The following Motions and Documents were considered by the GFCAcademic Planning Committee at its Wednesday, May 17, 2023 meeting:

Agenda Title: **Revised Consolidated Budget Fiscal Year 2023-2024**

CARRIED MOTION:
THAT General Faculties Council Academic Planning Committee recommend that the Board of Governors approve an amended 2023-24 Consolidated Budget, with changes to reflect one-time approval to access $39.362M in operating reserves (“carryforward funds”), as set forth in Attachment 1.

FINAL ITEM 3.

Agenda Title: **Water Research Centre**

CARRIED MOTION:
That the GFC Academic Planning Committee approve, with delegated authority from General Faculties Council, the creation of the Water Research Centre (WRC), effective upon approval.

FINAL ITEM 4.

FINAL ITEM NO. 3

Decision X **Discussion** ☐ **Information** ☐

ITEM OBJECTIVE: To obtain Board of Governor's approval to amend the University of Alberta Fiscal Year 2023-24 Consolidated Budget to reflect access to spend $39.362M of operating reserves.

DATE	May 17, 2023
TO	Academic Planning Committee
RESPONSIBLE PORTFOLIO	Vice-President (University Services and Finance) Provost and Vice-President (Academic)

MOTION: THAT General Faculties Council Academic Planning Committee recommend that the Board of Governors approve an amended 2023-24 Consolidated Budget, with changes to reflect one-time approval to access $39.362M in operating reserves ("carryforward funds"), as set forth in Attachment 1.

EXECUTIVE SUMMARY:
As you may recall, at the time the University of Alberta Fiscal Year 2023-24 Consolidated Budget was approved in March 2023, it was known that a specific amendment for access to spend operating reserves ("carryforward funds") would be required. As part of the February 2023 Provincial Budget communication, the Government of Alberta (GOA) permitted the University to spend operating reserves of up to 15% of its unrestricted balance for a total of $39.362M.

As such, the University of Alberta's Fiscal Year 2023-24 Consolidated Budget requires amending to reflect the one-time approval to access $39.362M in carryforward funds.

At the time of approval, the consolidated budget reflected a modest surplus of $520,000. The proposed consolidated budget now reflects a deficit of $38.842M.

The following tables (see Attachment 1) reflecting the consolidated and operating budgets are amended to reflect the access to spend $39.362M of operating reserves:

Table 1[1]: Consolidated Budget (2023-24, 2024-25, 2025-26)
Table 2: Consolidated Budget by Fund (2023-24)
Table 5: Operating Budget
Table 14: Budget Consolidated Statement of Operations with Expenses by Function
Table 15: Budget Consolidated Statement of Cash Flows
Table 16: Budget Consolidated Statement of Change in Net Financial Assets

Table 1, Table 2, and Table 14 previously reflected a modest surplus of $520,000. These now reflect a budgeted deficit of $38.842M.

[1] *Table numbers correspond to the table numbers in the approved University of Alberta Fiscal Year 2023-24 Consolidated Budget.*

FINAL ITEM NO. 3

Table 5 previously reflected an operating deficit of $1.896M. This table now reflects a budgeted deficit of $41.258M.

Table 15 previously forecasted a 2023-24 Cash and Cash Equivalents end of year balance of $11.569M; this is now updated to $12.207M. Table 16 previously forecasted a 2023-24 Net Financial Assets end of year balance of $1,731.929M; this is now updated to $1,692.567M.

Background

As part of the approval process to access the carryforward funds, the Government requested the university submit a list of projects and initiatives earmarked for funding from the carryforwards. The following projects were included:

- Faculty Initiatives
- IT Projects including those that will impact research, teaching, student experience, and data governance
- Administrative Model Sustainability
- Reputation and Awareness Campaign
- Institution-wide Intranet

The prioritized initiatives focus on university-wide priorities that have a positive, university-wide impact. Individually and as a collective these initiatives provide a much needed focus on faculty, staff, and student engagement, morale, and experience. The faculty initiatives provide opportunity for faculties to access their carryforwards to fund one-time faculty-specific projects. The process redesign and reengineering and technology initiatives are critical to solidifying the new operating model and sustaining the savings that were achieved under the Service Excellence Transformation project.

Risk Discussion / Mitigation of the Risk As acknowledged in the budget document, the University of Alberta is forecasting a consolidated budget deficit of $38.842M. This is due to the ability to access carryforward funds. As this is a one-time project-based request, focus on continuous operating efficiency, cost control, and revenue generation will continue to mitigate the risk of further in-year deficit.

Next Steps

1. Recommendation by the Board Finance and Property Committee via e-vote.
2. Approval by the Board of Governors, May 29, 2023.
3. Submission of the amended budget to the Government of Alberta on or before May 31, 2023.

Supporting Materials:

1. University of Alberta Fiscal Year 2023-24 Amended Consolidated Budget (25 pages) - link

UNIVERSITY OF ALBERTA

University of Alberta

Budget 2023-24

Amended - May 2023

Prepared by:
Resource Planning
Finance, Procurement and Planning

Date:
May 17, 2023

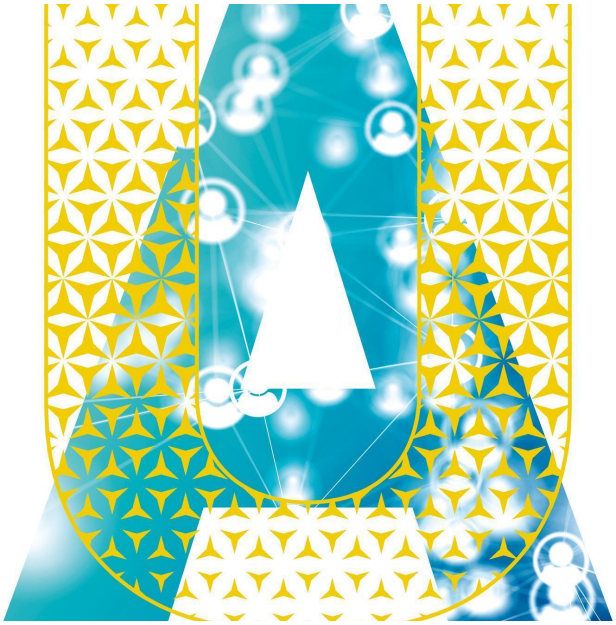


Table of Contents

1 Introduction

The University of Alberta's 2023–2024 budget has been developed with change adaptation at the forefront. The past three years required consistent flexibility in how the university operated, with some time spent operating primarily online–teaching, learning, and working remotely– and other time spent learning and working in-person. While we weathered striking cuts to our operating funding over the last four years, we have also worked within a new centralized service model to help us best deliver the university's missions.

During Fiscal Year 2022-23, the Targeted Enrolment Expansion funding of $48M over 3 years was committed to by the government and the University received the first installment of this funding. Although the University received this additional targeted funding, these sources of funds from the government are restricted to the intended programs for growth, this limits the ability for the University to grow outside of these targeted programs. Additionally while the Government of Alberta has signaled funding for the fourth year, the University does not have a formal grant confirmation.

Despite the challenges, we have come together as one university to work through these challenges and are emerging stronger for having done so. From a budget perspective; we have reduced our overhead costs by $102 million, and offset some of this reduction through increases in tuition and enrolments. These moves have positioned us competitively amongst our Canadian and global UniForum benchmark group.

To build a community that is forward-looking and continues to move as One University, we need a new budget model. To provide the time necessary to do this, the 2023–2024 budget used an incremental budget model to ensure that units receive the same base budget allocation that they received in the prior year as well as any directed new revenue sources.This will ensure we deliver a balanced budget in a year where we face increased costs due to inflation and in utilities costs. By designing and implementing a new model for Budget 2024-2025 we will start the move to a model that ensures the university's limited resources are directed in the best possible way to achieve its goals.

Our efforts to this point, and into the future, will continue to seek operating efficiencies. In doing so, we will allocate the maximum available dollars to our core missions of teaching, research, and community engagement. Overall, this budget helps further align our fiscal realities in support of the innovation and growth that will keep the university moving forward.

2 Consolidated Budget

The consolidated budget for the upcoming year, as well as projections for the following two years, are presented below and include all university activities.

Revised - Table 1: Consolidated Budget (2023-24, 2024-25, 2025-26)

($000's)	2021-22	2022-23		2023-24	2024-25	2025-26
	Actual	Budget	Forecast	Budget	Projection	Projection
Revenue (including deferrals)						
Government of Alberta grants	726,710	694,597	751,625	711,848	728,896	710,781
Federal and other government grants	212,289	216,784	200,053	224,579	225,855	228,788
Student tuition and fees	434,622	463,270	458,377	489,800	528,832	545,745
Sales of services and products	182,153	207,391	208,551	219,295	223,220	227,937
Donations and other grants	135,311	128,429	129,145	147,101	149,963	152,302
Investment income	176,489	101,787	123,825	111,375	109,361	112,458
Investment gain (loss) from government business enterprise	(554)	-	-	(3,870)	1,620	8,305
Gain on sale of tangible capital assets	34,917	-	-	-	-	-
Total revenue	**1,901,937**	**1,812,258**	**1,871,576**	**1,900,128**	**1,967,747**	**1,986,316**
Expense						
Salaries	891,931	880,851	894,366	924,637	944,244	955,430
Employee benefits	194,447	200,852	182,105	186,730	191,458	198,350
Materials, supplies and services	248,593	259,492	295,219	334,613	301,037	304,930
Scholarships and bursaries	150,100	158,191	161,937	175,871	181,599	185,781
Maintenance and repairs	73,800	93,023	93,494	84,857	72,920	74,519
Utilities	56,665	59,466	71,012	68,496	68,246	69,748
Amortization of tangible capital assets	156,133	160,030	159,031	163,766	171,045	173,293
Total expense	**1,771,669**	**1,811,905**	**1,857,164**	**1,938,970**	**1,930,549**	**1,962,051**
Annual operating surplus (deficit)	**130,268**	**353**	**14,412**	**(38,842)**	**37,198**	**24,265**

The Government requires that the university has a balanced budget on a consolidated basis for all fiscal years. This requirement is found in legislation. (Post-Secondary Learning Act, Subsection 78(6): "The board of a public post-secondary institution shall not submit a budget in which consolidated operating expense exceeds consolidated operating revenue unless the board has the written approval of the Minister to do so.").

Revised - Through the Provincial Budget, the Government of Alberta (GOA) permitted the University to submit a request to spend operating reserves ("carryforward funds") of up to 15% of its unrestricted balance for a total of $39.362M. As such, the amended fiscal year 2023-24 consolidated budget forecasts a deficit of $38,842M updated from the original $520K surplus.

Public Sector Accounting Standards (PSAS) require a budgeted Statement of Change in Net Financial Assets and a consolidated budget with expenses by function (the above representation is by object). Additionally, the government requires a consolidated Statement of Cash Flows. All of these statements are derived from the figures included in the consolidated budget. All these

statements will appear as comparatives in the institution's annual audited financial statements. Please refer to Appendix A for this information.

The consolidated budget for the institution includes the Operating, Ancillary, Research, Capital and Special Purpose funds.

- **Operating** relates to funds within the university's budget that represent the general operations of the institution. The revenue sources support the core teaching activities and the indirect costs of research. The university's budget process focuses on the allocation of these funds.
- **Ancillary** relates to cost recovery operations within the University of Alberta. These units are expected to be stand-alone enterprises funded by their own revenues. Major operations include residence and hospitality services, parking services and utilities.
- **Research** includes the annual spending allocation for research-related endowments and other research funding used in the direct pursuit of research endeavors. These are generally subject to restrictions and can only be used for the purposes for which the funds were provided.
- **Capital** includes both restricted and unrestricted funding used for major capital projects and large deferred maintenance projects.
- **Special Purpose** relates primarily to the Academic Medicine and Health Services Program (AMHSP), and the annual spending allocation for undergraduate student awards and non-research-related endowment funds held by the university. The AMHSP encompasses various specializations including medicine, pediatrics, family medicine and psychiatry.

The following is the 2023-24 consolidated budget segregated into the various funds identified above.

Revised - Table 2: Consolidated Budget by Fund (2023-24)

($000's)	Operating	Ancillary Operations	Research	Capital	Special Purpose	Total
Revenue (including deferrals)						
Government of Alberta grants	472,804	-	83,879	75,180	79,985	**711,848**
Federal and other government grants	23,504	-	182,464	18,611	-	**224,579**
Student tuition and fees	489,300	500	-	-	-	**489,800**
Sales of services and products	86,438	112,771	20,086	-	-	**219,295**
Donations and other grants	6,750	-	120,060	15,112	5,179	**147,101**
Investment income	30,000	10	56,189	-	25,176	**111,375**
Investment gain (loss) from government business enterprise	(3,870)	-	-	-	-	**(3,870)**
Gain on sale of tangible capital assets	-	-	-	-	-	**-**
Total revenue	**1,104,926**	**113,281**	**462,678**	**108,903**	**110,340**	**1,900,128**
Expense						
Salaries	668,387	21,606	177,852	-	56,792	**924,637**
Employee benefits	136,512	5,469	30,589	-	14,160	**186,730**
Materials, supplies and services	133,623	35,349	147,242	4,408	13,991	**334,613**
Scholarships and bursaries	60,072	-	95,375	-	20,424	**175,871**
Maintenance and repairs	27,078	20,330	2,137	35,238	74	**84,857**
Utilities	63,475	4,798	204	-	19	**68,496**
Amortization of tangible capital assets	57,037	13,447	-	93,282	-	**163,766**
Total expense	**1,146,184**	**100,999**	**453,399**	**132,928**	**105,460**	**1,938,970**
Annual operating surplus (deficit)	**(41,258)**	**12,282**	**9,279**	**(24,025)**	**4,880**	**(38,842)**

An overview for each individual fund follows, including the key assumptions used in the development of the budget and the projections for the following two years.

2.1 Operating Budget

The Government of Alberta released the 2023 provincial budget on February 28, 2023. The operating support grant has remained unchanged at $436.6M.

During the current fiscal year, the campus operated at close to pre-pandemic levels however some services are still slowly returning back to normal levels of operations. The university received additional funding from the government in the form of the Targeted Enrolment Expansion, however due to the limited nature of these funds, they did not help to address the significant cost pressures that the University faced during the year. Higher than normal inflationary costs as well as utilities resulted in unanticipated cost increases to the University which were largely unsupported by a corresponding increase in revenues.

The university continues to implement a proactive approach to managing budget reductions and rising costs. Rather than reacting to cuts in a distributed way after they have occurred, through the implementation of a new Budget Model, the institution is taking action now to address anticipated reductions in the year ahead and through pan-institutional actions.

2.1.1 Operating Revenues

2.1.1.1 Government of Alberta Grants

The institution received Operating Grant Funding of $436.6M for the 2023-24 fiscal year, which is consistent with the grant funding from the prior year. In its Budget 2022, the Government of Alberta announced that it will invest $171 million over three years to increase enrolment in high demand programs as part of the Alberta at Work initiative. The University received $48M with the first installment of its funding received in July 2022 of $8M and the second installment was announced to be $16M as part of the 2023-24 budget. As part of Budget 2023, the Government of Alberta announced $111 million of additional enrolment growth funding for post-secondary institutions. The University of Alberta anticipates receiving additional funding in enrolment growth funding for year 4 (fiscal year 2025-26).

2.1.1.2 Federal and Other Government Grants

The largest component of this category relates to the Federal Research Support Fund provided to the institution in order to support research grants provided by the Tri-Council agencies. The amount budgeted for the 2023-24 fiscal year is consistent with the amount forecast for 2022-23 of $21 million.

2.1.1.3 Student Tuition and Fees

Further details on the tuition increases are presented below for both undergraduate and graduate students for the 2023-24 fiscal year.

<u>Undergraduate</u>
Domestic student tuition rates will increase by 5.5% in the 2023-24 academic year, with 15% of this increase dedicated to student financial support. Domestic rates are projected to increase by 2% in 2024-25 and beyond, in line with the government's cap on tuition increases.

Incoming international students will continue to be assessed a fixed program fee averaged over the nominal duration of their academic programs ("program-based" tuition). This is consistent with the government's 2018 Tuition and Fees Regulation, which requires the university to provide international students with greater certainty in the cost of their education at time of admission. International program-based tuition rates will increase by 6% in the 2023-24 academic year. International program-based rates are projected to increase by an amount commensurate with the university's expected inflationary cost increases in 2024-25 and beyond.

Continuing international students admitted prior to Fall 2020 are excluded from the program-based tuition model. For these students, tuition rates will increase by 5.5% in 2023-24.

The current financial support set aside for both incoming and continuing international students will remain at 7.55% of total international student tuition. This model has been in place since the inception of international tuition differentials at the institution.

Graduate

Incoming domestic student tuition rates (both thesis-based and course-based) will increase by 5.5% in the 2023-24 academic year, with 15% of this increase dedicated to student financial support. Domestic rates are projected to increase by Alberta CPI in 2024-25 and beyond.

Tuition rates for continuing domestic and international students admitted prior to Fall 2020 will increase by 5.5% in the 2023-24 academic year. For continuing domestic and international thesis-based students admitted prior to Fall 2020, this will include a rebate to reduce the overall increase to 2.67% (representing the overall increase in the university's cost drivers); this rebate will be in place for four years starting in Fall 2020.

Incoming international students (both thesis-based and course-based) will continue to be assessed a fixed program fee averaged over the nominal duration of their academic programs ("program-based" tuition). This is consistent with the government's 2018 Tuition and Fees Regulation, which requires the university to provide international students with greater certainty in the cost of their education at time of admission. International program-based tuition rates will increase by 6% in the 2023-24 academic year. International program-based rates are projected to increase by an amount commensurate with the university's expected inflationary cost increases in 2024-25 and beyond.

The current financial support set aside for both incoming and continuing international students will remain at 7.55% of total international student tuition. This model has been in place since the inception of international tuition differentials at the institution.

Mandatory Non-Instructional Fees

The following increases to be implemented for 2023-24 will be in place for mandatory non-instructional fees:

- An increase of 4% to the Student Health and Wellness fee, Student Academic Support fee and the Athletics and Recreation fee.

2.1.1.4 Investment Income

The investment income budget for fiscal 2023-24 has been set at $30 million and then returns to $25 million in the 2024-25 and 2025-26 projection years. The increase in the upcoming fiscal year is only intended to be temporary as the university continues to review its reliance on investment income to fund ongoing expenditures on an annual basis. The recent rise in interest rates supports the increase in the investment income budget for 2023-24, but we do want to see at what level interest rates stabilize before committing to any increase in the budget for the outlying years.

2.1.1.5 All Other Sources of Revenues

Most of the revenue-generating units are projecting revenues far below Alberta's projected CPI (high inflation). The slow return to post pandemic levels has taken into account this budget which results in increased sales activity as compared to the prior fiscal year. It should be noted that even though sales are projected to increase, it will take another few years for operations to be fully at pre-pandemic levels.

2.1.2 Operating Expenditures

Operating expenditures are developed with the consideration of the increase in inflationary pressures that the University is experiencing as well as rising utilities costs. The expectation in the budget is that the largely in-person work and learning environment would mean an increase in operating expenses.

2.1.2.1 Compensation

Overall salaries are expected to change year over year reflecting two significant factors:

- Merit pay increase in salaries for existing staff.
- Across the board increases

Benefits rates are expected to increase by 1.4% in 2023-24, driven by increased government and self-insured plan costs, and partly offset by reduced pension contribution costs. Staffing levels have normalized and there are no further anticipated significant reductions.

2.1.3 Overall Budget Planning Assumptions

The above discussion provides insights into the assumptions and planning parameters used to develop the operating budget for the 2023-2024 fiscal year. The table below provides a summary of these, along with the similar figures used for the following two years.

Revised - Table 3. Assumptions and Planning Parameters

Revenue	**2023-24**	**2024-25**	**2025-26**
Operating and Program Support Grant (OPS)	0.0%	0.0%	0.0%
Capital Maintenance and Renewal Grant (CMR)	$36.7M	$36.7M	$36.7M
Tuition - Undergraduate Domestic	5.5%	2.0%	2.0%
Tuition Rates - Undergraduate International, Legacy	5.5%	4.0%	2.0%
Tuition Rates - Undergraduate International, Program-Based	6.0%	6.5%	2.0%
Mandatory Non-Instructional Fees	4.0%	2.0%	2.0%
Investment Income	$30M	$25M	$25M

Expenditures	**2023-24**	**2024-25**	**2025-26**
AASUA - ATB	1.9%	1.3%	TBN
AASUA - Merit	1.8%	1.8%	1.8%
NASA - ATB	2.1%	0.8%	TBN
NASA - Merit	1.0%	1.0%	1.0%
Graduate Students Association - ATB	1.9%	1.3%	TBN
Graduate Students Association - Merit	N/A	N/A	N/A
Post-Doctoral Fellows Association - ATB	1.9%	1.3%	TBN
Post- Doctoral Fellows Association - Merit	N/A	N/A	N/A
Excluded Management - ATB	2.1%	0.8%	TBN
Excluded Management - Merit	0.0%	0.0%	0.0%
Benefits	1.4%	2.5%	2.1%

Other key considerations in developing the institutional budget are the underlying sensitivities concerning major revenue sources and expenditure types. The following represent the key sensitivities.

Table 4. Key Budget Sensitivities

Sensitivity of a 1% change in:	2023-24 ($millions)
Government OPS Grant (Base)	4.4
Undergraduate Enrolment	2.9
Tuition Rates - Domestic	2.2
Tuition Rates - International, Program-based	0.5
Tuition Rates - Mandatory Non-Instructional Fees	0.4
Investment Income - 0.25% change in short-term interest rates	0.8
Salaries - AASUA	3.9
Salaries - NASA	2.0
Salaries - Excluded	0.6
Benefits - 1% change in Operating Staff Headcount	1.5
Utilities - $1 / GJ increase in natural gas prices	2.3

Table 5 provides an overall outline of the following in relation to the operating budget:

- Actual results for the year ending March 31, 2022
- Budget and forecast for the year ending March 31, 2023
- Budget for the year ending March 31, 2024
- Projections for the years ending March 31, 2025 and March 31, 2026

Revised - Table 5. Operating Budget

($000's)	2021-22	2022-23		2023-24	2024-25	2025-26
	Actual	Budget	Forecast	Budget	Projection	Projection
Revenue (including deferrals)						
Government of Alberta grants	508,309	456,463	464,830	472,804	480,423	456,554
Federal and other government grants	22,817	22,799	22,731	23,504	24,044	24,526
Student tuition and fees	434,282	462,705	458,176	489,300	528,322	545,225
Sales of services and products	82,475	84,942	83,073	86,438	88,426	90,194
Donations and other grants	5,618	6,250	5,400	6,750	6,905	7,043
Investment income	66,994	20,000	44,052	30,000	25,000	25,000
Investment gain (loss) from government business enterprise	(554)	-	-	(3,870)	1,620	8,305
Gain on sale of tangible capital assets	2,531	-	-	-	-	-
Total revenue	**1,122,472**	**1,053,159**	**1,078,262**	**1,104,926**	**1,154,740**	**1,156,847**
Expense						
Salaries	648,088	638,641	641,912	668,387	684,797	694,702
Employee benefits	148,223	152,901	133,940	136,512	140,471	146,992
Materials, supplies and services	81,886	71,707	87,724	133,623	95,538	97,310
Scholarships and bursaries	46,121	52,513	51,657	60,072	63,078	64,370
Maintenance and repairs	20,173	25,370	21,619	27,078	27,701	28,255
Utilities	52,061	54,829	65,300	63,475	63,124	64,524
Amortization of tangible capital assets	53,170	55,328	53,823	57,037	58,597	58,657
Total expense	**1,049,722**	**1,051,289**	**1,055,975**	**1,146,184**	**1,133,306**	**1,154,810**
Annual operating surplus (deficit)	**72,750**	**1,870**	**22,287**	**(41,258)**	**21,434**	**2,037**

2.2 Ancillary Enterprises

It is common for an institution as large and expansive as the University of Alberta to own and operate a number of ancillary enterprises operating as stand-alone units funded by self-generated revenues. At virtually every university, this would include enterprises such as parking, residences, and student and retail dining. Additionally, the University operates more specialized units including the Glen Sather Sports Medicine Clinic, the Technology Training Centre, the University Bookstore, a retail pharmacy, commercial property and real estate, and the District Energy System.

Each of these units is expected to generate revenue sufficient to cover operating costs as well as establish appropriate and adequate operating and capital reserves. Additionally, the university has established financial targets for these enterprises and, on an aggregate basis, they will be contributing $5.6 million to support the teaching and research objectives of the institution.

Last year, the Board approved dynamic pricing; a demand-based model, for parking on campus. While parking rates generally increase marginally every year, the highest-demand parking facilities on campus saw rates increase by anywhere from 10 to 22 percent – a practice that is very much the norm for higher-demand services. This shift brought in an additional $350K from permit holders alone plus that which was received from hourly and daily parkers visiting campus. Notwithstanding these increases, every available spot is still reserved with waiting lists that are longer than ever.

Each summer, the Lister complex transforms into Edmonton's largest hotel. It is very popular with groups involved in large sporting events on campus or just those looking for a relatively inexpensive place to stay. Regardless, with virtually all pandemic-related restrictions behind us, we are seeing great interest in our offerings and bookings are flowing in for this spring and summer.

The Bookstore is actively working toward designing and implementing a university-wide equitable access program through which, in return for a modest flat fee, students will have unfettered access to all of the books (primarily digital) necessary for their course load without having to worry about not being able to afford necessary resources. Students have told us repeatedly that cost certainty is of the utmost importance.

Table 6. Ancillary Budget

($000's)	2021-22	2022-23		2023-24	2024-25	2025-26
	Actual	Budget	Forecast	Budget	Projection	Projection
Revenue (including deferrals)						
Government of Alberta grants	-	-	-	-	-	-
Federal and other government grants	-	-	-	-	-	-
Student tuition and fees	340	565	201	500	510	520
Sales of services and products	79,861	104,157	101,736	112,771	114,307	116,846
Donations and other grants	5	-	-	-	-	-
Investment income	763	10	118	10	10	10
Investment gain (loss) from government business enterprise	-	-	-	-	-	-
Gain on sale of tangible capital assets	32,386	-	-	-	-	-
Total revenue	**113,355**	**104,732**	**102,055**	**113,281**	**114,827**	**117,376**
Expense						
Salaries	19,508	20,979	21,321	21,606	21,965	22,277
Employee benefits	4,735	5,331	4,983	5,469	5,661	5,805
Materials, supplies and services	24,158	32,169	30,840	35,349	35,617	36,866
Scholarships and bursaries	3	-	2	-	-	-
Maintenance and repairs	16,268	20,009	17,264	20,330	20,715	21,005
Utilities	4,417	3,863	5,211	4,798	4,894	4,992
Amortization of tangible capital assets	10,632	12,061	12,567	13,447	12,658	8,989
Total expense	**79,721**	**94,412**	**92,188**	**100,999**	**101,510**	**99,934**
Annual operating surplus (deficit)	**33,634**	**10,320**	**9,867**	**12,282**	**13,317**	**17,442**

2.3 Research

Research revenues at the University of Alberta come from five major sources:

- Government of Alberta grants from a number of Ministries (Jobs, Economy and Innovation, and Alberta Innovates)
- Federal government grants including those provided by the Tri-Council Agencies
- Fee-for-service research activities for outside entities
- Donations and nongovernmental grants
- The endowment spending allocation resulting from research-related endowments

Table 7. Research Budget

($000's)	2021-22	2022-23		2023-24	2024-25	2025-26
	Actual	Budget	Forecast	Budget	Projection	Projection
Revenue (including deferrals)						
Government of Alberta grants	68,629	67,723	117,565	83,879	84,838	85,500
Federal and other government grants	172,397	174,075	162,407	182,464	184,547	185,985
Student tuition and fees	-	-	-	-	-	-
Sales of services and products	19,795	18,169	23,742	20,086	20,487	20,897
Donations and other grants	108,394	98,347	105,601	120,060	121,454	122,431
Investment income	72,257	55,908	55,881	56,189	58,251	60,389
Investment gain (loss) from government business enterprise	-	-	-	-	-	-
Gain on sale of tangible capital assets	-	-	-	-	-	-
Total revenue	**441,472**	**414,222**	**465,196**	**462,678**	**469,577**	**475,202**
Expense						
Salaries	173,634	164,328	175,679	177,852	179,310	179,310
Employee benefits	29,864	28,447	31,583	30,589	30,840	30,840
Materials, supplies and services	117,156	125,245	145,394	147,242	150,439	153,779
Scholarships and bursaries	87,270	86,673	93,206	95,375	97,282	99,324
Maintenance and repairs	1,955	1,757	2,819	2,137	2,180	2,225
Utilities	187	774	501	204	209	213
Amortization of tangible capital assets	-	-	-	-	-	-
Total expense	**410,066**	**407,224**	**449,182**	**453,399**	**460,260**	**465,691**
Annual operating surplus (deficit)	**31,406**	**6,998**	**16,014**	**9,279**	**9,317**	**9,511**

2.4 Capital Budget

2.4.1 Capital Investments

While there are capital items purchased or funded with operating and other funds (such as learning materials, IT equipment, and certain research focused and renovation projects), the capital budget also incorporates construction projects and larger scale renewal and maintenance projects and equipment.

Throughout this section, it is important to note that the capital plan and the resulting capital budget are developed as "point-in-time" items. Due to the unpredictable nature with which capital construction and maintenance activities occur (e.g. impacts due to COVID-19 or unpredictability in government grants and approvals or unexpected philanthropic gifts), capital projects may be added or changed in scope throughout the year. All material changes, regardless of when they occur, remain subject to the institution's normal governance and approval processes.

The capital budget included within the University of Alberta's consolidated budget is subject to complex financial accounting requirements. The figures throughout the capital budget have been restated for the purposes of being presented within the institution's audited financial statements.

2.4.2 Capital Budget Development

The university is required by legislation to develop an annual capital and maintenance plan and, further, identify its capital requirements in a submission to the Government of Alberta through the Building and Land Infrastructure Management System (BLIMS). Recent submissions, the latest submitted in June 2022, included a number of priorities with an acute focus on renewing and refurbishing existing buildings. The following capital budget is reflective of the information contained within both the capital plan (current year projects only) and the BLIMS submission.

2.4.3 Capital Budget

Table 8. Capital Budget

($000's)	2021-22	2022-23		2023-24	2024-25	2025-26
	Actual	Budget	Forecast	Budget	Projection	Projection
Revenue (including deferrals)						
Government of Alberta grants	75,221	91,431	93,163	75,180	81,817	85,742
Federal and other government grants	17,075	19,910	14,915	18,611	17,264	18,277
Student tuition and fees	-	-	-	-	-	-
Sales of services and products	-	-	-	-	-	-
Donations and other grants	16,352	19,770	14,363	15,112	16,166	17,115
Investment income	437	700	700	-	-	-
Investment gain (loss) from government business enterprise	-	-	-	-	-	-
Gain on sale of tangible capital assets	-	-	-	-	-	-
Total revenue	**109,085**	**131,811**	**123,141**	**108,903**	**115,247**	**121,134**
Expense						
Salaries	-	-	-	-	-	-
Employee benefits	-	-	-	-	-	-
Materials, supplies and services	8,880	16,561	17,185	4,408	5,080	2,380
Scholarships and bursaries	-	-	-	-	-	-
Maintenance and repairs	35,364	45,739	51,752	35,238	22,248	22,956
Utilities	-	-	-	-	-	-
Amortization of tangible capital assets	92,331	92,641	92,641	93,282	99,790	105,647
Total expense	**136,575**	**154,941**	**161,578**	**132,928**	**127,118**	**130,983**
Annual operating surplus (deficit)	**(27,490)**	**(23,130)**	**(38,437)**	**(24,025)**	**(11,871)**	**(9,849)**

As part of Government of Alberta grants, the University of Alberta received $36.7 million for capital maintenance and renewal in 2023-24.

Due to the nature of Public Sector Accounting Standards that govern our audited financial statements, we have the added complexity of revenue deferrals. In essence, a large portion of the revenue in the capital fund cannot be recognized until the underlying expenses (predominantly amortization of tangible capital assets) have been incurred. In order to remove this impact, the following four tables provide a view of the capital budget for next year on a “near cash” basis.

Capital budget - Revenues

Historically, Government of Alberta grants have provided targeted funding for multi-year capital projects (e.g. University Commons renewal). Additionally, capital maintenance and renewal funds are provided to address critical maintenance needs across the institution, principally by reducing our significant deferred maintenance liability. The following table provides an outline of revenue on a cash basis.

Please note that the following table shows when the revenue will be received by the institution whereas subsequent tables outline when the funds will be either spent (tables 10 and 11) or the resulting asset is capitalized (table 12).

Table 9. Capital Budget Revenues

($000's)	2023-24 Budget	2024-25 Projection	2025-26 Projection
Provincial Government Grants			
Capital Maintenance and Renewal (CMR)	36,694	36,694	36,694
Subtotal	**36,694**	**36,694**	**36,694**
Other Projects	6,900	-	-
Total revenue	**43,594**	**36,694**	**36,694**

Capital Budget: Materials, Supplies, and Services

These are expenditures related to projects across our campuses. These costs are expensed as they do not extend the useful life of the buildings. The following table outlines materials, supplies and services to be used within the capital fund.

Table 10. Capital Budget: Materials, Supplies, and Services

($000's) Project	2023-24 Budget	2024-25 Projection	2025-26 Projection
Alberta High Containment Research Infrastructure	600	4,500	1,800
Biological Sciences Renewal	550	-	-
South Campus Tennis Courts	2,426	-	-
Other MSS	832	580	580
Total materials, supplies and services	**4,408**	**5,080**	**2,380**

Capital Budget: Maintenance and Repairs

These are expenditures related to addressing major maintenance and renewal projects and/or deferred maintenance across campus. These costs are expensed as they do not extend the useful life of the buildings. The following table outlines maintenance and repair projects planned within the capital fund.

Table 11. Capital Budget: Maintenance and Repairs

($000's)

Project	2023-24 Budget	2024-25 Projection	2025-26 Projection
Agriculture Forestry/GSB Link Roof Repair/Replacement	-	-	2,000
Biological Sciences Air Handling Unit	150	1,500	-
Biological Sciences Genetics Switchgear Replacement	1,000	-	-
College of Health Sciences	1,500	500	-
College of Natural and Applied Sciences	1,500	500	-
CSJ Library Digital Learning Classrooms	1,000	-	-
ECERF Nano Fab Lab Ventilation Upgrade and Renewal	1,439	-	-
Education South First People's House	2,000	1,000	-
Health Sciences Library ECHA Integration	1,931	-	-
NINT Roof Repairs/Replacement	-	-	2,000
NREF Roof Replacement	-	2,000	-
Peter Lougheed Hall Dining Hall Expansion	1,250	1,675	975
Residence- Upgrade Alarms, Electrical Panel	5,635	5,450	6,628
SAB Elevator Replacement	-	100	1,000
School of Business Student Collaboration Space	1,250	-	-
Other Maintenance and Repairs	16,583	9,523	10,353
Total maintenance and repairs	**35,238**	**22,248**	**22,956**

Capital Budget: Tangible Capital Acquisitions

Major renewal projects often involve both repairs and maintenance in addition to capital investments and/or overall building improvements. The following projects represent capital investments to buildings as defined by accounting standards. In this case, the expenditures do not appear on the Statement of Operations; rather they are captured as investments in tangible capital assets on the university's Statement of Financial Position.

Table 12. Capital Budget: Tangible Capital Acquisitions

($000's)

Project	2023-24 Budget	2024-25 Projection	2025-26 Projection
Athabasca Hall Electrical Upgrade	1,081	-	-
BARB Mechanical Ventiliation Upgrade	2,000	1,100	-
Biological Sciences Zoology Wing Wet Lab Modernizatior	10,750	15,000	-
Boiler #4 Burner Management System Replacement	1,450	-	-
Chemistry Centre East Roof Repair/Replacement	-	-	2,000
Chemistry East Exhaust Fan System	2,910	-	-
Chemistry West Fan Wall Replacement	2,959	-	-
Computing Science High Voltage Buildings Replacement	1,586	-	-
Cooling Plant River Water Intake Piping Repair	3,082	-	-
CSJ Electrical Vault	3,273	-	-
Dentistry Pharmacy Renewal & Repurpose	36,395	42,231	-
District Energy System (DES)	4,443	-	-
Install Backflow Preventers (50 Buildings)	-	1,500	-
RTF Decant Interior Renewals	2,000	-	-
Rutherford Complex Electrical Vault Replacement	-	500	7,000
SUB Mechanical (Steam Station, Heat Exchangers)	-	-	2,000
SUB New Electrical Vault	3,398	-	-
Tory Business Atrium Skylight Renewal	7,623	-	-
Tory Fan Wall Replacement	-	400	2,000
Tory Service Vault Replacements	-	500	4,500
Tory Tower Mechanical Upgrade	1,117	-	-
University Terrace Changeout Existing Simplex Panel	-	-	1,000
Other Capital Projects	9,936	2,240	4,890
Total tangible capital acquisitions	**94,003**	**63,471**	**23,390**

2.4.4 Deferred Maintenance

Excellence in teaching and research is only possible with well-functioning labs, classrooms, and other building infrastructure. Unfortunately, government grants alone have been insufficient in addressing the necessary maintenance activities across our campuses, which has resulted in a substantial deferred maintenance liability. As of March 1, 2023, the deferred maintenance liability for supported infrastructure stands at $319 million, with a five-year projected aggregate liability of $1 billion.

Because the need vastly exceeds the available resources, a diligent adherence to a system of prioritizing projects is crucial. Relying on Government of Alberta parameters, priorities are as follows:

- High – life, health, and safety: Elements presenting a potential for imminent risk to the life, health, and/or safety of facility occupants and users. They include risk of failure of structural supports or major building systems and requirements under a multitude of building codes.

- Medium – immediate needs: Elements demanding attention to prevent them escalating to the highest priority, which will lead to serious or prolonged deterioration of a facility or its systems thereby affecting the operability of a facility or its systems.

- Low – general need: Elements that are non-urgent and which can be planned for over a period of time without undue risk to the facility occupants or facility operability.

Current and projected funding levels require investments in addressing deferred maintenance at the University of Alberta to be limited almost exclusively to those deemed “high” priority.

2.5 Special Purpose

This fund is funded by endowment investment income available for spending, donations and grants. Expenditures include scholarships and bursaries, student loans and other projects involving teaching and public service.

Forward looking analysis indicates that there are no expected significant changes impacting these funds over the next three years aside from the expectation that spending on materials, supplies and services is expected to remain relatively stable.

Table 13. Special Purpose Budget

($000's)	2021-22	2022-23		2023-24	2024-25	2025-26
	Actual	Budget	Forecast	Budget	Projection	Projection
Revenue (including deferrals)						
Government of Alberta grants	74,551	78,980	76,067	79,985	81,818	82,985
Federal and other government grants	-	-	-	-	-	-
Student tuition and fees	-	-	-	-	-	-
Sales of services and products	22	123	-	-	-	-
Donations and other grants	4,942	4,062	3,781	5,179	5,438	5,713
Investment income	36,038	25,169	23,074	25,176	26,100	27,059
Investment gain (loss) from government business enterprise	-	-	-	-	-	-
Gain on sale of tangible capital assets	-	-	-	-	-	-
Total revenue	**115,553**	**108,334**	**102,922**	**110,340**	**113,356**	**115,757**
Expense						
Salaries	50,701	56,903	55,454	56,792	58,172	59,141
Employee benefits	11,625	14,173	11,599	14,160	14,486	14,713
Materials, supplies and services	16,513	13,810	14,076	13,991	14,363	14,595
Scholarships and bursaries	16,706	19,005	17,072	20,424	21,239	22,087
Maintenance and repairs	40	148	40	74	76	78
Utilities	-	-	-	19	19	19
Amortization of tangible capital assets	-	-	-	-	-	-
Total expense	**95,585**	**104,039**	**98,241**	**105,460**	**108,355**	**110,633**
Annual operating surplus (deficit)	**19,968**	**4,295**	**4,681**	**4,880**	**5,001**	**5,124**

3 Concluding Comments

The nature of our funding is changing and Budget 2023-2024 supports our commitment to staying agile and adapting to our changing environment. Our community has shown considerable ingenuity and resilience over the past several years, and this budget represents our shift toward continued growth. We continue to seek operational efficiencies to best support core missions while also driving innovation to build the University of Alberta of the future.

Appendix A: Supplemental Financial Information

Revised - Table 14. Budget Consolidated Statement of Operations with Expenses by Function

($000's)	2021-22	2022-23		2023-24	2024-25	2025-26
	Actual	Budget	Forecast	Budget	Projection	Projection
Revenue (including deferrals)						
Government of Alberta grants	726,710	694,597	751,625	711,848	728,896	710,781
Federal and other government grants	212,289	216,784	200,053	224,579	225,855	228,788
Student tuition and fees	434,622	463,270	458,377	489,800	528,832	545,745
Sales of services and products	182,153	207,391	208,551	219,295	223,220	227,937
Donations and other grants	135,311	128,429	129,145	147,101	149,963	152,302
Investment income	176,489	101,787	123,825	111,375	109,361	112,458
Investment gain (loss) from government business enterprise	(554)	-	-	(3,870)	1,620	8,305
Gain on sale of tangible capital assets	34,917	-	-	-	-	-
Total revenue	**1,901,937**	**1,812,258**	**1,871,576**	**1,900,128**	**1,967,747**	**1,986,316**
Expense by function						
Academic costs and institutional support	985,683	975,895	966,906	1,047,640	1,043,926	1,067,095
Research	467,814	474,556	513,896	520,820	528,819	536,056
Facility operations and maintenance	141,493	161,439	181,633	159,811	143,563	143,806
Special purpose	96,958	105,603	102,541	109,700	112,731	115,160
Ancillary services	79,721	94,412	92,188	100,999	101,510	99,934
Total expense	**1,771,669**	**1,811,905**	**1,857,164**	**1,938,970**	**1,930,549**	**1,962,051**
Annual operating surplus (deficit)	**130,268**	**353**	**14,412**	**(38,842)**	**37,198**	**24,265**

Please note that the groupings used for Special Purpose and Research are slightly different than those used for the development of the overall budget. In particular, special purpose includes the attribution of amortization in this presentation where it does not in the tables above. Research in this context also includes costs related to the administration of research and costs related to graduate studies.

Revised - Table 15. Budget Consolidated Statement of Cash Flows

($000's)	2021-22	2022-23		2023-24
	Actual	Budget	Forecast	Budget
Operating Transactions				
Annual surplus (deficit)	149,516	353	41,200	(38,842)
Add (deduct) non-cash items:				
Amortization of tangible capital assets	160,165	160,030	159,031	163,766
Expended capital recognized as revenue	(92,331)	(92,641)	(92,641)	(93,282)
Investment loss from government business enterprise	554	-	-	3,870
(Gain) loss on sale of portfolio investments	(163,557)	(101,060)	(123,051)	(111,336)
(Gain) loss on disposal of tangible capital assets	(30,059)	-	-	-
Increase (decrease) in employee future benefit liabilities	(476)	3,644	(12,472)	(11,136)
Increase (decrease) in asset retirement obligations	20	-	21	22
Change in non-cash items	(125,684)	(30,027)	(69,112)	(48,096)
(Increase) decrease in accounts receivable	(2,817)	(2,789)	(4,748)	(3,321)
(Increase) decrease in inventories held for sale	394	(68)	(100)	(70)
Increase (decrease) in accounts payable and accrued liabilities	17,559	3,896	7,041	4,925
Increase (decrease) in deferred revenue	75,526	(43,522)	43,886	(58,340)
(Increase) decrease in prepaid expenses	(2,527)	(197)	(413)	(289)
Cash provided by (applied to) operating transactions	111,967	(72,354)	17,754	(144,033)
Capital Transactions				
Acquisition of tangible capital assets	(143,573)	(195,581)	(195,581)	(162,763)
Cash applied to capital transactions	(143,573)	(195,581)	(195,581)	(162,763)
Investing Transactions				
(Purchases) of portfolio investments, net of sales	(144,809)	143,250	68,416	200,420
Cash provided by (applied to) investing transactions	(144,809)	143,250	68,416	200,420
Financing Transactions				
Debt - new financing, net of (debt repayment)	(5,651)	(17,336)	(17,941)	(17,180)
Increase in spent deferred capital contributions	104,941	131,548	131,551	112,381
Cash provided by financing transactions	99,290	114,212	113,610	95,201
Increase (decrease) in cash and cash equivalents	(77,125)	(10,473)	4,199	(11,175)
Cash and cash equivalents, beginning of year	96,308	10,739	19,183	23,382
Cash and cash equivalents, end of year	19,183	266	23,382	12,207

Revised - Table 16. Budget Consolidated Statement of Change in Net Financial Assets

($000's)	2021-22	2022-23		2023-24
	Actual	Budget	Forecast	Budget
Annual (deficit) surplus	149,516	353	41,200	(38,842)
Acquisition of tangible capital assets	(197,122)	(195,581)	(195,581)	(162,763)
Proceeds on disposal of tangible capital assets	48,569	-	-	-
Amortization of tangible capital assets	160,165	160,030	159,031	163,766
(Gain) loss on disposal of tangible capital assets	(30,059)	-	-	-
Change in prepaid expenses	(2,527)	(197)	(413)	(289)
Change in spent deferred capital contributions	17,590	38,907	38,910	19,099
Change in accumulated remeasurement gains	4,914	82,844	50,921	96,545
Increase (decrease) in net financial assets	**151,046**	**86,356**	**94,068**	**77,516**
Net financial assets, beginning of year	**1,369,937**	**1,719,142**	**1,520,983**	**1,615,051**
Net financial assets, end of year	**1,520,983**	**1,805,498**	**1,615,051**	**1,692,567**

UNIVERSITY OF ALBERTA

FINAL ITEM NO. 4

Decision ☒ Discussion ☐ Information ☐

ITEM OBJECTIVE: To approve the creation of the new academic Water Research Centre (WRC) in the Faculty of Engineering

DATE	17 May 2023
TO	GFC Academic Planning Committee
RESPONSIBLE PORTFOLIO	Vice-President (Research and Innovation)

MOTION: That the GFC Academic Planning Committee approve, with delegated authority from General Faculties Council, the creation of the Water Research Centre (WRC), effective upon approval.

EXECUTIVE SUMMARY:

Background
This proposal has emerged from the expertise in various aspects of water that has developed over many years in the Department of Civil and Environmental Engineering, and it will involve researchers from other Faculties (ALES, Science and Public Health). The research focus of the Water Research Centre will be on the development of innovative, effective and low-energy treatment strategies for improving the management of municipal and industrial wastewater. This will have a positive impact on both human health and the environment. Particular attention will be paid to developing processes adapted to Arctic conditions and tailored for Indigenous, remote and rural communities. The Water Research Centre is designed to build on and increase synergies among a number of current water-related initiatives at the University, including several NSERC Industrial Research Chair programs and a Canada Research Chair.

Analysis / Discussion
The Centre will bring together researchers whose collective focus will be in three areas of fundamental and applied research: 1) Water supply; 2) Water demand, treatment and reuse; and 3) Water infrastructure. WRC's objective is to strengthen the critical mass of people and expertise required to propel the University into a global leadership position in water-related research. The work of WRC will directly contribute to the objectives of the University's Indigenous Strategic Plan and the Strategic Plan for Equity, Diversity and Inclusion. Once they are finalized, it will also support the objectives of the forthcoming University Strategic Plan and the Strategic Plan for Research and Innovation.

The role of the Centres and Institutes Committee (CIC) is to work with individuals intending to bring proposals forward for the establishment of Centres or Institutes, to review and comment on drafts of the proposed Centre or Institute, and, when satisfied with the proposal, to recommend approval of the proposal to APC (for all academic Centres and Institutes).

Staff in the Office of the Vice-President (Research and Innovation) have worked with the proponents of the proposal, primarily Dr Mohamed Gamal El-Din, for a number of months while

the proposal has been finalized. Members of the Centres and Institutes Committee provided feedback to Dr Gamal El-Din, and the proposal was revised accordingly. The Centres and Institutes Committee is recommending that APC approve the establishment of the Water Research Centre as an academic centre.

Where applicable, list the legislation that is being relied upon
Post-Secondary Learning Act (PSLA)
UAPPOL Centres and Institutes Policy
UAPPOL Academic Centres and Institutes Establishment Procedure
UAPPOL Academic Centres and Institutes Operation Procedure
GFC Academic Planning Committee Terms of Reference

Next Steps
Once approval for the Centre has been received, the appointment of the Director (Mohamed Gamal El-Din) and the Associate Director (Evan Davies) will be confirmed.
Work will continue on establishing an overarching umbrella for the various areas of water research to increase their connections to each other, so that the Water Research Centre moves towards fulfilling its vision.
The governance structure will be formalized and populated, and other operational plans will be initiated.
Engagement with industry will be increased, focusing on opportunities for leveraging collaboration and funding.
Planning for HQP programs will be finalized, and in addition to involvement in cutting-edge engineering and science, this could include opportunities for trainees to interact with industry and commercial entities, governments and utilities.

Supporting Materials:
Proposal for the establishment of the Water Research Centre in the Faculty of Engineering (40 pages)

***See Schedule A for additional items to include if needed.**

SCHEDULE A:

Engagement and Routing

Consultation and Stakeholder Participation / Approval Route (parties who have seen the proposal and in what capacity) <*Governance Resources Section Student Participation Protocol*>

*Those who are actively **participating**:* ● Members of the Centres and Institutes Committee ● Mohamed Gamal El-Din, Professor, Department of Civil and Environmental Engineering
*Those who have been **consulted include**:* ● Centres and Institutes Committee (CIC) ● Simaan AbouRizk, Interim Dean of Engineering

- Samer Adeeb, Interim Chair, Department of Civil and Environmental Engineering
- Stephen Stanley, Senior Vice-President, Drainage Services, EPCOR
- Cory Enns, Director, River Engineering and Technical Services, Alberta Environment and Parks
- Margo Jarvis Redelback, Executive Director, Alberta Irrigation Districts Association
- Professor Ahmed Allafi, Vice Dean of Academic Affairs, Kuwait University
- Ana Laplaza, Research Director, ExxonMobil Research Qatar
- Vicki Lightbrown, Director, Water Innovation Program, Alberta Innovates
- John Brogly, Director, Water, Canada's Oil Sands Innovation Alliance (COSIA)

*Those who have been **informed**:*

-

Approval Route:

Centres and Institutes Committee - Recommendation to APC for approval

APC - For final approval

Supplementary Notes / Context:

Prepared by Katharine Moore, Office of the Vice-President (Research and Innovation), katharine.moore@ualberta.ca

University of Alberta Template for Proposals to Establish New Academic Centres and Institutes

Proposers will complete and submit this template to the Office of the Provost for approval in accordance with UAPPOL Policy. This template may be used in two ways:

1) **As a cover document attached to a completed proposal which has already been approved by the University for submission for external funding. In this case, the template must present the academic arguments for establishing an academic centre or institute, and provide required information that is absent from the original proposal.**
2) **As an expandable template to be completed. In this case, the completed template may be up to 8 to 10 pages in length (not including letters of support or other appendices relevant to the proposal).**

Before developing a proposal and completing this template, please contact the Office of the Provost to discuss the scope of the proposed initiative and to discuss steps for review under the UAPPOL Centres and Institutes Policy, as well as associated procedures for academic centres and institutes – www.uappol.ualberta.ca .

1.	**Faculty Dean Signature** **Signature:** **Date:**
2.	**Name of the Proposed Centre or Institute** **Water Research Centre**
3.	**Academic Justification for Establishment of a Centre or Institute** • Define the vision and purpose of the proposed unit • Demonstrate that the proposed Centre/Institute does not duplicate other efforts at the University • Document the emerging or established excellence of the group of faculty involved, and describe how the proposed Centre or Institute will position the University of Alberta as a national and international leader **VISION AND PURPOSE:** The Department of Civil and Environmental Engineering encompasses a group of faculty members who are conducting world-class research that explores a range of water-related and societal/planning issues. In alignment with the strategic research priorities of both the University of Alberta and the Faculty of Engineering, a research centre dedicated to building upon these strengths is being proposed. The proposed centre will be named the **Water Research Centre (WRC).** The **vision** of WRC is to become an internationally-recognized centre for knowledge and development of integrated, innovative, and sustainable strategies to address issues related to water supply; water demand, treatment, and reuse; and water infrastructure. The WRC aims to strengthen the critical mass required to propel the University into a global leadership position in water-related research. The **purpose** of the WRC will be to: • Provide integrated solutions to critical water-related problems; • Catalyze and coordinate water research across the University of Alberta; • Collaborate with national and international institutions, governments, and academia on fundamental and applied research;

- Develop a water-related network by connecting regional and global water experts and practitioners with academics from different disciplines;
- Maximize the benefits of research through effective knowledge and technology transfer through workshops, seminars, and short courses;
- Provide training opportunities for students, postdoctoral fellows, and water professionals and provide support for the next generation of water leaders; and
- Facilitate the knowledge transfer from academia to water industries.

RESEARCH AREAS:

The WRC will be dedicated to fundamental and applied research in three areas (Figure 1):

- **Water supply,** including hydrology (natural water cycle), water treatment and distribution, rural water supply, and surface, and groundwater quality;
- **Water demand, treatment, and reuse,** including municipal use, industrial and commercial water use, agricultural water use, and wastewater and stormwater treatment and reuse; and
- **Water infrastructure,** including water conveyance (surface and pipelines) and storage (reservoirs), urban drainage, and stormwater management.

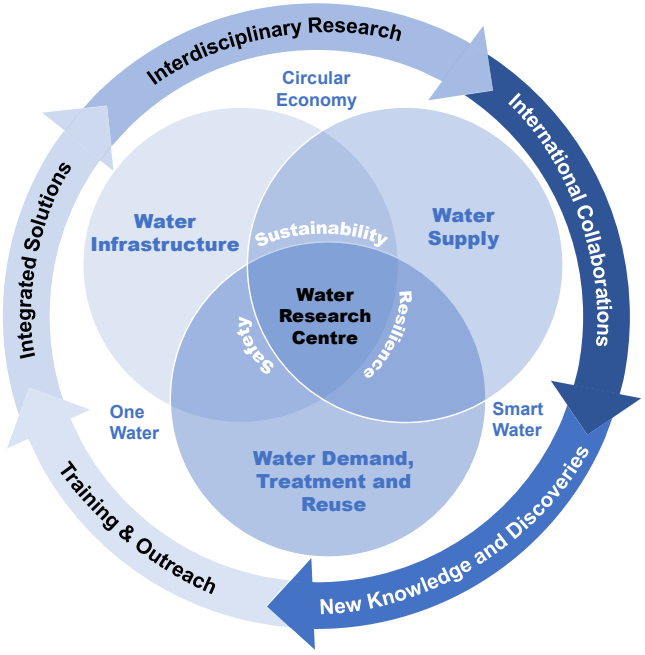


Figure 1. Primary research areas of the Water Research Centre (WRC).

Water Supply:

Sources of water supply include surface water, groundwater, and treated wastewater. Factors affecting water supply include climate change, geology, pollution, land use and land cover, population growth, and technology—among other factors. Water supply is ultimately determined by hydrological factors. Research in the area of water supply will assess potential changes in regional hydrology under climate and land use changes (both in terms of flow volumes and their timing) using statistical methods, hydrological models, and big data methods. Further, water pollution is a significant factor that affects water supply and the water cycle. As such, this research area will aim to develop secure water systems through integrated technology development for water treatment and distribution, water and energy conservation, pollution control, and water quality protection. Scales of interest range from wastewater plants to watersheds.

Water Demand, Treatment, and Reuse:
Current and future municipal, agricultural, and industrial water demands are relatively uncertain; however, effective management requires a deep understanding of these needs. As such, the use of advanced technologies and the adoption of robust management models are needed to better anticipate and plan for such water demands. Research in this area will, therefore, collect and analyze data on water use, develop water management tools, and project short- to long-term water demands.

Once used, water requires treatment. Research within the WRC will focus on the development of effective, innovative, and low-energy treatment strategies for better managing municipal and industrial wastewater, aiming to protect both human and environmental health. The objective is to convert waste treatment systems into resource recovery centres, enabling low-cost production of water that offsets demands for high-quality water; energy production that offsets fossil fuel demands; and nutrient recovery that offsets fertilizer demands. Special attention will focus on the development of processes adapted to Arctic conditions and tailored to remote, rural, and Indigenous communities.

Effluents released from wastewater treatment plants contain contaminants of emerging concern, such as pesticides, personal care products, and pharmaceuticals. Moreover, the introduction of engineered nanomaterials from consumer products poses new questions about their fate and environmental and health effects. As such, research will focus on the application of advanced water treatment methods (such as solar-based advanced oxidation processes for micropollutant control and water reuse), the development of cutting-edge green materials from waste, and the development of green water treatment systems relying on renewable energy to target a wide range of contaminants.

Integrated approaches to reduce water consumption and minimize communities' footprints are lacking. The WRC will bridge this gap by developing holistic approaches that promote the elimination of waste, safe use of natural resources, sustainable use of water, and recycling and reuse of existing materials and products. This is expected to accelerate the applications of emerging treatment technologies while promoting a circular economy in the water sector. Through these systemic approaches, the WRC will support interdisciplinary engagement and collaboration with government, community, industry, and academia to better understand the interactions between the environment and water resources across sectors and ensure the adoption of improved methods.

The development and implementation of smart water and waste systems technologies will also be targeted. These smart systems not only help to improve efficiency and sustainability performance but can also lead to more sustainable water services. The integration of smart waste management can be a potential step toward 'zero waste' approaches.

Water Infrastructure:
The WRC will include both municipal and rural infrastructure. For municipalities, research will address the sustainable development of water-related infrastructure, such as sustainable smart and resilient urban distribution and drainage systems, and integrated urban water (one-water) management. For rural areas, research will focus on reservoir management for agriculture, hydropower, and water supply, and improved flood risk mitigation and flood management. Recent floods in Alberta, British Columbia, and Manitoba have highlighted the need to study both structural and non-structural methods for flood management, as well as the need for methods that range from property-level mitigation to watershed-level planning studies.

RELATIONSHIP TO OTHER UofA INITIATIVES:
The Department of Civil and Environmental Engineering has a history of globally-recognized water resources, with many of its research clusters identified as areas of research excellence in the Strategic Plan of the University. The WRC does not duplicate other initiatives within the Department, Faculty, or University. Rather, the WRC is being developed to provide synergies between existing initiatives, including the:

	• Future Energy Systems (FES) Theme on Resilient Reclaimed Land and Water Systems; • NSERC Industrial Research Chair (IRC) in Oil Sands Tailings Water Treatment; • NSERC IRC in Sustainable Urban Water Development; • NSERC IRC in Urban Drainage; • Canada Research Chair in Future Community Water Services; and • Nanofibre Chair in Forest Products. These initiatives, and other research programs by faculty members included in the WRC (**Appendix A**), offer an exceptional foundation for the WRC through established industry and government connections. **FACULTY EXCELLENCE:** The WRC will encompass an integrated team of researchers from the Department of Civil and Environmental Engineering, as well as investigators from other departments and faculties including the Faculty of Agricultural, Life and Environmental Sciences (ALES); School of Public Health; and Departments of Biological Sciences, Earth and Atmospheric Sciences, and Computing Sciences. Members from the Faculty of Engineering are well-established researchers and educators, including three NSERC IRCs and one Canada Research Chair (CRC), as detailed in (**Appendix A**)**.** Each faculty member has a long history of multisector collaborations with industry, government, and academia, and all have proven success in research, mentoring, and training. By bringing together expertise from different water research areas and leveraging collective resources, WRC will create one of the largest centres in water research in North America. Moreover, the WRC will address water-related challenges through new knowledge, innovative technologies, collaborative interdisciplinary scientific research, networking, training, and capacity development. Potential industries/sectors to be involved include municipalities and First Nations, utilities, oil sands operators, government ministries (AEPA, AGI, AER, NRCAN, ECCC, and AAFC), the construction industry, water resources consultants, technology-development companies, water treatment utility companies, and water planning and advisory councils (WPACs). Collaboration with municipalities and agencies outside the province will also be considered. The WRC will have an international component to exchange ideas, collaborate on research in water solutions, and provide mobility to offer a high-quality international experience to students, faculty, and partner institutions. The international component will also provide outreach, research dissemination, and international recognition to the WRC. These partnerships will be instrumental for the dissemination of expert knowledge among researchers and, importantly, for the mentorship of many junior faculty and students. These partnerships will help build a network of support, conduct research of global impact, and greatly enhance the University of Alberta's chances of attracting and retaining the best and brightest talent and delivering world-leading water research.
4.	**Provide a statement of the priority of the proposed centre or institute within the overall priorities of the Faculty and/or the University of Alberta. Include a statement of benefits the University of Alberta could expect to receive through creation of the proposed centre or institute, including benefits to students.** The University of Alberta is a leading institution in energy-related research, and water is an essential theme in this research area. Through multidisciplinary research approaches; interdisciplinary engagement; and collaboration with government, community, industry, and academia, the WRC will provide solutions for water-related issues and will help achieve the critical mass required to propel the University of Alberta into a global leadership position in water-related solutions. The WRC will align with and support the University of Alberta's Institutional Strategic Plans, including

the *Braiding Past, Present and Future: University of Alberta Indigenous Strategic Plan* and the *EDI Strategic Plan*. Guided by the *University of Alberta's Indigenous Strategic Plan*, we will undertake meaningful and collaborative engagement with Indigenous groups throughout our research. To provide sustainable water systems, we will engage with Indigenous communities throughout our research programs to integrate our scientific expertise within community needs and knowledge. Our approach will focus on five major areas, including the understanding of Indigenous values, incorporation of the viewpoints of Indigenous Peoples, involvement of Indigenous researchers, dissemination of knowledge, and engagement. To align with the University of Alberta Strategic Plan, *Equity, Diversity, and Inclusion* will be critical components for the success of the WRC that will benefit all in the Canadian and global research environment. As such, we will implement practices that will ensure that team members from underrepresented groups are supported and integrated.

The WRC will establish a unified umbrella that will increase the support for our existing and new water-related initiatives at the University of Alberta. The strength and impact of WRC will lie in the effective sharing of knowledge, by establishing more interdisciplinary links between disciplines and the intersection of different areas of expertise with other faculties at the University of Alberta as well as collaborations nationally and internationally. In addition, the WRC will provide the advantage of industry participation, funding, and exploitation of research, further enhancing the WRC's reputation.

One of the main purposes of the WRC is to provide training opportunities for students and postdoctoral fellows. The highly qualified personnel (HQP) will be able to hone the transferable skills needed for their engineering careers. Moreover, the WRC will provide HQP not only the opportunity to integrate cutting-edge science and engineering but also to interact with industrial and commercial entities, government agencies, utilities, and other groups, facilitating their transfer into a career setting. The trainees will gain unique experience in multi-disciplinary areas by interacting with researchers and WRC partners in various disciplines.

Water is the most important resource on earth. We use water in our homes, for growing and processing food, for power generation, and for industrial operations. It is a critical and historically underappreciated resource in all human activities—although this situation is changing as awareness grows of the health, socio-economic, and environmental consequences of water scarcity, excesses, and of poor water quality.

From a physical perspective, our province faces water shortages in some areas and flooding in others, changes in annual flow patterns, and aging infrastructure—problems that are exacerbated by continuing population growth, water quality concerns, land use changes, climate change, and other natural and human causes. From a water quality perspective, the water and wastewater treatment industries currently face increasing energy costs, the presence of contaminants of emerging concern in water and wastewater, finite resources, water conservation, and more stringent regulations. Management methods are also required to handle and dispose of the residuals generated by wastewater treatment components. Additionally, discharges to natural waterways from cities, agriculture, and industry affect the aquatic ecosystem and downstream water users. These "water systems" problems – a mixture of technical, economic, social, environmental, and institutional components – affect Alberta, along with the rest of Canada and the world.

A key challenge facing the water sector is aging and inadequate infrastructure. Most water infrastructure in Canada was installed decades to a century ago. Replacing existing infrastructure with more of the same is not sustainable; instead, a transformative change is required. Further, recent extreme floods in many Canadian provinces – most notably in the Fraser Valley, BC, in November 2021 – make clear that our water infrastructure and institutions are unprepared for significant floods. The problem is likely to worsen with climate change, changes in land use, and ongoing development in floodplains. Stormwater systems are another concern in terms of changing weather patterns, flood-

water storage capacity, pipe infrastructure conditions, as well as stream, river, and human health.

In remote communities, water quality and scarcity are major concerns. Although many new technologies address water quality and environmental release, they are expensive to build and maintain and are inaccessible to remote, rural, and Indigenous communities. As such, there is a need to develop reclamation and water and wastewater treatment solutions that rely on renewable energy and the reuse of waste streams. Water reclamation, recycling, reuse, and resource recovery may address some of these challenges by creating new sources of high-quality water supplies. To meet growing water supply needs, communities are considering other non-traditional sources of water such as agricultural return flows, concentrate, and other wastewater streams, stormwater, produced water resulting from energy and mining industries, as well as the desalination of seawater and brackish water. These efforts can be supported through a better understanding of socio-economic water use, collection of water use statistics, improved water management tools, and reliable projections of water supplies and demands into the future. They also require the development of improved technologies and their implementation and testing in the field.

5. **Provide a description of the proposed centre/institute governance structure/reporting lines. Include a diagram of organizational structure.**

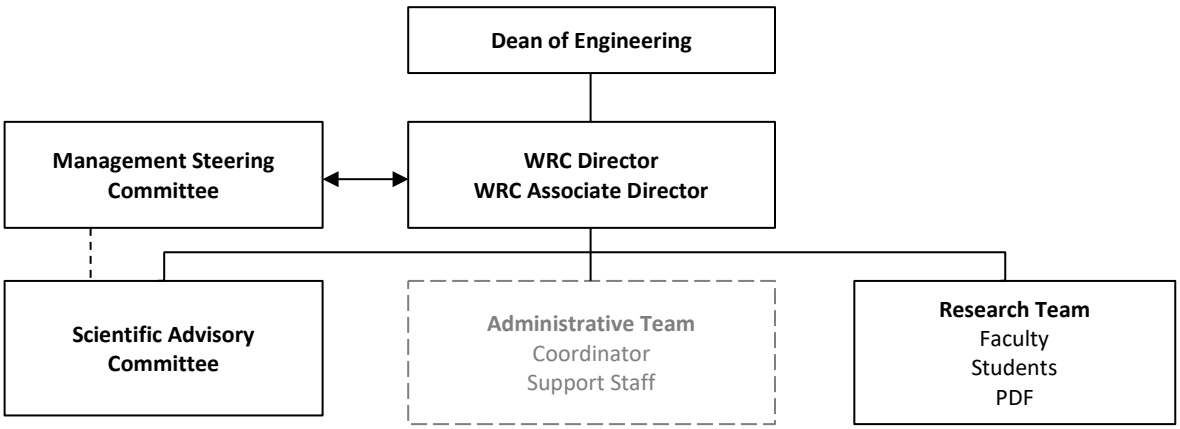


Figure 2. Organizational structure of Water Research Centre

The WRC Director and Associate Director will report to the Dean of Engineering. Together, the Director and Associate Director will be responsible for preparing and submitting the WRC's annual report to the Dean.

The Director and Associate Director will make decisions based on consultation and feedback from a Management Steering Committee (MSC), which will consist of (1) a senior representative from EPCOR Utilities Inc., (2) the Dean of Engineering (or designate), (3) the Chair of the Department of Civil and Environmental Engineering, and (4) at least 2 senior representatives from supporting organizations. The MSC will provide advice on proposed research directions for the WRC and oversee the WRC's progress toward achieving its goals and milestones. The Dean of Engineering (or designate) will be responsible for appointing the MSC Chair and industrial members of the MSC.

The WRC Director and Associate Director will also work with a Scientific Advisory Committee (SAC). The SAC will include technical staff from supporting organizations that will assist in identifying research gaps, evaluating research project proposals, and championing, leading, or participating in

	WRC projects. Future expansion of the WRC may necessitate the establishment of an administrative team, which will include a WRC Coordinator that will act as a project manager for the WRC, liaising with the support staff required to successfully operate the WRC. Support staff may include administrative assistants, financial administrators, communications/technical writers, and/or event managers. The research team will include faculty members and their research staff involved in water-related initiatives at the University (**Appendix A**) who will be under the WRC umbrella. Formal reporting relationships will not be established, except when specified for specific WRC-supported initiatives.
6.	**Provide a statement of the role and qualifications of the centre/institute lead of the proposed centre or institute.** The proposed WRC Director is **Dr. Mohamed Gamal El-Din**, a Professor in the Department of Civil and Environmental Engineering. Dr. Gamal El-Din is an internationally-recognized leader in environmental engineering, particularly in the areas of water and municipal and industrial wastewater treatment. Dr. Gamal El-Din has made fundamental contributions to the science and engineering of water and wastewater treatment, maintaining a strong focus on providing reclamation solutions that can immediately benefit environmental engineers and the water and wastewater treatment industry. He has made an enormous impact on the engineering profession through his research and consulting activities, his mentorship, his collaborations with academia, government, and industry, and his numerous service activities in the community at large. Because of the impact of Dr. Gamal El-Din's industry-focused research, he was the winner of the 2017 ASTech Awards for Innovation in Oil Sands Research. In 2021, his achievements were recognized by election as a Fellow of both the American Society of Civil Engineers and of the Canadian Society for Civil Engineering. The up-to-date outcomes of Dr. Gamal El-Din's research in the areas of ozonation and advanced oxidation as well as in oil sands tailings water treatment have also been recognized with many best paper awards at national and international conferences**.** The proposed WRC Associate Director is **Dr. Evan Davies**, also a Professor in the Department of Civil and Environmental Engineering at the University of Alberta. His research focuses on three key areas: (1) global and regional-scale modeling of water systems, water security, and the water-energy-food nexus; (2) urban water systems, stormwater management, flood risk management, and municipal water demand projections; and (3) sustainable development and work with stakeholders. Because of his teaching excellence, Dr. Davies received the 2022 Faculty of Engineering Graduate Teaching Award and the 2019 Faculty of Engineering Undergraduate Teaching Award. Together, the proposed Director and Associate Director have well-developed provincial, national, and international research liaisons; collaborate significantly with colleagues in academia, government agencies, and industry; and have proven success in research and training of highly qualified personnel. The roles and responsibilities of the Director and Associate Director will be: **Director** • Champion the Water Research Centre (WRC) as an institutionally, nationally, and internationally recognized centre for interdisciplinary research in water at the University of Alberta. • Develop and implement the WRC's strategic institutional, financial, and operational plans. • Foster strategic relationships between the WRC and potential partners including University of Alberta entities, peer organizations, stakeholders, governments, commercial entities, and broader communities. • Act as an ambassador and advocate for the WRC with all internal and external audiences. • Lead the WRC team, guiding and overseeing all its strategic and administrative operations.

	• Oversee the day-to-day management of the WRC, including but not limited to multi-year planning for the implementation of the WRC's activities across all areas (research incubation and support, training, community building and outreach, promotion, and advancement). • Provide WRC members with guidance, support, and development opportunities, facilitating a collaborative and productive work environment. • Ensure adherence to academic, research, and administrative principles and university policies. • Assume accountability for all WRC indirect and direct cost expenditures; allocate funds and resources with clear objectives, targets, and measurements. **Associate Director** • Champion the Water Research Centre (WRC) as an institutionally, nationally, and internationally recognized centre for interdisciplinary research in water at the University of Alberta. • With the Director, develop and implement the WRC's strategic institutional, financial, and operational plans. • In collaboration with the Director, foster strategic relationships between the WRC and potential partners including University of Alberta entities, peer organizations, stakeholders, governments, commercial entities, and broader communities. • Act as an ambassador and advocate for the WRC with all internal and external audiences. • With the Director, oversee day-to-day management of the WRC, including but not limited to multi-year planning for the implementation of the WRC's activities across all areas (research incubation and support, teaching and training, community building and outreach, promotion, and advancement). • Provide WRC members with guidance, support, and development opportunities, contributing to a collaborative and productive work environment. • In communication with the Director, ensure adherence to academic, research, and administrative principles and university policies. • Ensure funds and resources are allocated according to clear objectives, targets, and measurements.
7.	**<u>Employees</u>** a) Provide a statement of the employment status of employees (i.e., are they University of Alberta employees?) b) Specific source(s) of any "University funding" must be identified c) Personnel expenditures must include adequate provisions for benefit costs, salary settlements, and other escalating factors. a) The Director, Associate Director, and faculty members of the WRC are current employees of the University of Alberta. New personnel (e.g., support and/or technical staff) may be hired to support activities specific to the WRC if required. b) Sources of University Funding include (1) in-kind contributions from the University of Alberta for various services including space, information technology support, and human resources support; (2) matching funding for research supported by funding organizations such as NSERC, Mitacs, and Alberta Innovates; and (3) the leveraging of funds from existing water-related research initiatives. Funds dedicated to supporting WRC operations are not expected from the University. c) Please refer to the Financial Plan below for personnel expenditures.
8.	**<u>Financial Plan</u>** a) Include key sources of operating funds, and include revenue sources and expenditures for [ideally] 5 years projected.

b) State specific source(s) of any "University funding"
c) Provide a plan for the sustainable funding of the operation of the centre or institute (salaries, equipment and maintenance, IT support [data management, web design, etc.)
d) Escalation factors must be built into expenditure projections (i.e. escalation due to inflation, future salary settlements, etc.).
e) If in-kind support is identified, the specifics of that support must be listed separately.

a) Funding for the WRC will be provided by industrial partners. The WRC has secured commitments for $200,000 per year for 7 years in funding from EPCOR Utilities Inc. These funds will be used to support research projects approved by the MSC and will be leveraged for matching funding from organizations such as NSERC, Mitacs, and Alberta Innovates.

Additional industry funding will be sought to grow the WRC and expand its scope. The WRC is expected to secure an additional $400,000 per year through matching fund programs.

Research projects supported by these WRC funds will be required to provide a detailed project budget prior to approval.

b) Sources of University Funding will include (1) in-kind contributions from the University of Alberta; (2) matching funding for research supported by funding organizations such as NSERC, Mitacs, and Alberta Innovates; and (3) the leveraging of funds from existing water-related research initiatives. Funds dedicated to supporting WRC operations are not expected from the University of Alberta.

In-Kind Contributions from University: The University of Alberta will provide in-kind contributions in the form of support for centralized services including information technology support, human resources support, and space. In addition, the Faculty of Engineering will cover the salaries of all faculty members appointed to the Faculty of Engineering that are involved in the WRC (**Appendix A**). We will seek additional funding through memberships. The WRC membership will allow companies, research groups, and related entities to access research data and findings generated from the centre. Funding from these memberships will be used as seed funding for research projects, which will then be leveraged to generate matching contributions from NSERC and other funding agencies.

Other University Funding may be provided in the form of graduate student scholarships (administered by the Faculty of Graduate Studies and Research) and teaching assistantships from the Department of Civil and Environmental Engineering (as applicable).

c) The expenses will include those related to the training workshops and seed funding and matching grants for research projects. In its current scope, the WRC will not require dedicated support staff to operate successfully. As additional industry funding is secured—and as the WRC expands in scope and size—dedicated WRC staff may be hired to assist with increasing administrative demands. Technical and support staff involved in research projects supported by the WRC will be funded, as needed, using funds approved by the WRC for research. In-kind contributions from the University of Alberta will support the space, information technology, human resources, and other needs of the WRC. **Adoption of this scalable approach will help ensure the sustainability of the WRC.**

d) Escalation factors will be built into expenditures projects when required.

e) In-kind support from supporting organizations will be a component of almost all WRC research projects. The in-kind support for individual research projects is generally expected to be equal to or greater than the monetary contribution from the partner organization(s).

9.	**Space Requirements.** Space required? Yes☐ No☒ **If "No" selected, where is current space?** The WRC will be housed in the Department of Civil and Environmental Engineering using space currently allocated to its faculty members and its constituent initiatives in the Donadeo Innovation Centre for Engineering building. Address the following questions: a) If rent/lease or license is required, what is the University of Alberta's commitment? b) If new space or modifications to existing space are required, has Facilities and Operations been contacted and has this been included in the budget? a) Rent/lease or license is not required. b) New space or modifications to existing space are not planned. Should any expansion, modification, or reallocation of space for the WRC be required, the process will proceed in accordance with Departmental policies.
10.	**Potential Risks to the University of Alberta** a) State any reputational, financial, and/or operational risks to the University of Alberta. b) Outline plans to mitigate/manage those risks. c) Risk Management Services may be consulted. The primary risk for the Centre is not achieving financial sustainability. The WRC has minimized the negative impacts of this risk by adopting a scalable operational structure as described in Sections 8(a) and 8(c). The WRC does not impose any risks beyond those that are part of typical research projects and training activities undertaken at the University of Alberta. The WRC will abide by all University policies, procedures, and ethical codes regarding research. Any activities that may be interpreted as increasing risk will be discouraged. Every six months, quantitative and qualitative assessments of WRC activities will be conducted. Milestones will be carefully developed for all WRC activities before they begin to ensure the objectives are clear and can be met as planned.
11.	**Annual Reporting and Strategic Review: In accordance with UAPPOL Policy** a) State a provision for annual reporting to the Reporting Dean b) State a provision for annual reporting to the Office of the Provost c) State a provision for strategic and operational review by the Reporting Dean (or delegate) at no less frequency than every five years. a) Reports of WRC activities, projects, and outputs will be provided annually to the Dean of Engineering through the Chair of the Department of Civil and Environmental Engineering. b) The same annual report will be provided to the Office of the Provost. c) The WRC will be subject to a strategic and operational review by the Dean of Engineering at a frequency determined by the Dean, yet at no less frequently than every five years.

12.	**Intellectual Property (IP) and Copyright** a) Will any copyright or patentable IP be created, and if so, how will it be handled? b) How will ownership and commercialization of IP be handled? a) Copyright and patentable IP may be created and will be governed by the existing initiatives' respective IP agreements. For new projects created by the WRC that obtain external matching funding, copyright and IP will be governed by agreements with the funding agencies. These agreements will comply with University IP policies and procedures. For new projects created and funded solely by the WRC, copyright and patentable material will be governed by University policies and procedures. b) Ownership and commercialization of IP created by existing initiatives will be owned according to their respective IP agreements. For new projects created by the WRC that obtain external matching funding, ownership and commercialization of IP will be governed by the agreements noted above. For new projects created and funded solely by the WRC, ownership and commercialization of IP will be governed by University policies and procedures.
13.	**Termination Plan/Provisions** a) Exigency plan for termination: If physical and/or financial resources will remain upon termination, a plan for consultation with donors or agencies associated with the centre or institute must be included in the dissolution plan. Current University staff would remain with the University as per their individual appointments/ agreements. Contract-based positions would be terminated or reassigned with adequate notice. Any facilities and equipment designated for use by the WRC would be returned to the Department of Civil and Environmental Engineering for redistribution at the discretion of the Department Chair. Upon termination, all financial resources from endowments will remain within the endowments. Physical and financial resources created by the WRC outside of endowments will be retained by the Faculty of Engineering.
14.	**Letters of Support**: **Attach letters from relevant on- and off-campus sources** • Dean of Engineering • Chair of the Department of Civil and Environmental Engineering • EPCOR Utilities Inc. commitment of $200,000 for 7 years • Alberta Environment and Parks • Alberta Irrigation Districts Association • Bow River Irrigation District • Kuwait University • ExxonMobil Research Qatar • Qatar University • Qatar Environment and Energy Research Institute • Optimal Solutions • Alberta Innovates • IBI Group • Canada's Oil Sands Innovation Alliance
15.	**Provide, if applicable, any agreements and/or memoranda of understanding between the University of Alberta and its partner(s) to establish, fund and operate the proposed academic centre or institute.**

	All initiatives developed under the umbrella of the WRC are currently part of the Faculty of Engineering and report to the Dean of Engineering. When required, separate memoranda of understanding for the WRC will be developed by the Dean of Engineering.

APPENDIX A

Members of the Water Research Centre

as of July 25, 2022

WRC membership is open to any faculty member at the University of Alberta with research interests in water-related issues.

Environmental Engineering

Mohamed Gamal El-Din
mgamalel-din@ualberta.ca
NSERC Senior Industrial Research Chair in Oil Sands Tailings Water Treatment
Theme Co-Lead, Resilient Reclaimed Land and Water Systems, Future Energy Systems (FES)
Professor, Civil and Environmental Engineering
Water and wastewater treatment

Maricor Arlos
maricor.arlos@ualberta.ca
Assistant Professor, Civil and Environmental Engineering
Fate and transport modeling of micropollutants

Yaman Boluk
yaman.boluk@ualberta.ca
Nanofibre Chair in Forest Products
Professor, Civil and Environmental Engineering
Materials engineering

Jeffrey Farner
farner@ualberta.ca
Assistant Professor, Civil and Environmental Engineering
Environmental nanotechnology

Selma Guigard
selma.guigard@ualberta.ca
Professor, Civil and Environmental Engineering
Supercritical fluid extraction (SFE) as a technology for environmental applications

Zaher Hashisho
hashisho@ualberta.ca
Professor, Civil and Environmental Engineering
Adsorption for water and air treatment applications

Yang Liu
yang.liu@ualberta.ca
Canada Research Chair in Future Community Water Services
NSERC Industrial Research Chair in Sustainable Urban Water Development
Professor, Civil and Environmental Engineering
Biological treatment processes and resource recovery

Ania Ulrich
aulrich@ualberta.ca
Professor, Civil and Environmental Engineering
Transformation of organic compounds by microorganism

Tong Yu
tong.yu@ualberta.ca
Professor, Civil and Environmental Engineering
Low impact development (LID), biofilm processes and phenomena

Bipro Dhar
bipro@ualberta.ca
Associate Professor, Civil and Environmental Engineering
Bioenergy and resource recovery from organic waste and high-strength wastewater

Olubukola Alimi
oalimi@ualberta.ca
Assistant Professor, Civil and Environmental Engineering
Mirco- and nanopollutants in the aquatic environment

Water Resources

Evan Davies
evan.davies@ualberta.ca
Professor, Civil and Environmental Engineering
Water resources planning and management

Thian Gan
tgan@ualberta.ca
Professor, Civil and Environmental Engineering
Hydrology and climate change

Mark Loewen
mark.loewen@ualberta.ca
Professor, Civil and Environmental Engineering
River ice engineering, urban drainage and hydraulic engineering

Yuntong (Amy) She
yshe@ualberta.ca
Associate Professor, Civil and Environmental Engineering
Computational hydraulics, river ice engineering, urban drainage

Wenming (William) Zhang
wenming@ualberta.ca
Assistant Professor, Civil and Environmental Engineering
Hydraulics, pollutant transport and fate, multiphase flow

David Zhu
david.zhu@ualberta.ca
NSERC Industrial Research Chair in Urban Drainage
Professor, Civil and Environmental Engineering
Urban drainage, two-phase flows, hydropower

Vincent McFarlane
vincent.mcfarlane@ualberta.ca
Assistant Professor, Civil and Environmental Engineering
River ice processes, dam safety, flood routing

Jennifer Nafziger
jnafzige@ualberta.ca
Assistant Professor, Civil and Environmental Engineering
Winter river environments

Hongli Liu
hongli.liu@ualberta.ca
Assistant Professor, Civil and Environmental Engineering
Computational hydrology, climate change

Chemical and Materials Engineering

Hongbo Zeng
hongbo.zeng@ualberta.ca
Canada Research Chair in Intermolecular Forces and Interfacial Science
Professor, Chemical and Materials Engineering
Intermolecular and surface forces phenomena in SAGD water

Xuehua Zhang
xuehua1@ualberta.ca
Canada Research Chair in Soft Matter and Interfaces
Professor, Chemical and Materials Engineering
Development of novel nanolens for the solar-driven photodegradation

Renewable Resources

M. Anne Naeth
anaeth@ualberta.ca
Director, Land Reclamation International Graduate School
Director, Future Energy Systems, Vice-President Research Innovation – Future Energy Systems
Director, Energy Systems Signature Area, Vice-President Research Innovation – Signature Research Areas
Professor, Renewable Resources
Land-water reclamation

Wiktor Adamowicz
vic.adamowicz@ualberta.ca
Vice Dean, Faculty of Agricultural, Life and Environmental Science
Professor, Resource Economics and Environmental Sociology
Economic analysis and policy options for process water treatments

Scott Chang
scott.chang@ualberta.ca
Professor, Renewable Resources
Forest soils and nutrient dynamics

Tariq Siddique
tariq.siddique@ualberta.ca
Professor, Renewable Resources
Soil chemistry and environmental microbiology

Biological Sciences

James Stafford
stafford@ualberta.ca
Associate Chair (Graduate), Faculty of Science
Professor, Biological Sciences
Use of high-throughput bioindicator systems

Keith Tierney
keith.tierney@ualberta.ca
Professor, Biological Sciences
Water quality-aquatic vertebrate interactions

School of Public Health

Patrick Hanington
pch1@ualberta.ca
Associate Professor, School of Public Health
Microbial community profiling

Engineering at Alberta

Office of the Dean
University of Alberta Faculty of Engineering

9-201 Donadeo Innovation Centre for Engineering · 9211 116 Street NW, Edmonton, Alberta, Canada T6G 1H9
Tel: 780-492-0503 · Fax: 780-492-3973 · uab.ca/engineering

December 9, 2022

Centres and Institutes Committee
University of Alberta
Edmonton, Alberta

Re: Establishment of the EPCOR Water Research Centre (EWRC)

Dear committee members,

Please find enclosed our proposal for the Centres and Institutes Committee outlining the establishment of the EPCOR Water Research Centre (EWRC).

The EWRC is built on the existing strengths of the Department of Civil and Environmental Engineering and is aligned with the strategic research priorities of both the University of Alberta and the Faculty of Engineering. The EWRC aims to establish itself as an internationally-recognized centre for the knowledge and development of integrated, innovative, and sustainable strategies to address issues related to water supply; water demand, treatment, and reuse; and water infrastructure.

The EWRC will provide integrated solutions to critical water-related problems and will help to catalyze and coordinate water research across the University. The EWRC will help to enhance our collaboration with national and international institutions, governments, and academia on fundamental and applied research. Moreover, the EWRC will be committed to providing university students and water professionals and specialists with opportunities to strengthen their capacity and knowledge of water-related solutions. In addition, the centre will help to create new opportunities for the University and our partners, as well as our city, province, and beyond. The EWRC will be essential in creating the critical mass required to propel the University of Alberta into a global leadership position in water research.

The EWRC will be administered within the Department of Civil and Environmental Engineering. The department has a group of successful faculty members who are conducting world-class research across a broad range of water-related and societal/planning issues. Initially, the EWRC will be funded through commitments from supporting organizations, along with in-kind contributions from the University of Alberta. As such, the EWRC will not receive support beyond what currently exists and will leverage existing resources to build further financial resources.

We hope you will take a favourable view of this application. We look forward to discussing in more detail the strategic value of this important initiative. Thank you for considering this request.

Sincerely,

Simaan M. AbouRizk, PhD, PEng, FRSC, FCAE, NAC
Dean, Faculty of Engineering

UNIVERSITY OF ALBERTA

December 14, 2022

Centres and Institutes Committee
University of Alberta
Edmonton, AB

Re: Proposal to Establish the Water Research Centre (WRC)

Dear Committee Members,

I am writing on behalf of the Department of Civil and Environmental Engineering to express the Department's full support for establishing the Water Research Centre (WRC).

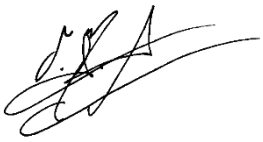
The purpose of the WRC is to provide solutions for water-related issues through multidisciplinary research approaches; interdisciplinary engagement; and collaboration with government, community, industry, and academia. By bringing together expertise from different water research areas and leveraging collective resources, the WRC aims to create one of the largest centres in water research in North America.

The WRC will have an international component to exchange ideas and collaborate on research in water solutions and provide mobility to offer high quality international experience to students, faculty, and partner institutions. The WRC will also provide outreach, research dissemination, and international recognition to the Centre's members. The partnerships created through WRC will be instrumental for the dissemination of expert knowledge among researchers and, importantly, for the mentorship of many junior faculty and students.

The WRC will be housed in the Department of Civil and Environmental Engineering in laboratory and office space in the Markin/CNRL Natural Resources Engineering Facility and the Donadeo Innovation Centre for Engineering. The WRC will also have access to centralized human resources and financial administration, as well as technical staff.

We believe that the WRC will provide an extraordinary opportunity to help build a network of support, conduct research of global impact, and greatly enhance the opportunities for Department and the College of Natural and Applied Sciences to attract and retain the best and brightest talent, delivering world-leading water research. We enthusiastically endorse the creation of the Water Research Centre.

Sincerely,



Samer Adeeb, PhD, PEng
Interim Chair, Department of Civil & Environmental Engineering
Professor, Structural Engineering & Biomedical Engineering

College of Natural and Applied Sciences
Faculty of Engineering
Department of Civil and Environmental Engineering
School of Mining and Petroleum Engineering

7-224 Donadeo Innovation Centre for Engineering
9211 – 116 Street, University of Alberta
Edmonton, AB Canada T6G 1H9

civchair@ualberta.ca
T: 780.492.7620
uab.ca/civil

2000, 10423 – 101 Street
Edmonton, Alberta
T5H 0E8 Canada
epcor.com

April 26, 2023

Centre and Institutes Committee
University of Alberta
Edmonton, Alberta

Re: Support for the University of Alberta's proposed Water Research Centre (WRC)

To whom it may concern,

I am writing to express EPCOR Utilities Inc.'s strong support for a proposed Water Research Centre (WRC) within the Faculty of Engineering at the University of Alberta.

Based out of the City of Edmonton, EPCOR builds, owns, and operates electrical, natural gas, water transmission and distribution networks, water and wastewater treatment facilities, and sanitary and stormwater systems and infrastructure. Our mission is to provide clean water and reliable energy to communities across Canada and the United States.

In an effort to help build resiliency and sustainability in the communities we serve, EPCOR is also interested in exploring solutions for various critical water-related issues, including the design of flood management plans, the development of sustainable water systems, and the application of advanced water treatment methods and technologies. The successful development and implementation of these solutions will require the collaboration of multiple interdisciplinary experts across various areas of water research. The proposed WRC is a key step in achieving such a network in Alberta.

In support of these joint interests, EPCOR is committing $200,000 per year for 7 years toward the WRC. We expect this commitment to be leveraged against other funding opportunities, including, but not limited to, Mitacs and tri-council funding.

EPCOR is also prepared to provide several in-kind contributions, including the ability to act as a test bed for new technologies and materials; strategic direction, guidance, and technical expertise; and mentorship opportunities for developing highly-qualified personnel through internship/training programs (e.g., Mitacs program). EPCOR also has ample capacity to work with the WRC team to deploy and implement research deliverables at our organization.

We look forward to working with the University of Alberta on this exciting opportunity. If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

Stephen Stanley
Senior Vice President, Drainage Services

EPCOR Utilities Inc.
sstanley@epcor.com

Alberta Environment and Parks

Resource Stewardship Division
Environmental Knowledge and Prediction Branch
11th Floor, 9820 106 St.
Edmonton, Alberta T5K 2J6
Canada
Telephone: 780-499-5341
www.alberta.ca

July 19, 2022

Directors, Water Research Centre
Faculty of Engineering
University of Alberta
116 Street and 85 Avenue
Edmonton, Alberta T6G 2R3

Dear Directors:

Subject: Letter of support for the Water Research Centre (WRC)

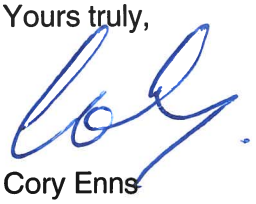
It is exciting for us to learn the University of Alberta (U of A) is establishing a Water Research Centre (WRC). The overall layout of the centre looks brilliant, and many of the goals and focus on water-related issues, coupled with the high quality of the proposed centre, align with Alberta Environment and Parks' mandate. Alberta Environment and Parks (AEP) expects the centre will play a crucial role in strengthening the capacity and knowledge of water-related solutions for Albertans. Additionally, the center's integrated knowledge translation approach would produce findings that can be operationalized by end users such as AEP.

AEP supports environmental conservation and protection, sustainable economic prosperity, quality of life and outdoor recreation opportunities. The department provides services and information related to drinking water, wastewater, drought, flood, water legislation and policy, wetlands, and water management. AEP has been collaborating with the U of A Department of Civil and Environmental Engineering on some cutting-edge water-related projects to provide better and more accurate water management products for the province. Again, this is very exciting work, and AEP recognizes the long-term benefit of continuing our collaboration, along with our interest in proceeding with applied research activities on water-related issues. AEP also acknowledges that without having a dedicated research centre, it is often difficult to seek research help from the U of A in a short timeframe.

Leveraging collective resources, the WRC will create one of the largest centres in water research, education, and training in Alberta. The WRC is expected to make unique and vital contributions to water research and education. AEP believes the Water Research Centre will be a leading example of a partnership between academia, industry and government, and AEP welcomes the opportunity to participate.

Please accept the full support of Alberta Environment and Parks for the plan to establish the WRC. If you have any questions or would like to further discuss the benefits the U of A Water Research Centre would have for AEP – or for all Albertans – please feel free to reach out to me.

Yours truly,



Cory Enns
Director, River Engineering & Technical Services
Environmental Knowledge and Prediction Branch
Alberta Environment and Parks
Email: Cory.enns@gov.ab.ca

Enclosure

cc: Khaled Akhtar, River Forecast Engineer
Peter Bezeau, Manager, River Forecasting

Alberta Irrigation Districts Association

2825 – 18th Avenue North
Lethbridge, Alberta T1H 6T5
Phone: 403-328-3063
email: manager@albertairrigation.ca
www.albertairrigation.ca

To: Centre and Institutes Committee
University of Alberta
Edmonton, Alberta

September 7, 2022

To whom it may concern,

Re: Support for University of Alberta's proposed Water Research Centre (WRC)

The Alberta Irrigation Districts Association (AIDA) wishes to inform you of its support for the establishment of a Water Research Centre (WRC) at the University of Alberta.

Representing Alberta's 12 Irrigation Districts, the AIDA envisions a future where irrigation is vibrant, sustainable and valued. The organization and its member irrigation districts actively support water management in the southern region by among other things, promoting the use of efficient irrigation and water management practices, participating in research projects, education and outreach activities as well as providing a venue for knowledge and technology transfer.

For many years, Alberta's irrigation sector has been actively supportive of innovative technologies, strategies and research that assist the irrigation sector in advancing beneficial water management practices with a number of research projects occurring through the University of Alberta's Department of Civil and Environmental Engineering.

The establishment of a Water Research Centre at the University will ensure continuity of innovation and research, while building the capacity of the next generation of global water managers.

The AIDA looks forward to continued collaboration with WRC researchers to find effective solutions to current challenges facing Alberta water management and irrigation sectors.

Sincerely,

Margo Jarvis Redelback, P.Ag.
Executive Director

BOW RIVER IRRIGATION DISTRICT
brid.ca

Box 140
704 – 7th Ave. N.
Vauxhall, Alberta
T0K 2K0

Ph: (403) 654-2111
Fax: (403) 654-4197

File _____

August 5, 2022

Centres and Institutes Committee
University of Alberta
Edmonton, AB

Re: Establishment of Water Research Centre

Dear Committee Members,

The Bow River Irrigation District (BRID) supports the establishment of this Centre. Its purposes and research areas directly relate to and support the needs of water managers in Alberta. Increasing the profile and quality of water research and education through the establishment of this Centre will help deal with present and future challenges of water management.

The BRID owns and operates an extensive water conveyance system of canals, pipelines, and reservoirs to supply water for the irrigation of nearly 120,000 hectares of farmland in southern Alberta. We also supply water for municipal, commercial, and industrial use, and for wildlife habitat projects. To manage water effectively we work closely with other water users including hydropower producers, cities, and other irrigation districts to ensure that all needs are considered and met to the extent possible.

Recent collaboration with the U of A includes work with Dr. Evan Davies to improve hydrological forecasting, reservoir management, and irrigation district operations, and we look forward to increased collaboration with the establishment of the Centre. Personally, as a U of A graduate (Civil Engineering, 1984) with a long career in water management, I am delighted by this initiative to increase the University's prominence in water research and education.

Sincerely,

Richard Phillips, P.Eng.
General Manager

Date: July 06, 2022

From: Prof. Ahmed Allafi
Acting Dean of CLS
Vice Dean of Academic Affairs

To: Centres and Institutes Committee
University of Alberta
Edmonton, Alberta

Re: Support for the Water Research Centre (WRC)

College of Life Science (CLS) at Kuwait University is very pleased to provide this letter of support for the establishment of a Water Research Centre at the University of Alberta in Collaboration with Dr. Bader Al-Anzi a faculty member at ETM department.

Kuwait University (KU) was established in October 1966, and our facilities are spread over six campuses, offering programs in the sciences, engineering, humanities, medical and social sciences. The university aims to encourage innovation and development in the arts and the sciences. Since its inauguration, the university has continuously supported research and development.

The aim of the WRC is to become an internationally recognized centre for knowledge and development of integrated, innovative, and sustainable strategies to address issues related to water. Moreover, this interdisciplinary research centre will be dedicated to fundamental and applied research for water-related disciplines. As such, we highly support the Water Research Centre according to KU regulations as it aligns with our mission and goals.

We look forward to collaborating with this Water Research Centre as it will benefit our mutual interests and are pleased to be involved and provide the necessary support to ensure its development and sustainability.

Sincerely,

ExxonMobil Research Qatar
P.O Box: 22500
Doha, State of Qatar
(+974) 4045 9126 Telephone
(+974) 4412 2625 Facsimile

اكسون موبيل للابحاث قطر
ص.ب : 22500
الدوحة – قطر
تليفون : 40459126 974+
فاكس : 44122625 974+

ExxonMobil

September 5, 2022

Centres and Institutes Committee
University of Alberta
Edmonton, AB

Re: Letter of Support for the Water Research Centre (WRC)

I am writing on behalf of ExxonMobil Research Qatar to express our support for establishing the Water Research Centre at the University of Alberta.

ExxonMobil Research Qatar (EMRQ) was established in 2009 at the Qatar Science and Technology Park, bringing together scientists and researchers to enable progress in strategic research areas of common interest to the State of Qatar and ExxonMobil. Our research programs are aligned with the Qatar National Vision 2030, spanning carbon management, industrial wastewater treatment and reuse, groundwater sustainability, and environmental management. We at EMRQ recognize the importance of water resources and our responsibility to local communities and the environment. As such, we support the Water Research and Education Centre (WRC) led by Dr. Mohamed Gamal El-Din and Dr. Evan Davies. The Water Centre aligns with our focus on sustainable water solutions.

The WRC will make unique and important contributions to both water research and education. The WRC contains all the right components for success, namely sound research programs, highly qualified and capable Directors and faculty, and a unique amalgamation of local and international water management expertise.

We believe the WRC will be a leading example of a successful partnership between academia, industry and government, and we welcome the opportunity to participate.

Sincerely,

Ana Laplaza
Research Director

September 12, 2022

Centres and Institutes Committee
University of Alberta
Edmonton, Alberta

Re: Support for the Water Research Centre (WRC)

I am writing on behalf of the Qatar University to express our support for establishing the Water Research Centre (WRC) at the University of Alberta.

Since its inception in 1977, Qatar University has become a leading institution of academic and research excellence in the region. Our vision is to be regionally recognized for distinctive excellence in education and research, an institution of choice for students and scholars and a catalyst for the sustainable socio-economic development of Qatar.

The purpose of the WRC is to provide a unified platform to develop integrated, innovative, and sustainable strategies to provide solutions to critical water-related problems. We believe the WRC will provide an extraordinary opportunity to address the full spectrum of issues related to water supply; water demand, treatment, and reuse; and water infrastructure and to become a singular force for research and technology innovation.

We look forward to collaborating with this Water Research Centre as it aligns with our goals in term of research and training.

I trust you share in our enthusiasm in supporting the Water Research Centre. If you have any questions or require additional clarification, please contact me at your earliest convenience

Truly yours,

Prof.Mariam Ali AlAli AlMaadeed
Vice President for Research & Graduate Studies

LETTER

QEERI
معهد قطر لبحوث البيئة والطاقة
Qatar Environment & Energy Research Institute
جامعة حمد بن خليفة
HAMAD BIN KHALIFA UNIVERSITY

$fcb13ddc31b9$D26565B032154930829A57A4408011E9.docx

From:	**Dr. Marc VERMEERSCH -** Executive Director, QEERI
To:	**Dr. Mohamed Gamal EL-DIN -** Professor, NSERC Senior Industrial Research Chair, Faculty of Engineering, University of Alberta
Cc:	**Dr. Jenny LAWLER -** Senior Research Director, Water Center, QEERI
Date:	November 3, 2022 **Distribution:** **CONFIDENTIAL** - QF / QEERI
Subject:	Letter of support from QEERI to University of Alberta's Water Research Center

Dear Dr. EL-DIN,

We appreciate the introduction to the University of Alberta's Water Research Center and the opportunity to explore further opportunities for collaboration.

The purpose of this letter is to confirm for both our records, QEERI's support to the University of Alberta's Water Research Center with respect to the provisions of the support to be dependent upon mutually agreeable terms and conditions of a future contract.

The Qatar Environment and Energy Research Institute (QEERI), part of Hamad Bin Khalifa University (HBKU), is a national research institute tasked with supporting Qatar in addressing its grand challenges related to energy, water, and environment. Our missions are to meet the needs of Qatar and anticipate the future challenges; to secure sustainable water and energy resources and provide the best possible environment to current and future generations; and to catalyze the construction of ecosystems, and to enhance the role and contribution of Qatar Foundation and Qatar on the international scene, in science and technology.

We are looking forward to exploring opportunities for collaborative research with the University of Alberta's Water Research Center and QEERI.

Please do not hesitate to revert to me or contact directly Dr. Jenny LAWLER, the Senior Research Director of the Water Center in QEERI (email: jlawler@hbku.edu.qa) if you require further information.

Sincerely Yours,

DocuSigned by:
Dr. Marc Vermeersch
4C827D72B9B5433...
06-Nov-2022 | 9:20 AM ABST

Dr. Marc Vermeersch
Executive Director

HBKU - P.O. Box: 34110 Doha – Qatar
Tel: +974 4454 0495 / Tel (direct): +974 4454 6820
mvermeersch@hbku.edu.qa

DS

OPTIMAL SOLUTIONS LTD
7128 - 5 Street NW., Calgary, AB, T2K 1C8, CANADA

June 10, 2022

Prof Evan Davies, Ph.D., P. Eng.
Department of Civil and Environmental Engineering
University of Alberta, Edmonton
via email to: evan.davies@ualberta.ca

RE: Letter of support fo establishing Water Research Centre (WRC) at the University of Alberta

Dear Evan,

First of all, I would like to express my appreciation for the collaboration that Optimal Solutions Ltd. has had with the Department of Civil and Environmental Engineering in the past 10 years. Optimal Solutions Ltd. has co-funded and participated in some of the research with the Department of Civil and Environmental Engineering, which resulted in several joint publications. I hope this collaboration is going to continue and grow in the years to come. We see this collaboration continuing along the two out of the three fundamental research areas indicated in the introductory letter explaining the goals of WRC:

- Water supply**:** hydrology (natural water cycle), rural water supply, water distribution; and,
- Water Infrastructure (water conveyance and storage reservoirs).

Optimal Solutions Ltd. has a keen interest to continue developing and applying cutting-edge technologies in the above field of research that would be of interest to the water resources practitioners worldwide.

Sincerely,

Nesa Ilich

Nesa Ilich, Ph.D., P.Eng., Principal and Director
Email: nilich@optimal-solutions-ltd.com

ALBERTA INNOVATES

July 6, 2022

Centres and Institutes Committee
University of Alberta
Edmonton, Alberta

Subject: Support for the Water Research Centre (WRC)

Alberta Innovates is pleased to support the Water Research Centre (WRC) led by Dr. Mohamed Gamal El-Din and Dr. Evan Davies.

Our goal is to position Alberta to achieve superior environmental performance while growing and diversifying its economy. We work with our research partners to identify critical technology gaps and apply world-class innovation management strategies to increase Alberta's capacity to develop, adapt and commercialize technologies that maximize the value of the province's natural and renewable resources, while protecting the environment.

Our Water Innovation Program (WIP) is designed to achieve the goals of the Alberta's Water for Life Strategy. The WIP research portfolio advances knowledge and technology to support policy, operations and best practices leading to sustainable water resource management in Alberta. Our program invests in four key themes: (i) Future Water Supply and Watershed Management; (ii) Healthy Aquatic Ecosystems; (iii) Water Use Conservation, Efficiency, and Productivity; and (iv) Water Quality Protection.

We understand the importance of sustainable water management practices to address the growing and evolving water challenges faced by the province. Alberta Innovates believes that the proposed Water Centre will support the development of integrated and innovative strategies to address issues related to water supply, water quality, treatment, and infrastructure. Moreover, the Water Centre will play a much-needed role in catalyzing and coordinating water research nationally and internationally.

Alberta Innovates has demonstrated a strong commitment to research both within our own organization and with collaborators at the University of Alberta. We believe the Water Centre could become a key player in the global water sector and an important contributor for the development of our province. Therefore, we support the establishment of the Water Research Centre.

Sincerely,

Lightbown

Vicki Lightbown
Director, Water Innovation Program
Alberta Innovates

IBI GROUP
3rd Floor – 227-11 Avenue SW
Calgary AB T2R 1R9 Canada
tel 403 270 5600 fax 403 270 5610
ibigroup.com

August 8, 2022

Centres and Institutes Committee
University of Alberta
Edmonton, AB

RE: LETTER OF SUPPORT FOR THE WATER RESEARCH CENTRE

On behalf of IBI Group, I am pleased to convey our enthusiastic support for the proposed Water Research Centre (WRC). We have a water resources practice operating in supply and treatment technologies as well as flood management and mitigation planning. However, as a multidisciplinary design and technology firm working to "define the cities of tomorrow", water resources impact every aspect of our work and the communities we serve.

There is an increasing need for us to consider and implement responsible and sustainable water management. Our work is where innovative solutions from research can become reality. Additionally, as consultants, increased education and outreach enhances the opportunities for implementation by our public and private clients.

Canada has already benefited from IBI Group's collaboration with Dr, Evan Davies and his former student, Seth Bryant. Bryant leveraged our flood risk and mitigation work with Alberta Environment and the City of Calgary to develop a novel model that, for the first time, provided evidence on the effectiveness of various non-structural (regulatory) interventions over time as a community redevelops. This collaboration directly led to the development of Canada's new national standard flood risk modelling toolkit, CanFlood, for Natural Resources Canada. (https://github.com/NRCan/CanFlood)

Without the research, education, and collaboration with WRC, project consultants are simply unable to implement innovative solutions at the rate required for a sustainable future. The communities we serve locally and globally will benefit greatly from the proposed WRC. We very much look forward to future collaboration opportunities and to learn from the proposed research to improve our practice.

Sincerely,

David Sol
Associate – Manager, Planning

IBI Group

CANADA'S OIL SANDS INNOVATION ALLIANCE
L'ALLIANCE CANADIENNE POUR L'INNOVATION DANS LES SABLES BITUMINEUX

DELIVERING ENVIRONMENTAL PERFORMANCE
ASSURER L'EFFICACITÉ ENVIRONNEMENTALE
1700, 520 5 AVENUE SW CALGARY, AB T2P 3R7

July 25, 2022

Centres and Institutes Committee
University of Alberta
Edmonton, Alberta

Re: Support for the Water Research Centre (WRC)

This letter is to confirm that the seven member companies in Canada's Oil Sands Innovation Alliance (COSIA) support the establishment of the Water Research Centre (WRC) at the University of Alberta.

COSIA was formed in March 2012. Membership is made up of oil sands producers that represent approximately 90% of current oil sands production in Canada. Our vision is to enable responsible and sustainable growth of Canada's Oil Sands while delivering accelerated improvement in environmental performance through collaborative action and innovation. One of the top priority areas for COSIA members is water management. COSIA's Water Environment Priority Area (EPA) aspires to be world leaders in water management, producing Canadian energy with no adverse impact on water. That means achieving a balance between reduced water use and increased recycling rates with potential impacts on water quality and GHG emissions.

We at COSIA believe that the WRC will become an internationally recognized centre for knowledge and development of integrated, innovative, and sustainable strategies to address issues related to the water sector. By bringing together expertise from different water research areas and leveraging collective resources, the Centre will allow the collaboration with national and international institutions, governments, and academia on fundamental and applied research, facilitating the knowledge transfer from academia to water industries.

Given the close alignment of the goals of the Water Centre to the strategic priorities of the COSIA Water EPA, we have no hesitation in supporting the creation of the Water Research Centre.

Sincerely,

John Brogly, P. Eng
Director, Water
COSIA, Canada's Oil Sands Innovation Alliance
Office: 403-444-5284
Cell: 403-919-8459

Management Steering Committee

Water Research Centre

Terms of Reference

---

1. BACKGROUND

The University of Alberta has established the Water Research Centre (WRC) with the Faculty of Engineering.

The purpose of the WRC is to:

- Provide integrated solutions to critical water-related problems;
- Catalyze and coordinate water research across the University of Alberta;
- Collaborate with national and international institutions, governments, and academia on fundamental and applied research;
- Develop a water-related network by connecting regional and global water experts and practitioners with academics from different disciplines;
- Maximize the benefits of research through effective knowledge and technology transfer through workshops, seminars, and short courses;
- Provide training opportunities for students, postdoctoral fellows, and water professionals and provide support for the next generation of water leaders; and
- Facilitate knowledge transfer from academia to water industries.

The vision of the WRC is to become an internationally-recognized centre for knowledge and development of integrated, innovative, and sustainable strategies to address issues related to water supply; water demand, treatment, and reuse; and water infrastructure. The WRC aims to strengthen the critical mass required to propel the University into a global leadership position in water-related research.

2. PURPOSE

The Management Steering Committee (MSC) of the WRC is an advisory committee that will assist with the development of strategic plans and objectives for the WRC. The MSC will provide management-level expertise and knowledge, will serve as ambassadors for the WRC, and will encourage research partnerships with organizations (both public and private) in their sector.

3. ROLES

The roles of MSC members include:

- Providing guidance and strategic direction to the WRC;
- Championing research projects within respective organizations and the industry at large;
- Facilitating knowledge transfer of research outcomes and products;
- Recommending approval of the WRC budget and appropriate funding strategies;

- Evaluating research project proposals forwarded by the Scientific Advisory Committee (SAC), and providing recommendations to the WRC for approval;
- Recommending appointments of Scientific Advisory Committee (SAC) members;
- Participating in workshops and sessions to define goals for the WRC;
- Participating in WRC forums and initiatives, and encouraging members of their organizations to attend WRC events;
- Reviewing and evaluating the WRC's progress towards its goals and objectives; and
- Supporting the development of WRC initiatives.

4. MEMBERSHIP

The MSC will consist of 4 permanent members and up to 12 appointed members. Principles relating to *equity, diversity and inclusion* will guide the selection of members to the committee.

4.1. Permanent members

Permanent members include the:

- Dean of Engineering (hereafter referred to as "Dean"),
- Chair of the Department of Civil and Environmental Engineering (hereafter referred to as the "Department Chair", and
- Director and Associate Director of the WRC.

Of the permanent members, only the Dean of Engineering is a voting member; the Department Chair and Co-Directors are ex-officio and non-voting members. In the absence of the Dean, the Department Chair becomes a voting member.

4.2. Appointed members

The term length for appointed members is 3 years. Appointments are renewable once. Appointed members are voting members and may include representatives from:

- Academia,
- Private sector corporations,
- Water-related associations,
- Government agencies, and/or
- Other sectors or organizations as appropriate.

Nominations for appointed members will be put forward by either of the Co-Directors, with recommendations from the MSC.

The Dean will hold final authority for appointing members of the MSC.

4.3. Committee Chair

The MSC will elect a Chair for the MSC (hereafter referred to as "Chair") from within their membership. Meetings will be chaired by the Chair.

4.4. Quorum

A majority (i.e., 50% + 1) of voting members constitutes a quorum.

4.5. Terminations and vacancies

Members agree to fulfill the roles of the MSC and to attend, or designate a delegate to attend, a minimum of 2 meetings per year. Members who are unable to meet these expectations may be excused from the MSC by the Dean.

A vacant position may be filled with a replacement at the discretion of the Dean.

5. CONFIDENTIALITY

Contact information (including email addresses) of MSC members will be shared with other members of the MSC. The names and positions (within their respective organization) of MSC members will be publicly announced (e.g., websites, newsletters, presentations).

All correspondence and proceedings of the MSC will be treated as confidential within the MSC, except for specifically marked items that may be circulated within the respective MSC members' organizations.

Members of the MSC may be required to sign confidentiality agreements.

The University, and by extension the WRC, is subject to Freedom of Information and Protection of Privacy (FOIPP) laws.

6. CONFLICTS OF INTEREST

Decisions and/or recommendations of the MSC must be made in the best interests of the WRC rather than in the best interests of individual members or their organizations.

As conflicts of interest cannot be avoided, the MSC will focus on conflict management. The University of Alberta's Conflict of Interest and Conflict of Commitment Policy[1] and associated procedures will govern the management of conflicts within the MSC.

When an MSC member becomes aware of a material conflict of interest, it will promptly notify other MSC members and will research mutually agreeable mitigation plans in the interest of limiting adverse impacts.

7. MEETINGS

The MSC will meet a minimum of twice per year. Additional meetings are at the call of the Chair. Meetings may be held in person, by videoconference, or a combination thereof.

A meeting will be held only if there is a quorum of MSC members present.

7.1. Notice

Notice of meetings shall be provided a minimum of 2 weeks prior to the meeting.

7.2. Designates

If an MSC member cannot attend a meeting, they may designate a representative to attend on their behalf.

[1] Conflict of Interest and Conflict of Commitment Policy, available from https://www.ualberta.ca/faculty-and-staff/my-employment/ethical-conduct/conflict-of-interest

7.3. Documentation

Agendas and minutes will be prepared and maintained by the Co-Directors of the WRC.

8. DECISION-MAKING

Whenever possible, decisions shall be consensus-based. Where voting is required, decisions will be made only when they are supported by 60% (or 6 members, whichever is greater) of voting members present at the meeting.

Decisions may be put to vote electronically (including via email).

The recommendations, advice, and guidance of the MSC will be strongly considered. However, all decisions regarding operating matters affecting the resources and staff of the University of Alberta must adhere to established University of Alberta policies. Where applicable, decisions may be separately considered and approved by the University of Alberta.

9. FUNDING RECOMMENDATIONS

Approval recommendations for research proposals and other funding recommendations will be guided by the WRC's mission statement and the specific interests of industry partners who provide endowments, subscribe to the WRC, or fund research projects within the WRC.

Following the evaluation of a research project proposal, members will vote (using the process outlined in Section 8) on whether to recommend the project for funding approval.

The Dean will hold the final authority for funding decisions.

10. CHANGES TO TERMS OF REFERENCE

Once established, changes to the terms of reference for the MSC will require the support of two-thirds of the MSC membership.

The Dean will have the executive authority to accept or reject the proposed changes.

Scientific Advisory Committee

Water Research Centre

Terms of Reference

---

1. BACKGROUND

The University of Alberta has established the Water Research Centre (WRC) with the Faculty of Engineering.

The purpose of the WRC is to:

- Provide integrated solutions to critical water-related problems;
- Catalyze and coordinate water research across the University of Alberta;
- Collaborate with national and international institutions, governments, and academia on fundamental and applied research;
- Develop a water-related network by connecting regional and global water experts and practitioners with academics from different disciplines;
- Maximize the benefits of research through effective knowledge and technology transfer through workshops, seminars, and short courses;
- Provide training opportunities for students, postdoctoral fellows, and water professionals and provide support for the next generation of water leaders; and
- Facilitate knowledge transfer from academia to water industries.

The vision of the WRC is to become an internationally-recognized centre for knowledge and development of integrated, innovative, and sustainable strategies to address issues related to water supply; water demand, treatment, and reuse; and water infrastructure. The WRC aims to strengthen the critical mass required to propel the University into a global leadership position in water-related research.

2. PURPOSE

The Scientific Advisory Committee (SAC) of the WRC is an advisory committee that will assist with the development and implementation of research projects and objectives for the WRC. The SAC will provide technical expertise and knowledge; will assist with implementing, monitoring, and deploying research projects and initiatives; and will prepare and submit annual progress reports to the Management Steering Committee (MSC) for review.

3. ROLES

The roles of SAC members include:

- Identifying existing research, available expertise, research gaps, and target areas that require investigation in the field of water research;
- Assisting with the development of proposed research objectives;

- Evaluating research project proposals, and providing recommendations to the MSC;
- Monitoring research progress on WRC-funded projects;
- Preparing and submitting annual progress reports to the MSC for review;
- Championing, leading, or participating in research projects and/or training initiatives;
- Transferring information on research opportunities, activities, and results to industry and other stakeholders;
- Participating in workshops and sessions to define goals for the WRC;
- Attending WRC forums and initiatives;
- Participating, leading, and delivering individual research tracks at WRC forums;
- Liaising and fostering collaborations with industry partners, other faculties at the University of Alberta, and other post-secondary institutions; and
- Supporting the development of WRC initiatives.

4. MEMBERSHIP

The SAC will consist of 3 permanent members and up to 12 appointed members. Principles relating to *equity, diversity and inclusion* will guide the selection of members to the committee.

4.1. Permanent members

Permanent members include the:

- Dean of Engineering (hereafter referred to as "Dean") or their designate, and
- Director and Associate Director of the WRC (or their designates).

Of the permanent members, only the Dean (or their designate) is a voting member; Co-Directors are ex-officio and non-voting members.

4.2. Appointed members

The term length for appointed members is 2 years. Appointments are renewable once. Appointed members are voting members.

Appointed members must include a minimum of:

- 1 full-time academic faculty representative[1] from the Faculty of Engineering appointed by the Dean; this position will be rotated among the Faculty of Engineering's various departments every two years.

Appointment members may also include representatives from:

- Academia,
- Private sector corporations,
- Water-related associations,
- Government agencies, and/or
- Other sectors or organizations as appropriate.

[1] Academic Faculty Member from Category A1.1) of the *Recruitment Policy (Appendix A) Definitions and Categories of Academic Staff, Postdoctoral Fellows, Academic Colleagues, and Excluded Academic Staff*, available from https://policiesonline.ualberta.ca/PoliciesProcedures/Procedures/Recruitment-Policy-Appendix-A-Definition-and-Categories-of-Academic-Staff-Administrators-and-Colleagues.pdf

Nominations for appointed members will be put forward by either of the Co-Directors, with recommendations from the MSC.

The Dean will hold final authority for appointing members of the SAC.

4.3. Committee Chair

The SAC will elect a Chair for the SAC (hereafter referred to as "Chair") from within their membership. Meetings will be chaired by the Chair.

4.4. Quorum

A majority (i.e., 50% + 1) of voting members constitutes a quorum.

4.5. Terminations and vacancies

Members agree to fulfill the roles of the SAC and to attend, or designate a delegate to attend, a minimum of 2 meetings per year. Members who are unable to meet these expectations may be excused from the SAC by the Dean.

A vacant position may be filled with a replacement at the discretion of the Dean.

5. CONFIDENTIALITY

Contact information (including email addresses) of SAC members will be shared with other members of the SAC. The names and positions (within their respective organization) of SAC members will be publicly announced (e.g., websites, newsletters, presentations).

All correspondence and proceedings of the SAC will be treated as confidential within the SAC, except for specifically marked items that may be circulated within the respective SAC members' organizations.

Members of the SAC may be required to sign confidentiality agreements.

The University, and by extension the WRC, is subject to Freedom of Information and Protection of Privacy (FOIPP) laws.

6. CONFLICTS OF INTEREST

Decisions and/or recommendations of the SAC must be made in the best interests of the WRC rather than in the best interests of individual members or their organizations.

As conflicts of interest cannot be avoided, the SAC will focus on conflict management. The University of Alberta's Conflict of Interest and Conflict of Commitment Policy[2] and associated procedures will govern the management of conflicts within the SAC.

When a SAC member becomes aware of a material conflict of interest, it will promptly notify other SAC members and the MSC and will research mutually agreeable mitigation plans in the interest of limiting adverse impacts.

[2] *Conflict of Interest and Conflict of Commitment Policy*, available from https://www.ualberta.ca/faculty-and-staff/my-employment/ethical-conduct/conflict-of-interest

7. MEETINGS

The SAC will meet a minimum of twice per year. Additional meetings are at the call of the Chair. Meetings may be held in person, by videoconference, or a combination thereof.

A meeting will be held only if there is a quorum of SAC members present.

7.1. Notice

Notice of meetings shall be provided a minimum of 2 weeks prior to the meeting.

7.2. Designates

If a SAC member cannot attend a meeting, they may designate a representative to attend on their behalf.

7.3. Documentation

Agendas and minutes will be prepared and maintained by the Co-Directors of the WRC.

Annual progress report(s) will be prepared by the Co-Directors. SAC members will provide information, as requested by the Co-Directors or other members of the SAC, to assist with the preparation of annual progress report(s).

8. DECISION-MAKING

Whenever possible, decisions shall be consensus-based. Where voting is required, decisions will be made only when they are supported by 60% (or 6 members, whichever is greater) of voting members present at the meeting.

Decisions may be put to vote electronically (including via email).

The recommendations, advice, and guidance of the SAC will be strongly considered. However, all decisions regarding operating matters affecting the resources and staff of the University of Alberta must adhere to established University of Alberta policies. Where applicable, decisions may be separately considered and approved by the University of Alberta.

9. FUNDING RECOMMENDATIONS

Approval recommendations for research proposals and other funding recommendations will be guided by the WRC's mission statement and the specific interests of industry partners who provide endowments, subscribe to the WRC, or fund research projects within the WRC.

Following the evaluation of a research project proposal, members will vote (using the process outlined in Section 8) on whether to recommend the project for funding approval.

The Dean will hold the final authority for funding decisions.

10. CHANGES TO TERMS OF REFERENCE

Once established, changes to the terms of reference for the SAC will require the support of two-thirds of the MSC membership.

The Dean will have the executive authority to accept or reject the proposed changes.