Eawag
Swiss Federal Institute of
Aquatic Science and Technology

Annual Financial Statements 2022

eawag
aquatic research

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Annual Financial Statements

Rounding differences: the figures presented in this document may not add up precisely to the total amounts presented in the tables. Changes are calculated on unrounded amounts and may differ from a figure that is based on the rounded amounts presented in the tables.

Statement of financial performance

CHF 1,000	2022	2021	Notes
Federal financial contribution	59,018	60,170	
Federal contribution to accommodation	3,399	3,893	
Total federal contribution	62,417	64,063	5
Continuing education	133	129	6
Swiss National Science Foundation (SNSF)	5,069	4,822	
Swiss Innovation Agency (Innosuisse)	243	188	
Special federal funding of applied research	5,775	6,150	
EU Framework Programmes for Research and Innovation (EU-FPs)	1,349	802	
Industry-oriented research (private sector)	876	1,080	
Other project-oriented third-party funding (incl. cantons, municipalities, international organisations)	1,488	1,361	
Research contributions, mandates and scientific services	14,800	14,405	7
thereof transitional measures Confederation	115	–	7
Other revenue	515	519	8
Operating revenue	**77,866**	**79,116**	
Personnel expenses	56,288	55,036	9, 21
Other operating expenses	18,264	18,420	10
Depreciation	3,862	3,798	16
Transfer expenses	153	332	11
Operating expenses	**78,566**	**77,586**	
Operating result	**–700**	**1,530**	
Net finance income / expense	132	–33	12
Surplus (+) or deficit (–)	**–568**	**1,497**	

Balance sheet

CHF 1,000	31.12.2022	31.12.2021	Notes
Current assets			
Cash and cash equivalents	50,580	51,297	13
Current receivables from non-exchange transactions	9,163	6,198	14
Current receivables from exchange transactions	968	1,010	14
Current financial assets and loans	28,343	28,204	17
Prepaid expenses and accrued income	2,798	2,476	15
Total current assets	**91,853**	**89,185**	
Non-current assets			
Property, plant and equipment	19,963	21,311	16
Intangible assets	97	–	16
Non-current receivables from non-exchange transactions	8,842	6,655	14
Total non-current assets	**28,901**	**27,967**	
Total assets	**120,754**	**117,152**	
Liabilities			
Current liabilities	2,330	2,406	18
Accrued expenses and deferred income	2,107	2,494	19
Short-term provisions	2,699	2,854	20
Short-term liabilities	7,136	7,754	
Dedicated third-party funds	22,785	18,361	22
Net defined benefit liabilities	6,443	14,503	21
Long-term provisions	1,840	1,822	20
Long-term liabilities	31,068	34,686	
Total liabilities	**38,204**	**42,439**	
Equity			
Valuation reserves	19,092	10,680	
Donations, grants, co-financing	1,828	1,689	
Reserves with internal dedication	27,213	25,250	
Reserves without dedication	40,799	42,230	
Accumulated surplus (+)/deficit (–)	–6,382	–5,137	
Total equity	**82,551**	**74,712**	
Total liabilities and equity	**120,754**	**117,152**	

Statement of changes in equity

CHF 1,000	Valuation reserves	Donations, grants, co-financing	Teaching and research reserves	Infrastructure and administration reserves	Reserves with internal dedication	Reserves without dedication	Accumulated surplus (+) / deficit (–)	Total equity
2021								
Value as of 01.01.2021	**–964**	**1,689**	**14,939**	**9,000**	**23,939**	**44,873**	**–7,965**	**61,572**
Items directly recognised in equity:								
Revaluation of defined benefit liability	**11,644**							**11,644**
Surplus (+) or deficit (–)							**1,497**	**1,497**
Transfers in current period		**–**					**–**	**–**
Transfer of reserves with internal dedication			1,312	–	**1,312**	**–1,312**		**–**
Appropriation of reserves						**–1,331**	**1,331**	**–**
Total changes	***11,644***	***–***	*1,312*	*–*	***1,312***	***–2,643***	***2,828***	***13,141***
Value as of 31.12.2021	**10,680**	**1,689**	**16,250**	**9,000**	**25,250**	**42,230**	**–5,137**	**74,712**
2022								
Changes from restatement as of 01.01.*	**–**	**–**	–	–	**–**	**–**	**–6**	**–6**
Value as of 01.01.2022	**10,680**	**1,689**	**16,250**	**9,000**	**25,250**	**42,230**	**–5,143**	**74,706**
Items directly recognised in equity:								
Revaluation of defined benefit liability	**8,412**							**8,412**
Surplus (+) or deficit (–)							**–568**	**–568**
Transfers in current period		**139**					**–139**	**–**
Transfer of reserves with internal dedication			–37	2,000	**1,963**	**–1,963**		**–**
Appropriation of reserves						**532**	**–532**	**–**
Total changes	***8,412***	***139***	*–37*	*2,000*	***1,963***	***–1,431***	***–1,238***	***7,844***
Value as of 31.12.2022	**19,092**	**1,828**	**16,213**	**11,000**	**27,213**	**40,799**	**–6,382**	**82,551**

* Details on the restatement as of 1 January 2022 can be found in Note 2 in the section «Changes to the financial report methods (restatement)».

As hedge accounting is not applied at Eawag, no items are recognised under the reserves from hedging transactions.

The infrastructure and administration reserves consist of dedicated savings to be used exclusively for the new building at Kastanienbaum. Due to delays caused by objections and the associated cost-relevant adjustments to the building application as well as expected additional costs due to price increases during construction, the reserve was increased by CHF 2 million.

Cash flow statement

CHF 1,000	**2022**	**2021**	**Notes**
Cash flows from operating activities			
Surplus (+) or deficit (–)	**–568**	**1,497**	
Depreciation	3,862	3,798	16
Net finance income/expense (non-cash)	–	–	12
Increase/decrease in net working capital	–3,716	–2,369	
Increase/decrease in net defined benefit liabilities	352	–172	21
Increase/decrease in provisions	–137	–172	20
Increase/decrease in non-current receivables	–2,186	–2,139	14
Increase/decrease in dedicated third-party funds	4,424	1,771	22
Cash flows from operating activities	**2,032**	**2,214**	
Cash flows from investing activities			
Investments			
Purchase of property, plant and equipment	–2,513	–3,404	16
Purchase of intangible assets	–106	–	16
Increase in current and non-current financial assets	–139	–2,977	17
Total investments	*–2,758*	*–6,381*	
Divestments			
Disposal of property, plant and equipment	9	21	16
Total divestments	**9**	**21**	
Cash flows from investing activities	**–2,749**	**–6,360**	
Cash flows from financing activities			
Cash flows from financing activities	–	–	
Total cash flow	–717	–4,146	
Cash and cash equivalents at the beginning of the period	51,297	55,444	13
Total cash flow	–717	–4,146	
Cash and cash equivalents at the end of the period	50,580	51,297	13

Notes to the financial statements

1 Business activity

Eawag is a global leader in aquatic research. The combination of natural, engineering and social sciences allows water to be investigated across the continuum from relatively pristine natural waters to fully engineered wastewater management systems. Eawag offers its professors, scientific staff and doctoral students a unique research environment, promoting active engagement with stakeholders from industry and society.

Eawag is an independent institute within the ETH Domain.

2 Basis of accounting

These financial statements cover the reporting period from 1 January 2022 to 31 December 2022. The reporting date is 31 December 2022. The reporting is prepared in Swiss francs (CHF). All figures are shown in thousands of Swiss francs (CHF 1,000) unless otherwise indicated.

Legal basis
The legal basis of Eawag's accounting is formed of the version of the following (including directives and regulations) in effect in the reporting period:

- Federal Act on the Federal Institutes of Technology of 4 October 1991 (ETH Act; SR 414.110)
- Ordinance on the Domain of the Swiss Federal Institutes of Technology of 19 November 2003 (Ordinance on the ETH Domain; SR 414.110.3)
- Ordinance on the Finance and Accounting of the ETH Domain of 5 December 2014 (SR 414.123)
- Accounting Manual for the ETH Domain (version 7.0)

Accounting standards
The financial statements of Eawag have been prepared in accordance with the International Public Sector Accounting Standards (IPSAS). The underlying accounting provisions are set out in the Accounting Manual for the ETH Domain (Art. 34 Directives, Ordinance on the Finance and Accounting of the ETH Domain, SR 414.123).

IPSAS issued but not yet applied
The following IPSAS were issued before the reporting date.

Standard	Title	Effective date
Various	Improvements to IPSAS, 2021	01.01.2023
IPSAS 42	Social Benefits	01.01.2023
IPSAS 43	Leases	01.01.2025
IPSAS 44	Non-current Assets Held for Sale and Discontinued Operations	01.01.2025

The above-mentioned standards and improvements to the IPSAS have not been early applied in the present financial statements. Eawag will systematically analyse the impact on its financial statements. No significant impact on the annual financial statements is expected at the present time, apart from the standard IPSAS 43 (Leases).

IPSAS 43 replaces the previous standard for Lease Accounting IPSAS 13. IPSAS 43 introduces a uniform approach for lessees for the financial reporting of lease agreements, according to which assets are to be recognised for the rights to use the leased assets, and liabilities are to be recognised for the payment obligations incurred, for all lease agreements in the balance sheet. For leased items of small value and for short-term leases, the application expedients will be used. In contrast to the previous disclosure of expenditure from operative leases, depreciation on rights of use and interest expenditure from the accrued interest of lease liabilities will be recognised in future. Eawag is currently systematically analysing the expected impact of IPSAS 43 on the annual financial statements.

There are no further changes or interpretations which are not yet compulsory in their application and which would have a significant impact on Eawag.

Changes to the financial report methods (restatement)
As of 1 January 2022, Eawag applied IPSAS 41 Financial Instruments for the first time using the expedient of retrospective application for classification, measurement and loss allowance. In addition, the ETH Domain applied consequential changes to IPSAS 30 Financial Instruments: Notes for the Reporting Period 2022. However, these have not been applied to the comparative disclosures.

IPSAS 41 defines the requirements for the recognition and measurement of financial instruments. This standard replaces IPSAS 29 Financial Instruments: Recognition and Measurement. The new classification is based on the business model for the government and the characteristics of the contractual cash flows of these financial instruments.

Classification and measurement of financial assets and financial liabilities
The table below summarises the changes in the classification and measurement of financial instruments as of 1/1/2022:

CHF 1,000	Loans and receivables	Financial liabilities measured at amortised cost	Total carrying amount	Restatement IPSAS 41	Amortised cost	Financial liabilities measured at amortised cost	Total carrying amount
	31.12.2021				01.01.2022		
Cash and cash equivalents	51,297		51,297	–	51,297		51,297
Receivables from non-exchange transactions	12,853		12,853	–1	12,852		12,852
Receivables from exchange transactions	1,010		1,010	–5	1,005		1,005
Financial assets and loans	28,204		28,204	–	28,204		28,204
Prepaid expenses and accrued income	215		215	–	215		215
Financial liabilities*	–	2,868	2,868	–	–	2,868	2,868

* Current liabilities, Leasing liabilities, Financial liabilities, Accrued expenses and deferred income

The impact of the initial application of IPSAS 41 on the carrying amounts of the financial assets at 1 January 2022 results exclusively from the application of the new impairment model.

Impairment of financial assets
IPSAS 41 replaces the model of "Losses incurred" of IPSAS 29 with a model of "Expected credit losses" (ECL). The new impairment model is to be applied to financial assets that are measured at amortised cost, to contract assets and to debt instruments measured at fair value (FV equity) not affecting net income. According to IPSAS 41, credit losses will be recognised earlier than according to IPSAS 29 – see the respective sections in Note 3 Accounting Policies. This change applies particularly to the loss allowance on receivables. In accordance with IPSAS 41, the simplified approach will be applied for the receivables. This involves taking into consideration the credit losses expected over the entire remaining period from the time when the receivables were recognised, using a loss allowance matrix.

Eawag has determined that additional impairment expenditure from the application of the impairment regulations of IPSAS 41 as of 1 January 2022 are necessary in the amount of CHF 6,000. This exclusively involves impairment on receivables (in particular receivables not yet due) and loans.

Loss allowances from receivables will not be disclosed separately in the consolidated statement of financial performance but in material expenditure, for reasons of materiality, similar to the presentation according to IPSAS 29.

3 Accounting policies

The accounting policies are derived from the basis of accounting. The financial statements present a true and fair view of Eawag's financial position, financial performance and cash flows.

The financial statements are based on historical cost. Exceptions to this rule are described in the following presentation of the accounting principles.

The annual financial statements of Eawag are included in the consolidated financial statements of the ETH Domain.

Currency translation
Transactions in a currency other than the functional currency are translated using the exchange rate at the transaction date.

At the reporting date, monetary items in foreign currencies are translated at the closing rate and non-monetary items using the exchange rate at the transaction date. The resulting currency translation differences are recognised as finance income or finance expense.

The principal currencies and their exchange rates are:

		Closing rate as of		Average rate	
Currency	**Unit**	**31.12.2022**	**31.12.2021**	**2022**	**2021**
EUR	1	0.9874	1.0359	1.0048	1.0810
USD	1	0.9250	0.9107	0.9550	0.9143
GBP	1	1.1187	1.2332	1.1791	1.2575
JPY	1,000	7.0540	7.9230	7.2950	8.3260
SGD	1	0.6898	0.6764	0.6923	0.6803

Revenue recognition
Each inflow of funds is assessed to determine whether it is an exchange transaction (IPSAS 9) or a non-exchange transaction (IPSAS 23). In the case of an exchange transaction (IPSAS 9), the revenue is generally recognised when the goods are delivered or the services rendered. For project agreements, the performance obligation not yet satisfied is allocated to liabilities. The revenue is recorded and reported by reference to the stage of completion of the project, based on the costs incurred in the reporting period.

In the case of a non-exchange transaction (IPSAS 23), a distinction is made between whether or not there is a performance or repayment obligation. If there is such an obligation, the corresponding amount is recognised as a liability at inception of the agreement and released to the surplus or deficit according to the stage of completion, based on the resources consumed.

If there is neither an exchange nor a performance or repayment obligation in accordance with IPSAS 23, as is usually the case with donations, revenue is recognised in the surplus or deficit in full in the reporting period and the net assets / equity of Eawag increased accordingly.

Revenue is structured as follows:

- Total federal contribution
  The contributions granted by the Federal Government to the ETH Domain include the federal financial contribution (in the narrower sense) and the federal contribution to accommodation. Both types of revenue are classified as non-exchange transactions (IPSAS 23).

  Federal contributions are recognised in the year in which they are paid. Unused funds from federal financial contributions result in reserves under equity.

  The contribution to accommodation corresponds to the accommodation expense, which is equal to an imputed rent for the buildings owned by the Federal Government and used by Eawag. Accommodation expense is reported within other operating expenses.

- Continuing education
  Cost contributions to continuing education and further training as well as administration fees are classified as an exchange transaction (IPSAS 9). As a rule, revenue is accounted for on an accrual basis when the goods are delivered or the services rendered.

- Research contributions, mandates and scientific services
  Project-related contributions are given to Eawag by various donors with the aim of promoting teaching and research. Project financing primarily relates to multi-year projects. Depending on the nature of the contributions, they are classified as either an exchange or a non-exchange transaction.

- Donations and bequests
  Revenue from donations and bequests is classified as a non-exchange transaction (IPSAS 23). Such grants where there is no conditional repayment risk are usually recognised as revenue in full when the agreement is signed.

  Donations also include in-kind contributions, which are distinguished as follows:

  - Goods in-kind are recognised as assets in accordance with the applicable provisions when the agreement is signed.

  - Donated rights to use assets in the sense of an operating lease are recognised as revenue and expense. Donated rights to use assets in the sense of a finance lease are measured at their fair value at inception of the agreement, if this is known, and depreciated over their useful life. If a performance obligation exists, it is stated as a liability and revenue recognised annually according to the services received. If there is no performance obligation, revenue is recognised upon recognition of the asset as a whole.

  - Services in-kind received are not recognised but are instead disclosed and commented upon in the Notes if they are material.

  Due to the high number and the difficulty in elicitation, separability and measurement of rights of use and services in-kind within research agreements, these are not recognised. There is only a general description of the research activity in the Notes section.

- Other revenue
  Among other items, other revenue includes other service revenue and real estate revenue. This revenue is classified as an exchange transaction (IPSAS 9). As a rule, revenue is accounted for on an accrual basis when the goods are delivered or the services rendered.

Cash and cash equivalents
Cash and cash equivalents comprise cash on hand, demand and term deposits with financial institutions and funds invested with the Federal Government if their total term or the remaining term to maturity on the date of acquisition is less than 90 days. Cash and cash equivalents are measured at their nominal amount.

Receivables
Receivables from exchange (from goods and services) and non-exchange transactions are presented separately in the balance sheet.

In the case of receivables from non-exchange transactions (IPSAS 23), such as for SNSF and EU projects and from other donors, it is probable that there will be an inflow of funds in relation to the total contractual project volume. Therefore, the total amount of the project is usually recognised as a receivable at the inception of the agreement if the fair value can be measured reliably. If the recognition criteria cannot be met, information is disclosed under contingent assets.

Non-current receivables of over CHF 10 m are stated at amortised cost using the effective interest method. Current receivables are stated at cost.

Property, plant and equipment
Items of property, plant and equipment are stated at cost less accumulated depreciation. They are depreciated over their estimated useful life using the straight-line method. The estimated useful lives are as follows:

Asset category	Useful life Research Institutes
Immovable assets	
Property	unrestricted
Leasehold improvements ≤ CHF 1 m	10 years
Leasehold improvements > CHF 1 m	according to components [1]
Buildings and structures	according to components [2]
Biotopes and geotopes	unrestricted
Movable assets	
Machinery, equipment, tools, devices	5–10 years
Passenger vehicles, delivery vehicles, trucks, aircraft, ships, etc.	4–7 years
Furnishings	5–10 years
IT and communication	3–7 years
Large-scale research plants and equipment	10–40 years [3]

1 In the case of items of property, plant and equipment with a value of CHF 1 million or above, it is checked whether components (with a value that is significant in relation to the total value) need to be recognised and depreciated separately because they have a different useful life (components approach).
2 Useful life depends on the type of building, its purpose and the fabric of the building (20–100 years). Assets under construction are not yet depreciated.
3 This practice is deviated from in exceptional cases.

Capitalised leasehold improvements and installations in leased premises are depreciated over the estimated useful life or over the term of the lease if shorter.

In the event of additions to property, plant and equipment, it is checked whether components with a value that is significant in relation to the total value need to be recognised and depreciated separately because they have a different useful life (components approach).

Investments that have future economic benefits or are of public interest over several years and can be measured reliably are recognised as assets and depreciated over the estimated useful life.

The residual value of property, plant and equipment that is scrapped or sold is derecognised at the time of the asset's physical disposal. The gains or losses resulting from the derecognition of an item of property, plant and equipment are recognised as operating revenue or operating expenses.

Movable cultural items and works of art are not recognised as assets. An inventory of these items is kept.

Intangible assets

Intangible assets are recognised at cost. Standard software is amortised over three years using the straight-line method. Other intangible assets with an amortisation period required to be determined individually are amortised over their estimated useful life using the straight-line method.

Impairments of non-financial assets (property, plant and equipment and intangible assets)

Property, plant and equipment and intangible assets are reviewed annually for indications of impairment. If specific indications are identified, an impairment test is performed. If the carrying amount permanently exceeds the value in use or net realisable value, then the difference is recognised as an impairment in the surplus or deficit.

Financial assets

Procedure up to 31 December 2021

Loss allowances will be made on receivables on the basis of experience and case-by-case assessments. Loss allowances of loans and fixed deposits will be made based on case-by-case assessments.

Procedure from 1 January 2022

Eawag recognises loss allowances for expected credit losses (ECL) for financial assets which are valued at amortised cost. Eawag measures the loss allowances on receivables in the amount of the expected credit losses over the term (simplified approach). The amount of the loss allowance is measured in the amount of the 12-month credit loss to be expected on the following financial instruments (three-level approach):

- Loans which have a low default risk at the balance sheet date and
- Bank deposits for which the default risk has not significantly increased since initial recognition.

Loss allowances for receivables from non-exchange transactions and for receivables from exchange transactions will always be measured in the amount of the credit loss to be expected over the term (simplified approach) using a loss allowance matrix. The probability of default is based on experience, supplemented where possible with currently observed data and an assumption of future development. No loss allowance will be recognised for the share for which a performance obligation according to IPSAS 23 is still recorded in the balance sheet.

In determining whether the default risk of a financial asset has significantly increased since the initial recognition, and in estimating expected credit losses, Eawag takes into account appropriate and reliable information, which is relevant and available without undue expenditure of time and money. This comprises both quantitative as well as qualitative information and analyses which are based on previous experiences of Eawag and well-founded assessments, including forward-looking information, where possible. Among other things, Eawag assumes that the default risk of a financial asset has significantly increased if it is overdue by more than 30 days.

Presentation of the loss allowance for expected credit losses in the balance

Impairments on financial assets which are measured at amortised cost are deducted from the gross book value of the assets.

Acceptance of loss allowance

The gross book value of a financial asset will be derecognised if Eawag, after reasonable assessment, does not assume that the financial asset is achievable either completely or in part. For this purpose, Eawag carries out an individual estimate of the time and amount of the acceptance of the loss allowance. Here, Eawag fundamentally expects that collection of the financial asset is possible. If Eawag does not expect any significant redemption, the amount will be used and the asset derecognised.

Financial assets and loans

Procedure up to 31 December 2021

Financial assets are recognised at fair value if they are acquired with the intention of generating a profit from short-term fluctuations in price or if they are designated as financial assets at fair value (e.g. investments held without significant influence). Changes in value are recognised in the surplus or deficit.

Other non-current financial assets that are held for an indefinite period and may be sold at any time for liquidity reasons or in response to changes in market conditions are classified as available for sale and stated at fair value or at cost if the fair value cannot be determined reliably. Unrealised gains and losses are recognised in equity and only transferred to the surplus or deficit when the financial asset is sold or an impairment occurs.

Originated loans and fixed deposits are stated either at amortised cost (nominal value of less than CHF 10 million, and current loans and fixed deposits of over CHF 10 million) or at amortised cost using the effective interest method (non-current loans and fixed deposits of over CHF 10 million). The effective interest method allocates the difference between the acquisition cost and the repayment amount (premium / discount) over the term of the asset, using the net present value method. Impairment losses are recognised based on a case by case assessment.

Derivative financial instruments are used primarily for hedging or as a strategic position. Without exception, they are measured at fair value. Changes in value are usually recognised in the surplus or deficit.

Procedure from 1 January 2022

At initial recognition, a financial asset will be classified and measured as follows at Eawag:

- At amortised cost (AC):
  - These are debt instruments that are held in order to collect contractual cash flows which are exclusively principal and interest payments. These include primarily loans and fixed deposits.
  - Originated loans and fixed deposits are stated either at amortised cost (nominal value of less than CHF 10 million, and current loans and fixed deposits of over CHF 10 million) or at amortised cost using the effective interest method (non-current loans and fixed deposits of over CHF 10 million).
  - The amortised costs are reduced by impairment expenditure. Interest earnings, foreign exchange gains and losses as well as impairments will be recognised in surplus or deficit. A gain or loss from derecognition will be recognised in surplus or deficit
- At fair value through surplus or deficit:
  - The financial assets held for trade purposes as well as derivative financial instruments are recognised at fair value through surplus or deficit. Fluctuations in value and dividends will be recognised in surplus or deficit.

Investment property

Eawag does not own any investment property.

Current liabilities

Current liabilities are usually recognised on receipt of the invoice. This item also includes current accounts with third parties (including social insurance institutions). Current liabilities are measured at their nominal amount.

Provisions

Provisions are recognised when a past event gives rise to a present obligation, an outflow of resources is likely and the amount can be estimated reliably.

Defined benefit plans

Net defined benefit liabilities presented in the balance sheet are measured in accordance with the methods of IPSAS 39. They correspond to the present value of the defined benefit obligations (DBO), less the fair value of the plan assets.A description of the pension scheme and the insured persons of the ETH Domain can be found in Note 21 Defined benefit plans.

The defined benefit obligations and the service costs are determined annually by external experts using the projected unit credit actuarial valuation method. The calculation is made based on information about the beneficiaries (salary, vested benefits, etc.) and using both demographic (retirement rates, disability rates, mortality rates, etc.) and financial (salary or pension trends, returns, etc.) assumptions.
The amounts calculated are discounted to the valuation date by applying a discount rate. Changes in estimates of economic conditions can significantly affect defined benefit obligations.

The defined benefit obligations were measured based on the current membership base of the ETH Domain's pension scheme as of 31 October 2022, using actuarial assumptions as of 31 December 2022 (e.g. BVG 2020 actuarial tables), and the plan provisions of the ETH Domain pension scheme. The results were then adjusted using estimated pro rata cash flows as of 31 December 2022. The fair value of the plan assets is used including estimated performance as of 31 December 2022.

The inclusion of risk sharing in the measurement of pension liability occurs in a two-level judgement and requires the definition of additional assumptions. As with the other financial and demographic assumptions, these assumptions are from the employer's perspective. In the first step, it will be checked whether a current or future structural deficit can be proved. If this is the case, any performance measures (conversion rate reduction and accompanying measures such as the contribution of retirement assets, adjustment of amounts) will be taken into consideration in the calculations. If a structural financial shortfall remains, this will be split up mathematically in a second step between employer and employee. The assumption is that the employer's share of the financial shortfall is limited to 64 % as per the current scale for regulatory savings contributions. The employee share is distributed according to the past and future expected service years at a flat rate in an acquired and outstanding share. The part that has already been acquired reduces the cash value of the employer's pension liability while the outstanding part reduces the future service costs of the employer.

Effects from plan amendments have no longer been recognised on the statement of financial performance since the introduction of risk sharing, but rather are recognised directly in equity as part of the revaluation of the liability.

Any net pension plan asset from a defined benefit plan will be recognised at the lower value from the excess cover (after deduction of employee's contribution of 50 %) and the cash value of an economic benefit in the form of refunds or reductions of future contribution payments ("asset ceiling").

Current service cost, past service cost resulting from plan amendments, gains and losses on settlement, administrative costs and interest on the net defined benefit liabilities are presented in the statement of financial performance within personnel expenses.

Plan amendments and settlements are recognised immediately in the surplus or deficit in the period in which they occur, provided they result in vested benefits. Actuarial and investment gains and losses on defined benefit plans are recognised directly in equity in the reporting period in which they occur.

Dedicated third-party funds

Liabilities from projects that arise from non-exchange transactions (IPSAS 23) are presented in the balance sheet as dedicated third-party funds. They are allocated solely to non-current liabilities because the projects usually last for several years and the current portion of the liability cannot be determined in most cases due to the nature of the projects.

They are measured based on the outstanding performance obligations at the reporting date, which are calculated from the total contractual project volume less services performed up to the reporting date.

Equity

Net assets/equity is the residual interest in the assets of an entity after deducting all its liabilities. Equity is structured as follows:

- Valuation reserves (recognition in equity)
  - Revaluation reserves for net defined benefit liabilities. Actuarial and investment gains and losses on defined benefit obligations or plan assets are recognised in equity.

- Donations, grants and co-financing

  This item includes unused third-party funds from donations and bequests as well as from other grants that have conditions attached, but are not required to be classified as liabilities. These funds are exclusively from non-exchange transactions (IPSAS 23). The result generated from the management of third-party funds and the reserves for fluctuations in the value of the securities portfolio (risk capital) are also allocated to this category.

  Eawag has neither reserves from donations or grants nor co-financing; only the results generated from the management of third-party funds are reported under this item.

- Reserves with internal dedication
  - Teaching and research reserves

    This item indicates that various internal and external commitments exist and appropriate reserves have to be recognised to cover them.
  - Infrastructure and administration reserves

    These include reserves for delayed construction projects and for dedicated savings for specific infrastructure projects and administration projects.

- Reserves without dedication

  Unused funds for which there are no contractual or internal provisions in accordance with IPSAS are presented as reserves without dedication. They are not restricted in terms of time or purpose.

  Reserves must have been generated. They are recognised and released within the equity.

- Accumulated surplus/deficit

  The accumulated surplus/deficit shows the cumulative results at the reporting date. It comprises the surplus/deficit carried forward, the surplus/deficit for the period and increases or decreases (transfers in current period) in the result generated from the management of third-party funds as well as the allocations to and releases from the reserves (appropriation of surplus or deficit)

  The surplus/deficit carried forward changes annually as part of the appropriation of surplus/deficit. The surplus/deficit for the period includes the portion of the result not yet distributed.

Contingent liabilities and contingent assets

A contingent liability is either a possible obligation that arises from past events and whose existence will be confirmed only by the occurrence or non-occurrence of an uncertain future event not wholly within the control of the entity, or a present obligation that arises from past events but is not recognised because of its low probability of occurrence (less than 50%) or because the obligation cannot be measured reliably, as a result of which the criteria for recognising a provision are not met.

A contingent asset is a possible asset that arises from past events and whose existence will be confirmed only by the occurrence or non-occurrence of an uncertain future event not wholly within the control of the entity.

Financial commitments

Financial commitments are presented in the Notes if they are based on events prior to the reporting date, they will definitely lead to obligations to third parties after the reporting date and their amount can be measured reliably.

Cash flow statement

The cash flow statement shows the cash flows from operating activities, investing activities and financing activities. It is presented using the indirect method, i.e. cash flows from operating activities are based on the surplus or deficit for the period, adjusted for the effects of transactions of a non-cash nature. "Total cash flow" represents the change in the balance sheet item "Cash and cash equivalents".

4 Estimation uncertainty and management judgements

Estimation uncertainty in the application of accounting policies

Preparation of the annual financial statements is dependent on assumptions and estimates in connection with accounting principles, where management has a certain margin of discretion. Although these estimates are based on management's best knowledge, the actual results may differ.

This applies to the following items in particular:

- Useful life and impairment of plant, property and equipment
  The useful life of plant, property and equipment is defined and periodically reviewed bearing in mind the current technical environment and past experience. A change in the estimate may affect the future amount of the depreciation charges and the carrying amount.

  Estimates that could lead to a reduction in the carrying amount (impairment) are likewise made in the course of the regular impairment test.

- Provisions as well as contingent assets and liabilities
  Provisions as well as contingent assets and liabilities involve a higher degree of estimation with respect to the probability and scale of cash inflows and outflows. As a result, they therefore may lead to a higher or lower cash outflow depending on the actual outcome of a past event.

- Defined benefit plans
  The net defined benefit liabilities and assets are calculated based on long-term actuarial assumptions for the defined benefit obligations and for the expected returns on plan assets. These assumptions may differ from actual future developments. The determination of the discount rate and future salary and pension trends and demographic development (future life expectancy, disability, likelihood of the employee leaving) and assumptions about risk sharing between employer and employee are an important component of the actuarial valuation.

- Discount rates
  Uniform discount rates have been defined for use in discounting non-current receivables, liabilities and provisions. They are based on a risk-free rate and a premium for credit risk. However, because of the current interest rate situation these discount rates are subject to some uncertainties.

- Loss allowance for expected credit losses
  In the measurement of the loss allowance due to expected credit losses for receivables from non-exchange transactions and for receivables from exchange transactions, the key assumptions for determining probabilities of default are subject to estimation uncertainties.

Management judgements in the application of accounting policies

Neither in the reporting year nor in the previous year were there any management judgements in this regard having a material effect on the annual financial statements.

5 Total federal contribution

Federal financial contribution

CHF 1,000	2022	2021
Basic federal financial contribution	56,423	56,000
ETH Board incentive and seed capital funding	186	2,543
Strategic programs according to ERI	72	159
Credit reallocation from federal investment credit	2,240	3,480
Credit reallocation within ETH Domain	97	–2,012
Federal financial contribution	**59,018**	**60,170**

The federal financial contribution was used to achieve the goals specified in the performance mandate 2021–2024.

Federal contribution to accommodation

CHF 1,000	2022	2021
Federal contribution to accommodation	**3,399**	**3,893**

The federal contribution to accommodation is used to cover rental expenses for federally owned properties. The total rental amount in the ETH Domain is allocated by the ETH Board staff Real Estate to the individual institutions according to a formula.

6 Continuing education

CHF 1,000	2022	2021
Continuing education	**133**	**129**

Continuing education mainly comprises income from PEAK and other courses as well as the Eawag Info Day.

7 Research contributions, mandates and scientific services

CHF 1,000	2022	of which revenues (IPSAS 23)	of which revenues (IPSAS 9)	2021	of which revenues (IPSAS 23)	of which revenues (IPSAS 9)
Swiss National Science Foundation (SNSF)	5,069	5,069	–	4,822	4,822	–
Swiss Innovation Agency (Innosuisse)	243	243	–	188	188	–
Special federal funding of applied research	5,775	772	5,003	6,150	699	5,452
EU Framework Programmes for Research and Innovation (EU-FPs)	1,349	1,349	–	802	802	–
Industry-oriented research (private sector)	876	–	876	1,080	–	1,080
Other project-oriented third-party funding (incl. cantons, municipalities, international organisations)	1,488	540	948	1,361	513	848
Total research contributions, mandates and scientific services	**14,800**	**7,972**	**6,828**	**14,405**	**7,024**	**7,380**

Teaching and research projects are generally multi-year activities (approx. 3 – 5 years).

In the reporting year, the EU Framework Programmes for Research and Innovation include direct federal (SERI) funding for Horizon Europe bridging measures of CHF 115,000 (previous year: none).

8 Other revenue

CHF 1,000	2022	2021
Licences and patents	7	17
Sales	6	4
Real estate revenue	319	255
Profit from disposals (property, plant and equipment)	–	–
Other miscellaneous revenue	183	243
Total other revenue	**515**	**519**

Real estate revenue includes, in particular, income from rental of guest house apartments. The other miscellaneous revenue is attributable to various relatively small amounts.

9 Personnel expenses

CHF 1,000	2022	2021
Professors	–	–
Scientific personnel	29,150	28,953
Technical and administrative personnel, apprentices, trainees	17,708	17,430
IC, Suva and other refunds	–365	–348
Total salaries and wages	**46,493**	**46,035**
Social insurances OASI/DI/IC/MB	2,796	2,781
Net pension costs	5,745	5,257
Accident and sickness insurance Suva (BU/NBU/KTG)	158	193
Employer's contribution to Family Compensation Fund (FAK/FamZG)	527	523
Total social insurance schemes and pension expenses	**9,225**	**8,754**
Other employer contributions	–235	–226
Temporary personnel	73	40
Change in provisions for untaken leave and overtime	–114	–128
Change in provisions for contributions to long-service awards	18	–16
Other personnel expenses	826	577
Total personnel expenses	**56,288**	**55,036**

The slight increase in staff salaries is in line with expectations and continues to result from appointments for research projects. The higher net pension costs (cf. Note 21) led to an increase in total personnel expenses.

Other personnel expenses were lower in the previous year due to the effects of the Covid measures.

10 Other operating expenses

CHF 1,000	2022	2021
Expenses for goods and materials	2,768	3,262
Premises costs	5,791	6,091
Other operating costs	9,705	9,068
Total other operating expenses	**18,264**	**18,420**

For 2021, expenses for goods and materials also include non-capitalisable items from the new Flux building (around CHF 400,000).

The decrease in other operating expenses in the previous year was mainly due to limited travel as a result of Covid-19.

11 Transfer expenses

CHF 1,000	**2022**	**2021**
Scholarships and grants to students and doctoral students	–	–
Contributions to research projects	153	332
Other transfer expenses	–	–
Total transfer expenses	**153**	**332**

Eawag provides financial support for various research projects run by other public institutions (universities, higher education establishments, etc.).

12 Net finance income / expense

CHF 1,000	**2022**	**2021**
Finance income		
Interest income	139	–
Foreign currency gains	38	25
Other finance income	–	–
Total finance income	**177**	**25**
Finance expense		
Interest expense	–	–
Foreign currency losses	34	48
Other finance expense	11	10
Total finance expense	**45**	**58**
Total net finance income / expense	**132**	**–33**

13 Cash and cash equivalents

CHF 1,000	**31.12.2022**	**31.12.2021**
Cash	42	28
Swiss Post	4,339	2,106
Bank	200	163
Short-term deposits (<90 days)	46,000	49,000
Total cash and cash equivalents	**50,580**	**51,297**

Short-term deposits are wholly invested in federal financial instruments.

Cash and cash equivalents are not subject to any disposal restrictions.

14 Receivables

CHF 1,000	**31.12.2022**	**31.12.2021**
Receivables from non-exchange transactions		
Receivables from project contracts and donations	17,646	12,489
Other receivables	360	364
Loss allowance	– 1	–
Total receivables from non-exchange transactions	**18,005**	**12,853**
of which current	9,163	6,198
of which non-current	8,842	6,655
Receivables from exchange transactions		
Trade accounts receivable	943	939
Other receivables	30	71
Loss allowance	– 5	–
Total receivables from exchange transactions	**968**	**1,010**
of which current	968	1,010
of which non-current	–	–

With the application of IPSAS 41, valuation allowances of CHF 6,000 were made as part of the restatement as of 1 January 2022. (cf. Note 2)

In both the reporting and the previous year, no losses on receivables were recorded.

Receivables outstanding for more than 30 days amount to CHF 77,000.

15 Prepaid expenses and accrued income

CHF 1,000	**31.12.2022**	**31.12.2021**
Interest	–	–
Prepaid expenses	2,616	2,261
Other prepaid expenses and accrued income	182	215
Total prepaid expenses and accrued income	**2,798**	**2,476**

Prepaid expenses essentially comprise the fees payable in advance for the library databases.

Other prepaid expenses and accrued income derive from current IPSAS 9 (exchange transaction) projects.

16 Property, plant and equipment and intangible assets

CHF 1,000	Large-scale research plants and equipment, machinery, furnishings, vehicles	Information and communication	Advance payments, movable assets under construction	Total movable assets	Leasehold improvements	Assets under construction	Total immovable assets	Total property, plant and equipment	Total intangible assets
Purchase value									
Value as of 01.01.2022	**34,436**	**733**	**242**	**35,411**	**25,695**	**–**	**25,695**	**61,106**	**109**
Additions	1,242	82	50	1,375	258	881	1,139	2,513	106
Reclassifications	242	–	–242	–	–	–	–	–	–
Disposals	–679	–55	–	–734	–	–	–	–734	–
Value as of 31.12.2022	**35,241**	**761**	**50**	**36,052**	**25,953**	**881**	**26,834**	**62,885**	**215**
Accumulated depreciation									
Value as of 01.01.2022	**24,848**	**597**	**–**	**25,445**	**14,349**	**–**	**14,349**	**39,795**	**109**
Depreciation	1,976	64	–	2,040	1,813	–	1,813	3,853	9
Disposals value adjustments	–669	–55	–	–724	–	–	–	–724	–
Value as of 31.12.2022	**26,154**	**606**	**–**	**26,761**	**16,162**	**–**	**16,162**	**42,923**	**117**
Balance sheet value as of 31.12.2022	**9,087**	**154**	**50**	**9,291**	**9,791**	**881**	**10,672**	**19,963**	**97**
thereof leased assets				–			–	–	–

Eawag does not have any leased property, plant and equipment or leased intangible assets. There are no disposal restrictions or pledged tangible or intangible assets.

The leasehold improvements are located in or on federally owned buildings and property.

The non-mobile installations under construction relate to the ongoing renovation of the laboratory building.

CHF 1,000	Large-scale research plants and equipment, machinery, furnishings, vehicles	Information and communication	Advance payments, movable assets under construction	Total movable assets	Leasehold improvements	Assets under construction	Total immovable assets	Total property, plant and equipment	Total intangible assets
Purchase value									
Value as of 01.01.2021	**33,641**	**870**	**380**	**34,890**	**20,879**	**2,794**	**23,673**	**58,563**	**109**
Additions	1,140	–	242	1,382	–	2,022	2,022	3,404	–
Reclassifications	334	46	–380	–	4,816	–4,816	–	–	–
Disposals	–680	–182	–	–862	–	–	–	–862	–
Value as of 31.12.2021	**34,436**	**733**	**242**	**35,411**	**25,695**	**–**	**25,695**	**61,106**	**109**
Accumulated depreciation									
Value as of 01.01.2021	**23,483**	**719**	**–**	**24,202**	**12,635**	**–**	**12,635**	**36,837**	**109**
Depreciation	2,023	60	–	2,083	1,714	–	1,714	3,798	–
Disposals value adjustments	–658	–182	–	–840	–	–	–	–840	–
Value as of 31.12.2021	**24,848**	**597**	**–**	**25,445**	**14,349**	**–**	**14,349**	**39,795**	**109**
Balance sheet value as of 31.12.2021	**9,588**	**136**	**242**	**9,965**	**11,346**	**–**	**11,346**	**21,311**	**–**
thereof leased assets				–			–	–	–

17 Financial assets and loans

CHF 1,000	31.12.2022	31.12.2021
Current financial assets and loans		
Other financial assets	28,343	28,204
Loans	–	–
Total current financial assets and loans	**28,343**	**28,204**

Current financial assets consist exclusively of financial assets placed in accordance with the agreement between the Federal Finance Administration and the ETH Board concerning Treasury relations between the Federal Finance Administration and the ETH Board (19 August 2021). The assets in question are third-party funds already received and temporarily deposited with the Federal Treasury before being used in teaching and research.

The increase corresponds to the credited interest income.

18 Current liabilities

CHF 1,000	**31.12.2022**	**31.12.2021**
Trade payables	813	631
Liabilities to social insurance institutions	929	922
Other current liabilities	587	853
Total current liabilities	**2,330**	**2,406**

Other current liabilities mainly include withholding taxes not yet invoiced by the cantons. In the reporting year, invoices from earlier periods were received and settled.

19 Accrued expenses and deferred income

CHF 1,000	**31.12.2022**	**31.12.2021**
Interest	–	–
Deferred income	1,413	2,032
Other accrued expenses and deferred income	694	462
Total accrued expenses and deferred income	**2,107**	**2,494**

Deferred income comprises income from IPSAS 9 (exchange transaction) projects which is only to be recognised as revenue in the new accounting period.

20 Provisions

CHF 1,000	**31.12.2022**	**31.12.2021**
Provisions for untaken leave and overtime	2,699	2,813
Other long-term employee benefits (IPSAS 39)	1,840	1,822
Other provisions	–	41
Total provisions	**4,539**	**4,676**

Changes in 2022

CHF 1,000	Provisions for untaken leave and overtime	Other long-term employee benefits (IPSAS 39)	Other provisions	Total provisions
Value as of 01.01.2022	**2,813**	**1,822**	**41**	**4,676**
Additions to provisions	–	272	–	272
Reversal	–	–	–	–
Use of provisions	–114	–254	–41	–409
Value as of 31.12.2022	**2,699**	**1,840**	**–**	**4,539**
of which current	2,699	–	–	2,699
of which non-current	–	1,840	–	1,840

Changes in 2021

CHF 1,000	Provisions for untaken leave and overtime	Other long-term employee benefits (IPSAS 39)	Other provisions	Total provisions
Value as of 01.01.2021	**2,940**	**1,838**	**69**	**4,847**
Additions to provisions	–	264	41	305
Reversal	–128	–	–	–128
Use of provisions	–	–280	–69	–349
Value as of 31.12.2021	**2,813**	**1,822**	**41**	**4,676**
of which current	2,813	–	41	2,854
of which non-current	–	1,822	–	1,822

Other long-term employee benefits (IPSAS 39) are future long-service awards. These are calculated pro rata, taking account of staff turnover.

21 Defined benefit plans

All employees and pensioners of Eawag are insured under the pension scheme maintained by the ETH Domain at the collective institution "Swiss Federal Pension Fund PUBLICA" (PUBLICA).

Legal framework and responsibilities
Legal requirements
Swiss pension plans must be run through a legally separate, trustee-administered pension institution. The law prescribes minimum benefits.

Organisation of the pension scheme
PUBLICA is an independent, state-run institution under public law.

The Board of Directors (Kassenkommission) is PUBLICA's most senior governing body. In addition to management, it is also responsible for the oversight and supervision of PUBLICA's Executive Board. The Board of Directors has 16 members, eight representing the insured members and eight representing the employers from among all the affiliated pension plans. This means that PUBLICA's most senior governing body is made up of an equal number of employee and employer representatives.

Each pension scheme has its own governing body made up of equal numbers of representatives. Among other things, it is involved in concluding the affiliation contract and decides on the appropriation of any surpluses.

Each governing body is made up of nine employer representatives and nine employee representatives from the entities.

Insurance plan
In accordance with IPSAS 39, insurance plans are classified as defined benefit plans.

The pension plan is defined in the terms of the ETH Domain pension scheme applicable to employees and professors, which form part of the affiliation contract with PUBLICA. The pension plan provides benefits in excess of the minimum benefits required by law in the event of disability, death, old age and departure; i.e. it is what is known as an "enveloping" plan (obligatory and extraordinary benefits).

The employer and employee savings contributions are set as a percentage of the insured salary. A risk premium is charged for death and disability insurance. The administrative costs are paid by the employer.

The old-age pension is calculated from the credit balance in the retirement fund at the retirement date multiplied by the conversion rate specified in the Terms. Employees have the option of drawing the retirement benefits as a lump sum. There are pension plans for different groups of insured persons. In addition, employees have the option of making additional savings contributions.

The risk benefits are determined depending on the projected savings capital, which attracts interest, and on the conversion rate.

Investment of assets
Investments are made by PUBLICA for all pension schemes (with the same investment profile) collectively.

As PUBLICA's most senior governing body, the Board of Directors bears overall responsibility for asset management. It is responsible for issuing and amending the investment policy and determines the investment strategy. The Investment Committee advises the Board of Directors on investment-related issues and oversees compliance with the investment policy and strategy.

Responsibility for implementing the investment strategy rests with PUBLICA's Asset Management. Asset Management also makes tactical decisions to deviate temporarily from the investment strategy weightings in order to generate added value compared to the existing strategy. Where individual asset classes are built up or reduced over a number of years, a pro rata strategy is calculated so as to enable transactions to be diversified over time.

Risks for the employer
The Parity Commission of the ETH Domain's pension scheme made up of equal numbers of representatives can change the funding system (contributions and future benefits) at any time. The Parity Commission may collect restructuring contributions from the employer if the scheme is underfunded within the meaning of pension law (Article 44 Occupational Pension Ordinance (BVV 2)) and if other measures are without success. If these are used to fund benefits in excess of the statutory minimum, the employer must indicate their agreement with this.

Risk sharing (risk distribution between insured employees and employer), which was introduced in 2020, will remain unchanged (for details see Note 3 Accounting policies). Due to the amount of the discount rate as of 31 December 2022, there was no reduction in the present value of the defined benefit liabilities because of the expanded risk-sharing approach.

The definitive funding ratio in accordance with the Occupational Pensions Act (BVG) was not yet available at the time the annual financial statements were authorised for issue. The provisional regulatory funding ratio for the ETH Domain's pension scheme at PUBLICA, in accordance with the Occupational Pension Ordinance (BVV 2), was 97.2% at the end of 2022 (2021: 109.3%, definitive). The provisional economic funding ratio for the ETH Domain's pension scheme at PUBLICA was 96.5% at the end of 2022 (2020: 96.5%, definitive).

Special events

There were no plan amendments, curtailments or settlements to be considered for the ETH Domain's pension plan at PUBLICA.

In the previous reporting period, the decision was taken to reduce the employer's participation in the financing of the bridging pension in accordance with the revised regulation found in the ETH Domain Personnel Ordinance. This adjustment is included as a negative past service cost in the IPSAS 39 measurement.

Net defined benefit liabilities / assets

CHF 1,000	**31.12.2022**	**31.12.2021**
Present value of defined benefit obligations	181,614	206,370
Less fair value of plan assets	–175,171	–191,867
Recognised net defined benefit liabilities (+) / assets (–)	**6,443**	**14,503**

The decrease in net defined benefit liabilities of CHF 8.1 m results from a reduction in the present value of defined benefit obligations and relatively lower reduction in the fair value of plan assets. The increase in the discount rate (31 December 2022: 2.2 % / 31 December 2021: 0.4 %) and the experienced-based parameters led to a reduction in net defined benefit liabilities of CHF 34.7 m and CHF 2.8 m respectively. Compensating for this, assumptions regarding salary development and the projected interest for retirement assets led to an increase in the net defined benefit liabilities of CHF 10.2 m. Plan assets decreased by CHF 18.9 m due to the negative return on investment.

Net pension costs

CHF 1,000	**2022**	**2021**
Current service cost (employer)	5,600	5,467
Past service cost	–	–365
Interest expense from defined benefit obligations	829	418
Interest income from plan assets	–770	–366
Administrative costs (excl. asset management costs)	86	103
Total Net pension costs incl. interest expense recognised in statement of financial performance	**5,745**	**5,257**

Net pension costs are CHF 0.5 m higher than in the previous year. This increase can primarily be attributed to both the higher current service cost (CHF 0.1 m) and the past service cost (CHF 0.4 m). The increase in the current service cost is due to the smaller financial shortfall (due to the positive return in 2021) as well as the expected positive salary development.

In the previous year, the employer's participation in the financing of the bridging pension was reduced, which led to negative costs. Employer's contributions of CHF 5.2 m and employees' contributions of CHF 3.1 m are expected for the coming financial year.

Revaluation recognised in equity

CHF 1,000	**31.12.2022**	**31.12.2021**
Actuarial gains (–) and losses (+)	–27,263	–3,247
from change in financial assumptions	–24,454	–3,621
from change in demographic assumptions	–	–5,135
from experience adjustments	–2,809	5,509
Return on plan assets excl. interest income (gains (–)/losses (+))	18,851	–8,397
Revaluation amount recognised in equity	**–8,412**	**–11,644**
Cumulative amount of revaluation recognised in equity (gain (–)/loss (+))	**–19,092**	**–10,680**

The revaluation gain recognised in equity in 2022 amounted to CHF 8.4 m (2021: CHF 11.6 m). This results in positive valuation reserves of CHF 19.1 m as of 31 December 2022 (2021: CHF 10.7 m).

The actuarial gains from changes in financial assumptions essentially result from the increase in the discount rate (CHF 34.7 m). They were reduced by the higher interest on retirement savings and the higher the expected salary development (CHF 10.2 m). In addition, experience-based gains increased the revaluation gains recognised in equity by CHF 2.8 m.

The return on plan assets recognised as an expense is attributable to the loss on investments of 9.7 % generated compared with the expected return (corresponds to a discount rate of 0.4 %).

Change in present value of defined benefit obligations during year

CHF 1,000	**2022**	**2021**
Present value of defined benefit obligations as of 01.01.	**206,370**	**208,742**
Current service cost (employer)	5,600	5,467
Interest expense from defined benefit obligations	829	418
Employee contributions	3,244	3,213
Benefits paid in (+) and paid out (–)	–7,166	–7,858
Past service cost	–	–365
Actuarial gains (–)/losses (+)	–27,263	–3,247
Present value of defined benefit obligations as of 31.12.	**181,614**	**206,370**

The weighted average term arising from defined benefit obligations is 12.0 years as of 31 December 2022 (2021: 13.5 years).

Change in fair value of plan assets during year

CHF 1,000	2022	2021
Fair value of plan assets as of 01.01.	**191,867**	**182,423**
Interest income from plan assets	770	366
Employer contributions	5,393	5,429
Employee contributions	3,244	3,213
Benefits paid in (+) and paid out (–)	–7,166	–7,858
Administrative costs (excl. asset management costs)	–86	–103
Return on plan assets excl. interest income (gains (+)/losses (–))	–18,851	8,397
Fair value of plan assets as of 31.12.	**175,171**	**191,867**

Transition of net defined benefit liabilities

CHF 1,000	2022	2021
Net defined benefit liabilities as of 01.01.	**14,503**	**26,319**
Net pension costs incl. interest expense recognised in statement of financial performance	5,745	5,257
Revaluation amount recognised in equity	–8,412	–11,644
Employer contributions	–5,393	–5,429
Net defined benefit liabilities (+)/assets (–) as of 31.12.	**6,443**	**14,503**

Major categories of plan assets

Percentage	Listed	Not listed	31.12.2022	Listed	Not listed	31.12.2021
Liquidity	6	–	6	3	–	3
Bonds (in CHF) Confederation	6	–	6	5	–	5
Bonds (in CHF) ex. Confederation	8	–	8	9	–	9
Government bonds (in foreign currencies)	19	–	19	23	–	23
Corporate bonds (in foreign currencies)	8	–	8	9	–	9
Mortgages	3	–	3	2	–	2
Shares	26	–	26	28	–	28
Real estate	8	8	16	6	6	12
Commodities	2	–	2	2	–	2
Other	–	6	6	–	7	7
Total plan assets	**86**	**14**	**100**	**87**	**13**	**100**

PUBLICA bears the actuarial and investment risks itself. The investment strategy is defined in such a way that benefits under the policy can be provided at maturity.

There is no known pension plan real estate used by the employer.

Principal actuarial assumptions used as at the reporting date

Percentage	2022	2021
Discount rate as of 01.01.	0.40	0.20
Discount rate as of 31.12.	2.20	0.40
Expected salary development	2.40	0.60
Expected pension development	0.00	0.00
Interest on retirement savings	2.20	0.40
Share of employee contribution to funding gap	36.00	36.00
Life expectancy at age 65 – women (no. of years)	24.48	24.37
Life expectancy at age 65 – men (no. of years)	22.70	22.57

As was the case in the previous year, the discount rate is now based on the return from the fixed-interest high-yield corporate bonds (previous year: the spot interest rates for federal bonds published by the Swiss National Bank on a monthly basis) and the expected capital flows from ETH Domain pension scheme to PUBLICA based on the previous year's data. The expected future salary development is based on economic reference values. The rate of pension increase is the rate of pension increase expected for the average remaining term based on the financial position of the pension plan. The share of employee contribution to any funding gap is based on the current graduation of the savings contributions under the policy. The generation tables in BVG 2020 are applied for assumptions about life expectancy.

Sensitivity analysis (change in present value of defined benefit obligations)

	31.12.2022		31.12.2021	
CHF 1,000	Increase in assumption	Decrease in assumption	Increase in assumption	Decrease in assumption
Discount rate (change +/– 0.25%)	–5,191	4,866	–4,962	5,263
Expected salary development (change +/– 0.25%)	535	–539	518	–508
Expected pension development (change +/– 0.25%)	3,678	n/a	4,065	n/a
Interest on retirement savings (change +/– 0.25%)	1,217	–1,204	1,003	–984
Share of employee contribution to funding gap (change +/– 10%)	–	–	–870	870
Life expectancy (change +/–1 year)	4,481	–5,196	5,228	–5,281

The change in defined benefit obligations upon adjustment of the actuarial assumptions is determined in the sensitivity analysis. Only one of the assumptions is adjusted at a time, while the other parameters remain unchanged.

The discount rate, the assumptions made on salary development and on interest on retirement savings as well as the share of employee contribution to the funding gap have been increased or lowered by fixed percentage points. The assumption made on pension development has been increased and not lowered for the reporting period, as a reduction of the pension benefit is not possible. Since there was no longer a funding gap in the reporting period, a change in the employer's participation would not have had an effect on the 2022 financial statements. The sensitivity to life expectancy has been calculated by lowering or increasing life expectancy by a flat-rate factor, as a result of which the life expectancy of most age categories has been increased or reduced by about one year.

22 Dedicated third-party funds

CHF 1,000	**31.12.2022**	**31.12.2021**	**thereof transitional measures Confederation 31.12.2022**
Swiss National Science Foundation (SNSF)	18,032	13,788	269
Swiss Innovation Agency (Innosuisse)	363	343	
EU Framework Programmes for Research and Innovation (FP)	1,539	2,452	365
Special federal funding of applied research	1,297	758	
Industry-oriented research (private sector)	–	–	
Other project-oriented third-party funding	1,554	1,020	
Total dedicated third-party funds	**22,785**	**18,361**	**634**

New projects were acquired, especially with regard to SNF research grants.

23 Financial risk management and additional information about financial instruments

General

Financial risk management is embedded in the general risk management of Eawag, in respect of which annual reports are made to the ETH Board (see Annual Report, chapter Risk Situation and Risk Management, pp. 50/51).

Financial risk management primarily addresses:
- credit risk (default risk),
- liquidity risk, and
- market risk (interest rate, foreign currency and other price risk).

The focus of risk management remains on credit risk. There are guidelines governing the investment of financial resources in order to reduce credit and market risk. The counterparties to a large proportion of the receivables and claims arising from financial assets are of high credit standing and solvency. Risk concentrations only exist in respect of those counterparties, which is why credit risk is regarded as low.

Furthermore, there are receivables and financial assets in foreign currencies which are hedged according to prevailing circumstances in order to minimise the risk.

Compliance with and the effectiveness of the guidelines are ensured by the internal control system (ICS).

Credit and default risk

The default risk is the risk of financial losses, if one contractual party of a financial instrument does not fulfil its contractual obligations. The maximum exposure to credit risk corresponds to the carrying amounts in the balance sheet. The actual risk is very low due to the fact that the counterparties to a large proportion of the financial assets are the Federal Government and other public-sector institutions.

The table below shows the maximum exposure to credit default risk of the financial assets broken down into type of counterparty.

Maximum exposure to credit risk, composition of counterparties

CHF 1,000	Total	Federal Government	European Commission FP *	SNSF, Innosuisse, OASI social service, Suva	SNB and banks with govermment guarantee	PostFinance and other banks	Other counterpar-ties (for example cantons, foundations)	Other counterpar-ties (for example private companies)
31.12.2022								
Cash and cash equivalents	50,580	46,042	–	–	200	4,339	–	–
Receivables from non-exchange transactions	18,005	1,447	1,199	11,019	–	–	4,341	–
Receivables from exchange transactions	968	600	–	–	–	–	264	104
Financial assets and loans	28,343	28,343	–	–	–	–	–	–
Prepaid expenses and accrued income	182	–	–	–	–	–	–	182
Total	**98,078**	**76,432**	**1,199**	**11,019**	**200**	**4,339**	**4,605**	**286**
31.12.2021								
Total previous period **	**93,580**	**77,638**	**1,373**	**8,892**	**163**	**2,106**	**3,407**	

* In the column European Commission, the receivables disclosed are from European universities which have emerged from EU research framework programmes, as well as the outstanding receivables from the temporary measures for Horizon Europe (direct financing State Secretariat for Education, Research and Innovation SERI). The temporary measures for non-accessible programme parts from Horizon Europe are shown in the column of the respective sponsor (SNSF, Innosuisse, other counterparties).

** Financial Report 2021: No breakdown of other counterparties

Estimate of expected credit losses as of 31 December 2022

- Cash and cash equivalents
  Eawag deposits cash and cash equivalents in the accounts set up for this purpose at the PostFinance, cantonal banks, other banks and at the FFA. All counterparties have an investment grade rating from a recognised rating agency. Eawag therefore assumes that no significant increase in the credit risk has occurred since the initial recognition and determines the expected credit losses, due to the short-term nature of the financial instruments, on the basis of the 12-month credit loss. At the time of the initial application of IPSAS 41 Financial Instruments at 1 January 2022, the calculated loss allowance was insignificant and thus did not result in any booking. The loss allowance has not changed materially over the course of the current period.

- Receivables from non-exchange transactions and receivables from exchange transactions
  Eawag applies a loss allowance matrix to determine the expected credit losses on receivables from non-exchange transactions and receivables from exchange transactions. The changes in the reporting year are negligible and did not lead to any adjustment of the valuation allowance.

- Financial assets and loans
  The short-term financial assets and loans as per 31 December 2022 are exclusively financial assets invested with
  the Federal Government, which are valued at cost. Eawag assesses the credit risk as low. No valuation allowance was booked.

Liquidity risk

The liquidity risk is the risk that Eawag might possibly not be able to meet its financial obligations according to contract by the delivery of means of payment or other financial assets. Eawag has processes and principles in place which guarantee that adequate liquidity is available to settle current and future obligations.
This includes maintaining an adequate reserve of liquidity and tradeable securities.

Contractual maturities of financial liabilities

CHF 1,000	Total carrying amount	Total contract value	Up to 1 year	1–5 years
31.12.2022				
Non-derivative financial liabilities				
Current liabilities	2,330	2,330	2,330	–
Leasing liabilities	–	–	–	–
Financial liabilities	–	–	–	–
Accrued expenses and deferred income	694	694	694	–
Derivative financial liabilities	**–**	**–**	**–**	**–**
Total	**3,024**	**3,024**	**3,024**	**–**
31.12.2021				
Total previous period	**2,868**	**2,868**	**2,868**	**–**

Financial liabilities arise, most notably, from current operating liabilities. Under normal circumstances, expenses and investments are financed with self-generated funds.

All financial liabilities are covered by liquidity and by short-term deposits with the Federal Government. Liquidity risk is low.

Market risk

The market risk is the risk that the market prices, such as exchange rate, interest rates or share prices change and thus the revenues of Eawag or the value of the financial instruments held are influenced.

Interest rate and price risk

Interest rate risk is not hedged. A one percentage point increase or decrease in the interest rate would increase or reduce surplus or deficit by around CHF 329,000 (previous year: CHF 305,000).

The ETH Board issued the investment guidelines based on Art. 34c paragraph 2 of the ETH Act (SR 414.110), which came into effect on 1 August 2021. Eawag defined its own investment strategy on this basis. The risk capacity is determined using the value-at-risk approach. The investment strategy and the amount of the invested assets must be selected in such a way that sufficient risk capital is available or can be formed in order to cover the calculated value at risk.

Foreign currency risk

The majority of the receivables and liabilities in foreign currencies are in euros and US dollars; they can be hedged using derivatives according to prevailing circumstances. Net of hedges, a fluctuation in the exchange rate of these two currencies of +/–10 % would impact on the statement of financial performance as follows:

Sensitivity to foreign currency risk

	31.12.2022					31.12.2021				
CHF 1,000	**Total**	**CHF**	**EUR**	**USD**	**Other**	**Total**	**CHF**	**EUR**	**USD**	**Other**
Net currency balance	**77,595**	**77,585**	**–20**	**83**	**–54**	**78,314**	**78,212**	**–29**	**166**	**–35**
Sensitivity affecting financial performance +/– 10 %			2	8				3	17	
Closing rate			0.9874	0.9250				1.0359	0.9107	

Net surplus or deficit by valuation category

	2022		
CHF 1,000	**Amortised cost**	**Fair Value through surplus or deficit**	**Financial liabilities**
Interest income (+)/interest expense (–)	139	–	–
Currency translation differences, net	5	–	–
Impairments	–		
Reversal of impairment	–		
Total net surplus or deficit by category	**143**	**–**	**–**

	2021			
CHF 1,000	**Loans and receivables**	**At fair value through surplus or deficit**	**Available for sale**	**Financial liabilities**
Currency translation differences, net	–23	–		–
Total net surplus or deficit by category previous year	**–23**	**–**	**–**	**–**

Classes and categories of financial instruments

CHF 1,000	Amortised cost	Fair Value through surplus or deficit	Financial liabilities measured at amortised cost	Total carrying amount	Total fair value
			31.12.2022		
Cash and cash equivalents	50,580			50,580	50,580
Receivables from non-exchange transactions	18,005			18,005	18,005
Receivables from exchange transactions	968			968	968
Financial assets and loans	28,343	–		28,343	28,343
Prepaid expenses and accrued income	182			182	182
Financial liabilities *	–	–	3,024	3,024	3,024

* Current liabilities, Leasing liabilities, Financial liabilities, Accrued expenses and deferred income

The previous year's figures can be taken from the Restatement table (Table 5 in Note 2 Section "Changes to the financial report methods (restatement)").

Eawag does not hold any held-to-maturity financial assets.

Estimation of fair value
Because of their short-term maturity, the carrying amount of cash and cash equivalents and the carrying amounts of current loans, fixed deposits, receivables and current liabilities are a reasonable approximation of fair value.

The fair value of non-current receivables from non-exchange transactions and non-current loans is calculated based on the payments falling due in the future, which are discounted at market interest rates.

Capital management
Managed capital is defined as equity excluding valuation reserves. Eawag seeks to create a solid equity base. This base will enable the implementation of the performance mandate to be guaranteed. Legal regulations prohibit Eawag from raising funds in the capital market.

24 Contingent liabilities and contingent assets

Contingent liabilities
There are no contingent liabilities.

Contingent assets
There are no contingent assets.

25 Financial commitments

CHF 1,000	31.12.2022	31.12.2021
Financial commitments <= 1 year	1,070	1,308
Financial commitments from 1 to 5 years	1,106	1,372
Total financial commitments	**2,176**	**2,681**

The financial commitments relate to equipment, software or services that have been firmly ordered but not yet supplied.

In addition, Empa and Eawag operate a communal guest house, with Empa acting as the primary tenant. This is recorded in Empa's accounts. Each year, any expenses not covered by guest house rental income are settled internally between Eawag and Empa.

26 Operating leases

There are no fixed-term lease agreements.

27 Remuneration of key management personnel

Remuneration of key management personnel

CHF 1,000	2022	2021
Directorate	**1,837**	**1,729**

Key positions

Full-time equivalent	2022	2021
Directorate	**530**	**530**

Eawag's Directorate consists of seven people: the director, the deputy director, the head of operations and four other members, one of whom holds a professorship at, and is also employed by, ETH Zurich.

The Federal Council elected Martin Ackermann as the new director of Eawag on 29 June 2022. He took office on 1 January 2023, following Janet Hering's retirement on 31 December 2022.

The change in remuneration compared to the previous year results from the payment of holidays and length-of-service awards approved by the ETH Board.

28 Events after the reporting date

Eawag's annual financial statements were approved by the director and the deputy director on 27 February 2023. No significant events have occurred to date which would necessitate a disclosure in or an adjustment to Eawag's annual financial statements as at 31 December 2022.

The Annual Financial Statements are published in German, English and French. The German version of the Annual financial statements is binding.

EIDGENÖSSISCHE FINANZKONTROLLE
CONTRÔLE FÉDÉRAL DES FINANCES
CONTROLLO FEDERALE DELLE FINANZE
SWISS FEDERAL AUDIT OFFICE

Reg. Nr. 937.22483.003

Report of the statutory auditor

to the Director of the Swiss Federal Institute of Aquatic Science and Technology, Dübendorf

Report on the audit of the financial statements

Opinion

We have audited the financial statements of the of the Swiss Federal Institute of Aquatic Science and Technology (Eawag), which comprise the statement of financial performance 2022, the balance sheet as of 31 December 2022, the statement of changes in equity and the cash flow statement for the year then ended, and notes to the financial statements, including a summary of significant accounting policies.

In our opinion the financial statements (pages 4 to 37) present fairly, in all material respects, the financial position of the Eawag as of 31 December 2022, and its financial performance and its cash flows for the year then ended in accordance with the International Public Sector Accounting Standards (IPSAS) and legal requirements and the Accounting Manual for the ETH Domain.

Basis for Opinion

We conducted our audit in accordance with Swiss Law, International Standards on Auditing (ISAs), Swiss Standards on Auditing (SA-CH) and article 35a^{ter} of the Federal Act on the Federal Institutes of Technology (SR 414.110). Our responsibilities under those standards are further described in the Auditor's responsibilities for the audit of the financial statements section of our report. We are independent based on the Federal Audit Office Act (SR 614.0) and the requirements of the audit profession and we have fulfilled our other ethical responsibilities in accordance with these requirements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Other information

The Management Board of the Eawag is responsible for the other information in the annual report. The other information comprises all information included in the annual report, but does not include the financial statements and our auditor's report thereon.

Our opinion on the financial statements does not cover the other information in the annual report and we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial statements, our responsibility is to read the other information in the annual report and, in doing so, consider whether the other information is materially inconsistent with the financial statements or our knowledge obtained in the audit, or otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. In this context, please refer to the section “Report on other legal and regulatory requirements” at the end of this report.

Responsibilities of the Management Board of the Eawag for the financial statements

The Management Board of the Eawag is responsible for the preparation and fair presentation of the financial statements in accordance with the International Public Sector Accounting Standards (IPSAS) and the legal requirements (Ordinance on the ETH Domain, SR 414.110.3; Ordinance on the Finance and Accounting of the ETH Domain, SR 414.123; Accounting Manual for the ETH Domain), and for such internal control as the Management Board determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the Management Board of the Eawag is responsible for assessing the Eawag’s ability to continue as a going concern, disclosing, as applicable, matters related to going concern.

Auditor’s responsibilities for the audit of the financial statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor’s report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Swiss law, ISAs and SA-CH will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As part of an audit in accordance with Swiss law, ISA’s and SA-CH we exercise professional judgment and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Eawag’s internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made.

- Conclude on the appropriateness of the Management Board of the Eawag's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Eawag's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the notes to the financial statements or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Eawag to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the financial statements, including the disclosures, and whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Eawag to express an opinion on the financial statements. We are responsible for the direction, supervision and performance of the audit of the financial statements. We remain solely responsible for our audit opinion.

We communicate with the Management Board of the Eawag and the Audit Committee of the ETH Board regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

Report on other legal and regulatory requirements

In accordance with PS-CH 890, we confirm that an internal control system exists, which has been designed for the preparation of the financial statements according to the instructions of the ETH Board.

In accordance with Art. 21 par. 2 of the Ordinance on the Finance and Accounting of the ETH Domain, we confirm that no contradictions exist between the personnel reporting in the annual report (management report) and the financial statements. Likewise, we confirm that no contradictions exist between the financial figures in the annual report (management report) and the financial statements.

Furthermore, in accordance with Art. 21 par. 2 of the Ordinance on the Finance and Accounting of the ETH Domain, we confirm that risk management has been appropriately conducted according to the instructions of the ETH Board.

We recommend that the financial statements submitted to you be approved.

Berne, 27 February 2023 SWISS FEDERAL AUDIT OFFICE

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