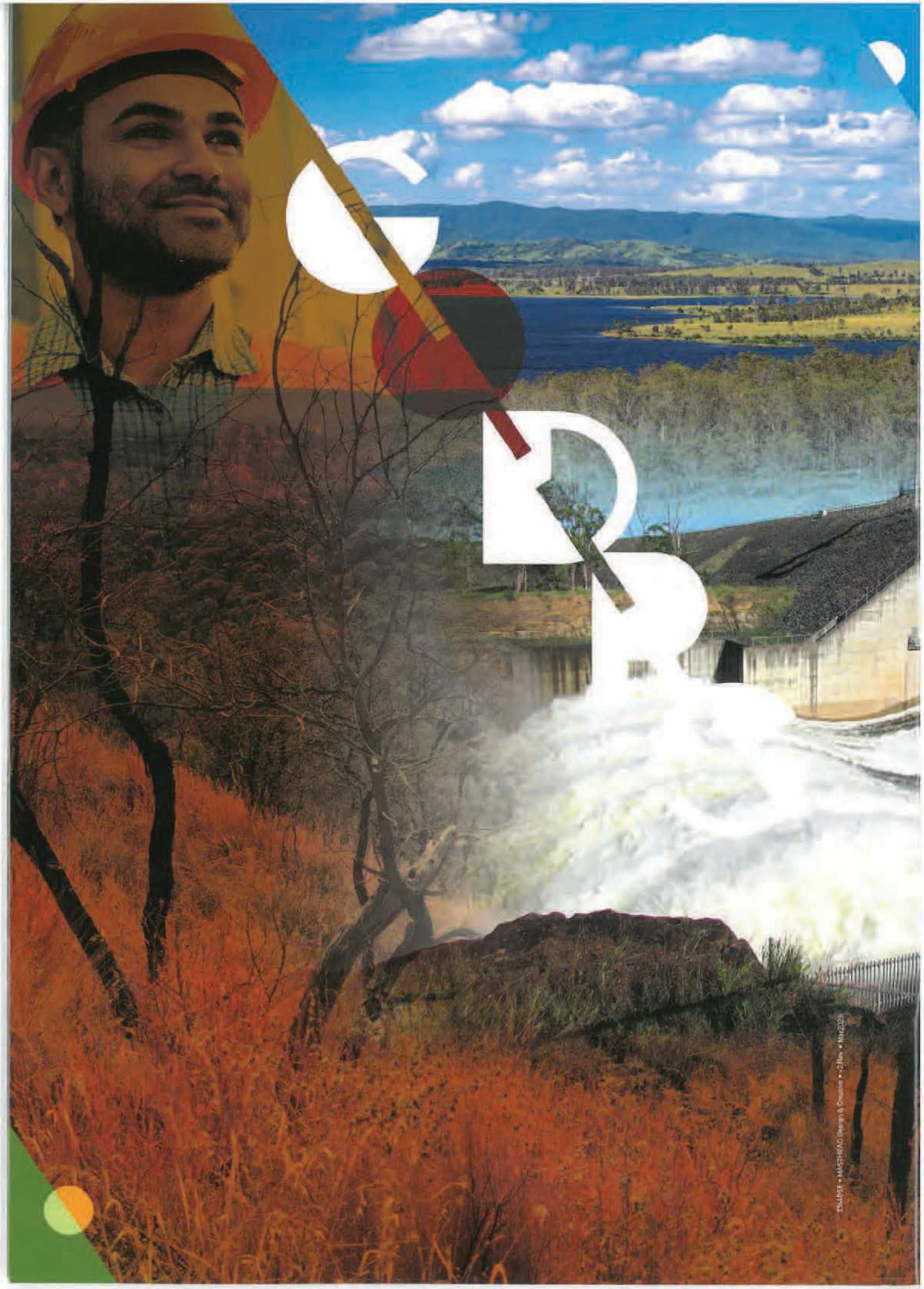
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