



SUSTAINABLE DEVELOPMENT GOALS • UNIVERSITY COMMITMENT

SDG 12: Responsible Consumption & Production

SUSTAINABLE DEVELOPMENT GOAL

12

Responsible Consumption & Production

12



RESPONSIBLE
CONSUMPTION

Ensure sustainable consumption and production patterns — across our campus and the Basra community.

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12.1 Introduction: consuming and producing responsibly

How can a university help its community meet the needs of the present without exhausting the resources on which future generations depend?

Sustainable consumption and production rests on a simple but demanding idea: that we should use natural resources and the services the environment provides in a way that satisfies the needs of people living today without undermining the ability of those who come after us to meet their own. In practice this means producing and consuming without squandering resources or degrading the natural world, while keeping waste and pollution to the lowest level we can achieve. The principle is often summarised as “doing more with less” — raising the efficiency with which resources are used and steadily reducing the environmental harm that accompanies economic activity.

How Shatt Al-Arab University delivers SDG 12

A four-step approach

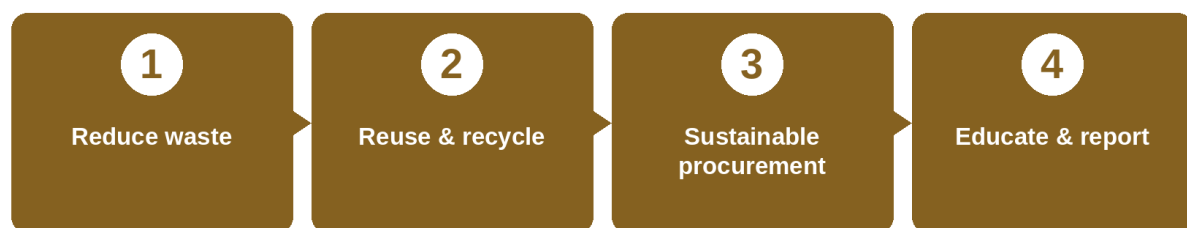


Figure 1. A four-step delivery approach.

SDG 12 framework at Shatt Al-Arab University

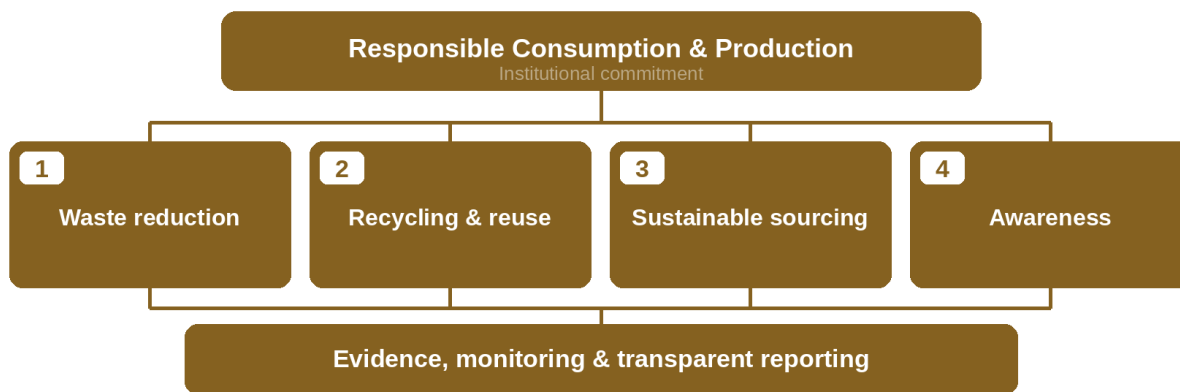


Figure 2. Institutional framework and reporting.

The case for change is not abstract. Current estimates suggest that humanity is already drawing on the equivalent of about 1.7 planets to satisfy its yearly demand for resources, a rate of use that cannot be sustained indefinitely. At the same time roughly a third of all the food the world produces is lost or thrown away, even as millions of people go hungry. Patterns of production and consumption that ignore these limits drive up greenhouse-gas emissions, deplete scarce freshwater, and accelerate the loss of the planet's biological diversity. Seen together, these pressures explain why the twelfth Sustainable Development Goal treats responsible consumption and production not as a luxury but as a precondition for almost every other goal the world has set itself.

What responsible consumption and production involves

Translated into everyday decisions, the goal brings together several mutually reinforcing commitments:

1. Reducing waste of all kinds — food, water, and energy chief among them — so that fewer resources are consumed for the same benefit.
2. Recycling and reusing materials, or finding inventive new uses for them, so that what would once have been discarded keeps its value.

3. Encouraging cleaner production through environmentally friendly technologies that cut pollution and emissions at the source.
4. Designing for durability, so that products last longer and can be repaired and recycled with ease rather than replaced.
5. Purchasing responsibly, by favouring local goods that are produced ethically and with the environment in mind.
6. Educating individuals and institutions so that mindful consumption becomes a habit rather than an afterthought.

These commitments take concrete form in countless small choices: supporting products that carry credible “eco-friendly” or “organic” labels; avoiding single-use plastics such as disposable bags and cups; switching to energy-efficient lighting and high-efficiency appliances; buying only what is genuinely needed; and repairing tools and equipment instead of throwing them away.



Shared responsibility: individuals, governments, and companies

Progress depends on action at every level of society. Individuals shape outcomes through their daily choices — conserving electricity and water, cutting food waste, and minimising the pollution their lifestyles generate. Governments set the conditions for change by encouraging clean-production policies, establishing firm environmental standards, and supporting innovation in sustainable technology. Companies, for their part, contribute by adopting environmentally responsible manufacturing practices, reducing their emissions, and ensuring that their supply chains are ethical and sustainable from end to end. None of these actors can succeed

alone; it is the combination of personal responsibility, sound public policy, and corporate commitment that moves a society toward genuinely sustainable patterns of consumption and production.

Every decision we make today helps shape the world of tomorrow.

For that reason our choices must be conscious and sustainable — made not only for ourselves but for the generations who will inherit the consequences.

12.2 The university's commitment and objectives

Shatt Al-Arab University regards responsible consumption and production as a shared institutional responsibility, woven into its policies, its physical operations, its teaching, and the daily life of its campus. The university's contribution to Goal 12 is guided by a clear set of objectives that translate the global agenda into action at the local level:

1. To play an active part in achieving clean, environmentally friendly production.
2. To provide the guidance needed to recycle consumed materials and return them to productive use.
3. To encourage companies to adopt sustainable practices throughout their production processes.
4. To put the principle of rational, mindful consumption into practice across the institution.
5. To work with companies and organisations across Basra Governorate to create suitable employment opportunities for the university's graduates.
6. To partner with local community organisations in order to reduce environmental harm.
7. To foster healthy competition and cooperation among the productive enterprises of Basra.
8. To contribute to the rationalisation of consumption in the wider community.
9. To support companies in managing their environmental footprint efficiently.

10. To deliver lectures for students and civil society on the themes of Goal 12, drawing on the expertise of the university's academic staff.

The sections that follow set out how these commitments are being realised in practice — through campus waste and disposal policies, food-waste reduction, awareness and education, the assessment of sustainability, and the university's growing body of research on consumption and production.



12.3 Responsible consumption and production on campus

The university combines clear policies, practical measures, and continuous oversight to use resources efficiently and to manage the waste its activities generate. The aim throughout is to limit the environmental impact of campus life while recovering as much value as possible from materials that would otherwise be discarded.

12.3.1 Policy on the disposal of hazardous waste

For materials classed as hazardous, the university follows a policy of controlled hand-over: such waste is delivered, for a fee, to the local municipal authorities, who then dispose of it in line with their own established procedures. This approach keeps dangerous materials out of the ordinary waste stream and ensures they are handled by bodies equipped and authorised to deal with them, rather than being managed informally on campus.

The university's attention to hazardous and food waste sits within a wider national picture that makes the case for careful management all the more pressing. By some estimates the average person in Iraq wastes a strikingly large quantity of food each year, and the country as a whole is thought to discard several million tonnes of food annually — figures that place it among the most wasteful nations by this measure. Much of the problem is rooted in long-standing social customs: when entertaining at home or hosting events, families and caterers commonly prepare far more food than is needed, sometimes double the required amount or more, so that surplus and significant waste become almost unavoidable. Food is estimated to make up a large share of the total waste generated in the country, and official figures put the volume of waste removed nationally at around eleven million tonnes a year. Against this background, university and college administrations are working to reduce food waste and to encourage its redistribution, recycling, and donation.

12.3.2 Waste management and the use of plastics

Plastic has become an inseparable part of daily life, present in everything from grocery bags and cutlery to water bottles and food wrappers. Yet we have largely failed to use it efficiently, wasting a valuable resource and damaging the environment in the process — a clear example of over-consumption. Poorly managed plastic waste poses a growing threat: it fills landfills to capacity, chokes rivers, and endangers marine ecosystems, with knock-on effects for many of the economic sectors that depend on a healthy environment.

The scale of the lost opportunity is considerable. In many countries only a small fraction of recyclable plastic — on the order of a fifth to a quarter — is actually recovered and recycled. The remainder not only pollutes the environment and litters roadsides but also forfeits the economic value it could otherwise retain. Changing this requires transforming the way plastic is used and managed, and helping economies move toward a circular model in which products are designed to leave no waste, or to be reused and recycled at the end of their lives. That, in turn, calls for investment in local infrastructure for collecting and recycling plastic so that it is diverted away from landfill, open burning, and the sea — an area in which both the public and private sectors have a part to play.



As part of its response, the university hosts awareness events that present clear, up-to-date material on the nature of waste, its environmental effects, and the way it can be classified and separated for recovery. These events also examine which materials can be recycled and why recovery matters, and they draw on partnerships with specialised waste-treatment bodies and on the shared responsibility of citizens to ease a worsening problem. Two aims sit at the centre of this work:

- Raising awareness of the nature of waste — plastic in particular — and of its environmental impact.
- Reducing waste through a sense of individual and collective social responsibility.

12.3.3 Policy for handling disposable materials

Managing disposable materials is the process of monitoring, collecting, transporting, treating, recycling, or otherwise disposing of waste generated by human activity. Countries pursue this process to limit the harm that waste does to the environment, to public health, and to the appearance of shared spaces, and increasingly to recover resources through recycling. The materials involved may be solid, liquid, gaseous, or radioactive, and each requires appropriate handling.

Because the volume of waste it produces is relatively limited, the university is able to manage its disposable materials carefully. Items such as used stationery and paper

are delivered, free of charge, to specialised facilities for recycling and reuse, while food waste is passed to the local municipal authorities for transport to their designated landfill sites. In this way the institution keeps recoverable materials in circulation and ensures that the rest are dealt with through the proper channels.

12.3.4 Sorting waste at source on campus

To make recovery practical rather than merely aspirational, the university has introduced clearly labelled, colour-coded bins that allow waste to be separated at the point where it is generated. A simple visual guide shows members of the campus community how to sort their waste correctly — distinguishing compostable food scraps and plant trimmings from recyclable plastics, glass, paper, cardboard, and metal, and from the residual material that must go to landfill. Sorting at source is the single most effective step in any recycling system, because clean, well-separated streams are far easier and cheaper to process than mixed waste.



12.4 Reducing food waste

Food waste deserves particular attention because of its scale and because it is so closely bound up with everyday habits. When food is thrown away, all the resources that went into producing it — land, water, energy, and labour — are wasted with it, and the decomposing waste itself adds to greenhouse-gas emissions. Reducing food waste is therefore one of the most direct ways in which a community can lighten its environmental footprint.

The university approaches the problem on two fronts. The first is prevention: encouraging more accurate planning of quantities at events and in catering, so that

far less surplus is created in the first place. The second is recovery: where surplus food does arise, the preference is to redistribute, donate, or recycle it rather than send it to landfill. Both depend heavily on changing attitudes, which is why food waste features prominently in the university's awareness activities and why staff and students are encouraged to see mindful consumption as a matter of personal and social responsibility.

خطوات صغيرة لتقليل اعتمادنا على المستهلكات



12.5 Awareness, education, and community engagement

Lasting change in patterns of consumption and production depends as much on understanding as on infrastructure. For this reason the university invests in lectures, seminars, and campaigns that explain why responsible consumption matters and how it can be put into practice, both for its own students and for the wider community of Basra.

12.5.1 Public lecture on Goal 12

A central event in the university's programme was a public lecture on Goal 12 delivered by Professor Dr. Amer Jameel Abdul Hussein. The lecture set out to define sustainable production and consumption, to explain why assessing sustainability matters, to introduce the main tools and standards used in that assessment, to offer practical examples and applications, and to discuss the challenges involved together with possible solutions.

Sustainable production, the lecture explained, is the efficient use of resources in a way that limits environmental impact, while sustainable consumption is the meeting of present needs without compromising the needs of future generations — with renewable energy, waste reduction, and the circular economy offered as familiar examples. The lecture then turned to the question of why assessment is necessary, identifying four main reasons:

- To determine how much progress is being made toward sustainability.
- To support decisions grounded in reliable, comparable data.
- To improve the efficiency with which resources are used and to reduce losses.
- To inform and strengthen environmental policy.

12.5.2 Awareness events and campus campaigns

Alongside formal lectures, the university runs poster displays and campaigns that bring the message of Goal 12 directly into shared campus spaces. These present, in accessible form, the kinds of materials that can be recovered, the way waste should be classified and separated, and the everyday actions — from refusing single-use plastics to repairing rather than replacing — that reduce a household's or an institution's footprint. By keeping the subject visible and practical, the university aims to turn awareness into routine behaviour.

12.6 Tools for assessing sustainability

If sustainability is to be managed, it must first be measured. A family of established tools makes it possible to quantify environmental impact and to identify where improvements will have the greatest effect. The principal instruments are life-cycle analysis, the ecological footprint, the carbon footprint, and the Environmental Performance Index (EPI).

Life-cycle analysis (LCA)

Life-cycle analysis is a systematic method for assessing the environmental impact of a product, service, or process across its entire life — from the extraction of raw materials, through manufacturing and use, to its end of life, whether that means recycling or final disposal. A typical analysis follows five stages:

1. Extraction of raw materials — for example through mining, agriculture, or logging.
2. Manufacturing and processing — converting those materials into finished products.
7. Transport and distribution — moving products between stages and on to the consumer.
8. Use — the consumption of the product or service by the end user.
9. End of life — disposal, recycling, incineration, or controlled landfilling.

A familiar illustration is the comparison between a single-use plastic water bottle and a reusable glass one. The purpose of such an analysis is threefold: to measure the environmental footprint of a particular product or activity, to pinpoint where efficiency can be improved and emissions reduced, and to support sustainable decisions in design, production, and consumption.

Ecological and carbon footprints

Two related measures complete the picture. The ecological footprint expresses the area of productive land and sea required to support a given pattern of living, offering a vivid sense of how far human demand exceeds what nature can renew. The carbon footprint, more narrowly, captures the quantity of carbon-dioxide emissions associated with a particular activity, product, or organisation. Together with the Environmental Performance Index, which ranks environmental outcomes across countries, these tools give decision-makers a common language for tracking progress and comparing options.

12.7 Research on sustainable consumption and production

Research is one of the most enduring contributions a university can make to the goals of sustainable development. Researchers from a range of departments at Shatt Al-Arab University have carried out and published work bearing on consumption, production, and the efficient use of resources, with several studies appearing in specialised international journals. A selection of this published research is set out below.

Year	Title of the published research	Source
2013	Simulation and experimental verification of an HB-type Vernier motor	View
2016	The problem of the contradiction between oil rents and sustainable development in Iraq	View
2019	Simulation of multi-point induction motor speed control using a PI controller with a neural network	View
2020	Design of an intelligent distance relay for detecting cascade transmission-line faults based on a fuzzy-logic system	View
2021	Multi-load speed control of a DC shunt motor based on a PID controller with online parameter adjustment supported by a genetic algorithm	View
2022	Smart drone-based Internet-of-Things technology for a smart agriculture system	View

Taken together, this body of work reflects a sustained engagement with the efficient use of energy and resources, the management of infrastructure, and the application of modern technology to long-standing development challenges — all of which bear directly on the aims of Goal 12.

12.8 Challenges and the way forward

Achieving sustainable consumption and production is not without obstacles, and an honest account of the work must acknowledge them. The most significant challenges include:

- Limited public awareness of why responsible consumption matters and how to practise it.
- A shortage of accurate, comparable data on which to base decisions and measure progress.
- The initial cost of making the transition to more sustainable systems and technologies.
- The practical difficulty of measuring and monitoring sustainability over time.

These difficulties are real but not insurmountable. The university's experience points to a set of responses that, pursued together, can carry the agenda forward:

- Supporting scientific research that builds the evidence base for better decisions.
- Improving education and public awareness so that sustainable behaviour becomes the norm.
- Providing incentives for the private sector to invest in cleaner production.
- Adopting systems of transparency and oversight that keep progress honest and visible.

12.9 Conclusion and recommendations

Sustainable consumption and production are not optional refinements to be pursued once more pressing matters are settled; they are an urgent necessity if life on Earth is to continue in a balanced and equitable way. Assessment lies at the heart of the effort, because what is not measured cannot be managed, and lasting results depend on close integration between the choices of individuals and the commitments of institutions.

For Shatt Al-Arab University, the work described in this report — its disposal and recycling policies, its drive to reduce food waste, its awareness and education programmes, its use of recognised assessment tools, and its growing research output — represents a steady, practical contribution to Goal 12. That contribution is, by its nature, never finished. It is a standing commitment to use resources wisely, to keep materials in productive circulation, and to send graduates into the community equipped to carry the same outlook into their own lives and workplaces. In this way the university seeks to help build, day by day, the responsible and sustainable patterns of consumption and production on which a shared future depends.

Research contributions (Scopus-indexed publications)

Shatt Al-Arab University's research is indexed in Scopus and mapped to the UN Sustainable Development Goals by Elsevier - the same data source the THE Impact Rankings use for their research metric. The university currently records 179 documents from 59 authors (Scopus ID 60109790; last updated May 2026). The chart below shows how this output is distributed across the goals.



Figure. Scopus-indexed publications by SDG (data source: Scopus).

The following publications are mapped to SDG 12 in the Elsevier/Scopus SDG dataset (4 documents):

#	Publication title	Source & year
1	Optimising soybean seed classification through ensemble deep learning: a novel computational approach <i>Nemer, Z.N., Jiyad, M.A., Abdulsamad, A.M., Harfash, E.J.</i>	African Journal of Applied Research, 2026
2	Understanding retailers' intentions to use AI for product waste reduction in grocery supply chains: extending the technology acceptance model <i>Mouloudj, K., Amoriello, T., Almokdad, E., et al.</i>	Sustainability (Switzerland), 2026
3	Fashion waste management in the age of artificial intelligence: strategies and challenges <i>al-Hassan, R.A.M., Alyousuf, A.N.J., Jasim, Z.A., Kamil, K.J., Yaseen, A.T.</i>	Ethical Consumption and Responsible Innovation in Fashion Through AI, 2026
4	An experimental study on reducing the sound level of portable generators using a locally manufactured enclosure <i>Mahmood, M.S., Ismail, E.M., Abood, S.A., et al.</i>	MAPAN - Journal of Metrology Society of India, 2026