Panorama

Watch 'Enemy Of The State' at 11.10 pm on Star Movies. P 12

A gender deficit that could haunt us for decades

By Kate Darnton

I would like to know the sex of my unborn child. In America, that's a straightforward procedure: When you're around 20 weeks pregnant, you go to your obstetrician's office, where an ultrasound technician squirts a puddle of cold jelly on your belly, skates a transducer probe over the top, and tells you if she can spot a willy or not.

In India, it's more complicated. For starters, it's illegal.

According to a 1994 law meant to discourage parents from aborting baby girls, any doctor who identifies the sex of a fetus will be struck off the medical register and face a hefty fine and up to three years in prison. A pregnant woman who undergoes tests to detect the sex of a fetus risks imprisonment and fines, too.

On my first visit with my new OB, a stern lady clad in a dark blue sari, I offered a big smile and asked whether I—you know, open-minded American that I am—might be able to find out the sex of my child. "Sure," she smirked. "If you fly to Singapore."

There are ultrasound shops all over Delhi, where I live. Many would be indistinguishable from the other bodegas in the local markets except for the legally mandated signs that declare, "Here prenatal sex determination (boy or girl before birth) is not done. It is a punishable act." Long lines of pregnant ladies wait outside.

When you go in, you don't have to fill out an insurance form, but you do have to sign a form that states, "I do not want to know the sex of my fetus." You must also write down the number of children you already have and the sex of each child.

Well, there go my chances, I thought. I already have two daughters. What ultrasound technician would tell me that I'm facing what in Delhi is a maternity nightmare: a third girl child?

Turns out, a lot of them. Activists estimate that sex selection is a Rs 500 million business in India. If you're willing to pay, you can find out the sex of your baby. You just go to the right clinic. The ultrasound technician will respond in code. "Celebrate with sweets," he might say, meaning that a son is on the way.

The market for ultrasound equipment in India is vast and growing, and manufacturers have moved aggressively to satisfy it. The latest models are so cheap and portable, a sonographer can throw one in his trunk and drive out to rural areas to scan the villagers at about Rs 500 a pop. Cheap ultrasounds help explain the persistent gender imbalance plaguing India.

The British medical journal 'The Lancet' reported in 2006 that over the last 20 years there have been 10 million missing female births in India. That's half a million girls per year. In some parts of India, fewer than 800 girls are born for every 1,000 boys. Some of India's wealthiest areas, such as Punjab, suffer the worst sex ratios.

Smaller families

According to activist Sabu George, the most educated families tend to have the least number of children. And "smaller families come at the expense of girls." If parents are going to max out at one or two kids, they'll make sure they get a son.

But why the desperation for baby boys? First of all, men earn more. Also, India has no universal pension system; sons are expected to provide for their aging parents. Under India's inheritance practices, sons inherit the family business and the family wealth.

By contrast, daughters are money pits. Girl children require extra protection, cost extra money, and eat the family food, only to be given away to another family when they marry. The cost of that wedding is traditionally borne by the bride's family. And then there's the dowry—the money that a bride's parents must pay the new in-laws. Among the wealthy and educated, this might be enough cash to start a business or buy a car or an apartment. Among the less educated, it might be cattle, jewellery, household appliances.

I heard about a popular old advertisement: "Spend Rs 500 now and save Rs 50,000 later." Translation: The typical ultrasound costs around Rs 500, but a dowry will run you Rs 50,000. Illegal though gender-selective abortions may be, there is a network of OBs willing to perform them. Or you perform the abortion at home.

All this cheap new technology (high-tech ultrasounds, chemical abortions) mixed with old customs means a gender deficit that could haunt India for decades. Certain areas of northern India such as Punjab and Haryana have seen a growth in bride trafficking. Farmers from Punjab may travel as far as Kerala in southern India to find their brides.

In the United States, we may be seeing the opposite trend. Writer Hanna Rosin has pointed out that Americans who use high-tech biology to try to pick a baby's sex ask more often for girls than for boys. Rosin ties this to the rise of a modern, postindustrial economy that is "simply more congenial" to women than to men.

So maybe there's hope for girls in India? As the Indian economy hurtles forward, isn't it inevitable that more women will enter the workforce in higher-paying jobs, proving that they, too, should be valued?

IHT

Bringing light to rural homes and areas

India hopes to increase solar energy capacity from 15 megawattts to 1,000 mw by 2013

By Amy Yee

As dusk falls, the sound of children singing fills the air at the SOS Tibetan Children's Village in Bylakuppe, five hours' drive from Bangalore. Night descends on the tidy, stone-paved school campus carved out of the lush jungle.

But darkness is dispelled when 20 solar-powered street lights on the campus begin to glow with a steady white light. Thirty dormitories set among groves of coconut palm trees are also equipped with solar lights—as is a nearby Buddhist monastery. They allow 1,000 children to study, eat and play during evening power cuts that frequently disrupt the refugee-village school's electricity supply.

Selco, a solar energy company, installed the lights in 2003. Since its founding in 1995, Selco, based in Bangalore, has provided 1,00,000 homes with solar lighting systems, mostly in Karnataka.

In the nearby village of Doddhosur, about 30 minutes' drive from the Tibetan school, D S Shivanna, a farmer, has light bulbs in five rooms of his home that are powered by a rooftop solar panel set up by Selco last year. Doddhosur, reached by a dirt road that runs between fields of tall corn, has electricity—but power failures are common here too.

"There was no current at night," said Varshitha Shivanna, 15, who lives in the house with her grandparents. During evening power cuts, she used to rely on candles. But now, with solar light, "we can write till how much time we want. We are writing homeworks till 11."

About 70 per cent of Selco's customers live in remote areas that, unlike Bylakuppe and Doddhosur, have no electricity at all. Without power, they depend on candles and kerosene lamps for lighting. About 400 million Indians lack reliable electricity, living in a world apart from the bright offices and air-conditioned shopping malls of India's cities.

A two-light Selco home system typically costs Rs 8,500 to Rs 11,000—no small sum when 60 per cent of the company's customers earn Rs 3,500 to Rs 4,000 a month. But Selco works with a variety of local rural banks to help 85 per cent of its customers get financing. The on-time repayment rate for its solar loans is 90 per cent, said Harish Hande, its co-founder and managing director.

Selco's efforts are one example of India's broader push for solar energy. Alternative energy, like wind, biomass and solar, accounts for less than 8 per cent of India's power generation. Yet the need for more clean energy in India is urgent.

India imports more than 70 per cent of its oil and natural gas and relies on coal for more than half of its electricity generation. With economic growth forecast to exceed 8 per cent this year, India's energy consumption is expected to double between 2005 and 2030. Such growth comes with a price. India was among the world's largest producers of greenhouse gas emissions in 2007.

As part of a climate change plan unveiled two years ago, the Indian government laid out an ambitious National Solar Mission this summer. The mission document called for India to increase solar energy capacity to 1,000 megawatts by 2013 and 20,000 megawatts by 2022.

ALTERNATIVE POWER Silk worms being fed under solar lights in rural areas around Bangalore.

Those are lofty aspirations, considering that India's current grid-connected solar capacity is no more than 15 megawatts, according to Amit Kumar, director of renewable technologies at the Energy and Resources Institute, a private research organisation in New Delhi.

"This is only the beginning of a long process," Farooq Abdullah, India's minister of new and renewable resources, said after the document's publication. "The mission is an ambitious leap of faith at an unprecedented scale."

Still, although the targets "look challenging," Kumar said, "they are really very conservative. We can go beyond that."

Good to be ambitious

Hande of Selco, commenting on the government's blueprint, said, "Sometimes it's good to be ambitious." But, he added, "the important question is how it can get away from being a Delhi-centric policy. It needs to get out of Delhi into the hands of people."

With an average of 250 to 300 sunny days each year, according to the government, India seems well suited to solar power. Yet the sector has not taken off, for reasons that include its high cost compared with conventional energy. Coal-powered electricity costs Rs 3.5 to 4 per kilowatt-hour, compared with Rs 17 for power produced by photovoltaic cells.

Other hurdles include fragmented financing plans, a lack of strong government policies and incentives, uneven service after sales, and technical weaknesses in batteries and solar lamps for India's rugged conditions.

For solar energy to develop on a significant scale, Kumar said, India would need to bring down costs by producing indigenous technologies, devote resources to research and development and create a dedicated body independent of the central government to act as an advocate for the sector.

Plans exist to develop more large solar farms to connect to the power grid. Still, given India's diverse geography and income levels, solar farms are not the whole answer. Other options are also needed, including solar lanterns for individuals and rooftop solar panels like the ones at the Tibetan Children's Village in Bylakuppe.

Kumar's research institute brought new solar LED lanterns to market this summer, priced at Rs 800 to 1,000, as part of its own solar initiative, which has reached 30,000 households since 2008.

Yet, despite the need and demand for solar energy, even well-established companies like Selco face their share of challenges.

Selco broke even in 2001, and profit reached Rs 3.15 million in 2005. But large German subsidies for solar installations caused a sharp spike in the price of panels from 2006 to 2008 as supply tightened. The surge in prices "almost killed us," Hande said.

The company had a loss of Rs 7.5 million in 2008-9 but returned to profit in the 2009-10 financial year, earning Rs 3.8 million on revenue of Rs 150 million.

Selco now has 150 employees, and Hande acknowledged that finding skilled employees was the company's biggest challenge and the main constraint on its growth.

India's top graduates want lucrative, prestigious jobs in technology or business, not in villages, and midlevel managers at Selco could make five times as much elsewhere, he said. But "the higher you pay, the less they will go into rural areas. Our education system is not geared toward social consciousness."

That seems not to apply to Hande himself, now 41. A graduate of the prestigious Indian Institute of Technology in Kharagpur with a degree in energy engineering and the holder of a doctorate from the University of Massachusetts, he began to conceive Selco while a graduate student after seeing people using solar lights in the Dominican Republic.

Although 5 per cent of Selco's business now comes from outside Karnataka, Hande is not seeking growth in a wider market. Instead, he wants to focus on lower-income Indians, the urban poor and ways to use renewable energy to raise incomes. For example, could a motor running on alternative energy be developed to power a customer's sewing machine or rice mill?

"Where else could we make a sustainable energy intervention?" Hande asked. "It could be in lighting or it could be in cooking. If a Rs 1,000 intervention for a cook stove would make a difference, we should do it. This will throw up surprises, as well as for the future of Selco itself."

"We want to go deeper into the strata," he added. Geographical expansion is low-hanging fruit. Let someone else do it."

International Herald Tribune

Paint, sketch or distort it, beautifully

By Bob Tedeschi

I rarely take photos with my phone because I am a lousy enough photographer with a real camera. The various app markets brim with software to help people like me. But I recently stumbled onto something far more useful: apps that take your lousy shots and help you turn them into something ridiculous, bizarre or maybe even beautiful.

As is almost always the case, there are more, and better, apps for iPhone users than for those with Android or BlackBerry devices. For people who are contemplating their next phone, the broader issue here may be worth quickly noting.

IPhone app developers can create programmes for one platform and just a few (very powerful) devices, and sell them on what is arguably the best software market, iTunes.

Android and BlackBerry developers have a potentially bigger market, given the number of devices in circulation. But developers grumble about tailoring their apps to so many different types of BlackBerrys and Android phones, only to have the apps sell weakly on the less popular software stores — the Android Market and BlackBerry AppWorld.

Those factors could change, of course, but for now it means Apple users will benefit from better software.

Cartoonlike sketch

Take, for instance, ToonPaint. The app lets you quickly choose an image from your iPhone and transform it into a cartoonlike sketch. Using a small range of options, you can tweak the thickness and spacing of the lines, and then apply a Technicolor dash.

ToonPaint's developers deserve high marks for making software simple enough to figure out on your own, yet not so simple that you feel as if you have exhausted its possibilities in one sitting.

SketchMee is similarly good. This app turns your photos into pencil sketches of remarkable quality. You can adjust the pencil strokes in eight ways, and each option includes a brief tutorial that increases your odds of making art.

I had recently taken a shot of my two youngest children with a friend. The framing was typically horrible and the flash reflected off of a cabinet behind my son. With SketchMee, though, it looked almost lovely.

If you want something more ridiculous than sublime, Unicorn Shots is a far better call. Take a shot of someone you love and overlay the image with huge eyeballs, fake eyelashes and other effects from your recent Caricatures 101 course. Drag your finger around the screen and the person's eyes follow.

If you have an Android phone, PicSay will fill a similar role. You can add word balloons and graphics and distort the image in a handful of ways. PicSay has a 'Pro' version that includes some useful features. But in keeping with the Android Market's pricing chaos, that version is available only if you pay in euros, so you could end up with a currency conversion fee on your credit card.

Pic Paint is another free photo editing app that lets you paste up to 35 pieces of clip art onto a photo, or apply up to eight photo to effects. Many more effects and clip art images come with Pro Pic Paint.

Many of my photos would arguably look better in a thousand pieces. PhotoPuzzle, another free Android app, makes it happen. The app has different levels of difficulty, although some users have complained about buggy performance with the most difficult puzzles.

BlackBerry owners who want to enjoy a little throwaway fun with their cameraphone images have long faced a more expensive process, since the AppWorld store only last week allowed developers to sell $1 or $2 apps.

Apps like Doodle make much more sense. The programme lets users paint on their photos or just scribble on a blank page, and undo their previous mistakes with a press of a button.

With Picture Magic you can make caricatures of your photo subjects and superimpose text bubbles on the image, among other things. The app allows you to share the final product on Facebook, Twitter and other sites.

NYT

SU–DO–KU–1811

5	2					6		
			7		8			4
8						2	1	7
				9	2		8	
			6		1			
	1		3	7				
	3	2						9
1			4		9			
		9					5	1

Medium

SOLUTION TO 1810

6	8	4	3	1	2	9	5	7
3	2	7	4	5	9	6	1	8
9	1	5	7	8	6	2	4	3
5	7	1	6	3	8	4	2	9
4	6	3	9	2	7	5	8	1
2	9	8	1	4	5	7	3	6
8	4	9	5	6	1	3	7	2
1	5	6	2	7	3	8	9	4
7	3	2	8	9	4	1	6	5

To solve the puzzle:
To solve a su-do-ku puzzle, every digit from 1 to 9 must appear in each of the nine vertical columns, in each of the nine horizontal rows, and in each of the nine boxes.

WHAT'S THE BUZZ

How fish oils work against diabetes

Researchers at the University of California have discovered why eating fish may be a great idea to ward off chronic inflammation and insulin resistance. Jerrold Olefsky and colleagues identified a key receptor on macrophages abundantly found in obese body fat. Obesity and diabetes are closely correlated. The scientists say omega-3 fatty acids activate this macrophage receptor, resulting in broad anti-inflammatory effects and improved systemic insulin sensitivity.

Obese fat tissue contains lots of these macrophages producing lots of cytokines, which cause inflammation and rising insulin resistance.

Olefsky and colleagues eventually narrowed their focus to a G-protein receptor called GPR120, which is found only on pro-inflammatory macrophages in mature fat cells. When the receptor is exposed to omega-3 fatty acids, it is activated and generates a strong anti-inflammatory effect.

However, it's not clear how much fish oil constitutes a safe, effective dose. If too high, it could up the risk of to increased risk of bleeding and stroke in some people.

Laser-based missile defence for helicopters

A new laser technology being developed at the University of Michigan and Omni Sciences will protect helicopters in combat from enemy missiles. "Our lasers give off a signal that's like throwing sand in the eyes of the missile," said Mohammed Islam.

These sturdy and portable 'mid-infrared supercontinuum lasers' are being made using economical and off-the-shelf telecommunications fibre optics and could blind heat-seeking weapons from a distance of 1.8 miles away.

The robust, simple design can withstand shaky helicopter flight and their mid-infrared supercontinuum mode can effectively jam missile sensors.

They also give off a focused beam packed with light from a much broader range of wavelengths. And they are the first to operate in longer infrared wavelengths that humans can't see, but can feel as heat. Heat-seeking missiles are designed to home in on the infrared radiation that the helicopter engine emits.

Because this new laser emits such a broad spectrum of infrared light, it can effectively mimic the engine's electromagnetic signature and confuse any incoming weapons, Islam said.

One kiwifruit turns into 100 bioplastic utensils!

New Zealand researchers have performed a feat nothing less than magic, by converting one kiwifruit into 100 plastic spoons and sewage into electricity.

Scion, a Crown research institute in Rotorua, has developed technology to turn organic materials and waste into compostable bioplastics such as spoons and knives, called 'spifes'.

"We do a 'reactive transformation'—that sounds pretty magical, doesn't it? We're checking whether we can get a patent," said Martin Markotsis. "If we say too much, we can't patent it," Markotsis added.

A pilot plant will be built by the beginning of next year, turning biosolid waste headed for landfill into industrial chemicals and energy-rich gases such as methane. Heat and gases released by the process will generate electricity to help power the plant.