



Paper reclaimed

Recycled paper has come of age and continues to improve. But the next time you place an order for new stationary paper stack, be sure you are well-informed about what recycled paper actually is, **Chalasani Venkateshwara Rao** elaborates



India traditionally has respected the forces of nature and worships them as sources of power, life, strength and regeneration. Our practices too reflected this attitude in the way many households recycled their paper, be it for binding together the blank sides of printed, outdated office stationary for notes or using newspapers as wraps to ripen fruits and veggies. The idea of recycled paper was perhaps limited to a few knowledgeable people who knew its advantage. The situation may have been similar globally. However, the fact that virgin paper manufacturing

was burdening the environment and stripping the planet of its forest slowly started taking ground in the 1960s and environmentalists who cried hoarse about its far reaching effects, succeeded in spreading the message of paper recycling.

Paper initially was made from recycled rags and textiles. Virgin paper, as was manufactured in the 1950s and 1960s, though of superior quality and strength, burdened the environment through the uncontrolled destruction of forests because it was made exclusively from wood pulp. In the Scandinavian countries, wood pulp is still the major source for paper making, but the region apart from making the world's

finest paper also practices sustainable forestry. It maintains and replenishes the forests that provide raw material. In India, we have not taken any steps towards sustainable forestry, therefore all the more reason why we ought to recycle paper.

A tonne of virgin paper spells the end for as many as 3.5 tonnes of trees apart from the water footprint it leaves behind. But in the last 50 years, due to public pressure, recycled and environment-friendly paper has taken precedence, with an increasing participation from domestic and corporate consumers in the programme. So much so that it has started becoming a symbol of status and environment-friendliness.

While it may seem very stylish to use recycled paper and believe that it in turn will be recycled and reused someday, it is only logical to understand what recycled paper actually is and how you differentiate between various categories and qualities, for it is possible that the recycled paper you buy may not actually be what it seems.

The Environmental Protection Act in its definition of recycled paper explains that recycled paper is the paper that constitutes a minimum of 30 per cent post-consumer waste. Since the mid-1970s the volume of paper that is recycled has tripled. Given that fact, we also need to remember that almost 60 per cent of the paper produced in the world is still not recycled.

Recycled paper combines in it biodegradable agricultural, textile, sap and floral waste in addition to waste or used paper. Mostly recycled paper manufacturing mills use old and used paper as their feedstock. The recovered or post-consumer waste paper is mixed with water in a large vessel called a pulper, and cooked. It acts like a blender to separate fibres in the paper sheets. This is then passed through screens and other separation processes to remove contaminants such as ink, clay, dirt, plastic and metals.

Like there are limits set to every manufacturing process, paper recycling also has its own limits. There are first, second and third generations of recycled paper when you actually recycle normal paper. As it gets repeatedly recycled, recycled



paper gets weakened. It is strengthened with the addition of binding agents, fibres along with a small quantity of wood pulp.

The increasing demand for recycled paper also saw the introduction of agricultural materials in the manufacturing and strengthening process. The Chinese started using rice straw initially and but later extended to wheat as well. Manufacturers also realised that bagasse or sugarcane fibre that gets retained after the juice is extracted from the stem, also makes for good recycled paper material. Such material is used by the agro paper mills. In India, we also included jute and cotton waste – tattered jute bags and cloth rags in the manufacturing process. Almost 40 per cent of the

world's recycled paper demand is met by such agro mills. It also gives the manufacturers the freedom to create different varieties of paper with good strength. Proportions depend on the quality being produced.

Depending on the type of paper and agricultural waste used, paper fibres from newspaper are recycled back into newspaper, game boards, egg trays, paper gift boxes, animal bedding, paper insulation and paper packaging material. Those from office paper are recycled into tissue paper, paper towels and toilet paper. Though recycled paper is often dismissed as rough and unfit for print because it gets easily blotted, new technologies that have lately been introduced have given it such a fine finish that it can take any print and also make it appear better.

Perils of recycling paper

Criticism has been levelled against recycled paper in the form of chlorine presence and the amount of water used in the manufacturing process. It is assumed that chlorine is used in the processing of recycled paper to clean and bleach it. But the truth is that no paper mill consciously uses chlorine to clean paper. It is already present in some of the raw ingredients used in the

Paperless did you say!!!

In their book, *The Myth of a Paperless Office*, authors Abigail Sellen and Richard Harper talk about how paper stacked on desks represents active thinking and to dismiss that is probably not feasible. Business interaction is helped and supported by papers spread out on the desk, talked about and scribbled upon. Doing these things on a computer is much more cumbersome, they argue. They suggest reaching a consensus which could promote the use of less paper while still allowing for "usual paper spread based business to be done."



manufacture of original virgin paper. Special attention is being paid to this aspect these days and alternative bleaching agents such as ozone and hydrogen peroxide are being sought. Union Camp Corporation, the American paper manufacturer has switched to ozone to clean the recycled paper it produces. This eliminates the use of chlorine, which is believed to be a toxic pollutant.

Deinking is another process which has come under speculation following the argument that it results in sludge which pollutes the soil through waste water. Sodium hydroxide is used to remove ink from paper. It is one of the main ingredients in soap and is also used commercially for washing fruit and vegetables. However, the current trends reveal that ink is being diluted rather than removed, and spread evenly throughout the sheet of paper through a process known as dispersal. Sometimes this is deliberately done to create a speckled effect.

Black liquor

The manufacturing process uses caustic soda to cook and soften the agricultural fibres. A thick black liquid which resembles black liquor gets retained after the process. It is highly polluting and should be treated. The black colour is due to the presence of silica in rice and wheat straw. There are technologies that can eliminate the silica from the waste run offs so that it can be treated. In the UK, well established water treatment plants take in such contaminated water and recycle it. Though the resulting water is claimed to be as pure as natural, it is not supplied for drinking purposes for psychological reasons. It is



Recycled paper: Exploding the myths

1. **Recycled paper doesn't have a professional appearance:** There are varieties of quality and grades available. You'll find paper made just for business cards, letterhead, and brochures, tissue and towel papers. Recycled paper is often cost-comparative to virgin paper.
2. **Recycled paper costs more:** In the instances where recycled paper does cost more than virgin paper, the average cost difference is generally around 10 to 20 per cent. The tremendous benefits to the environment outweigh this cost difference in the end.
3. **You compromise on quality when you choose recycled paper products:** When recycled paper was first introduced, it was discoloured and uneven in texture and appearance. Today's recycled paper products are as fine as virgin paper products.
4. **All paper is recycled now anyway:** Post-consumer recycled paper comprises only about 10 per cent of the printing and stationary market. Almost 90 per cent of these industries still use virgin paper.
5. **Poor quality recycled paper creates paper jams:** Quality recycled paper fit for use in printers, fax machines copiers and other equipment is readily available now.
6. **The fibres in recycled paper create excess dust which damages machinery:** Even virgin paper does that. There is less dust when the machines are run at low speeds.
7. **Burning paper for energy is much better than recycling:** Paper can be recycled over and over multiple times. This saves trees, water and energy, and reduces pollution.

generally used for agriculture, fire fighting and washing.

Alternatives to paper

Despite the efforts being made to render corporate office paperless through effective use of technology, it is difficult to herald a paperless

world. However, one can always look for alternatives that less of a burden to the environment. Silk, cotton and hemp, are agri-fibres that yield more pulp per acre than forests or tree farms and use less herbicides and pesticides. Unfortunately, they, especially hemp are not available in huge quantities and will have to be promoted extensively for them to take off and become more cost-effective.

A sustainable switch

Instead of agri-fibres, paper manufacturers are now switching to sustainable plantations for paper. They plant woods shrubs and trees like cashew, eucalyptus, casuarina and pine. Such plantations can be maintained at a sustainable level and provide a steady supply of wood and wood pulp.

Bleaching

Buying white paper means that you are buying paper that has been bleached in some way. The bleaching process requires large amounts of water and also releases dangerous chlorinated compounds such as dioxin, which is carcinogenic. It helps to be aware of bleaching terms, so you can be sure that you are buying environment-friendly paper.

Bleaching Terms and Paper

TCF = Total Chlorine Free
Virgin, non-recycled paper indicating no chlorine or chlorine related compounds were used.

ECF = Elemental Chlorine Free
No chlorine gas used. However, other elements that contain chlorine are used such as chlorine dioxide, which still produces the carcinogen, dioxin.

PCF = Process Chlorine Free
It is the recycled paper that is re-manufactured without the use of chlorine. It also meets the EPA's 30 per cent minimum requirement for recycled/post-consumer waste content. You can be certain that this paper was also re-bleached using non-chlorine alternatives such as oxygen, hydrogen peroxide, and enzymes. 🌍

