Millennium Development Goals. It also provided an opportunity to capitalize on the momentum created at the United Nations Conference on Sustainable Development (Rio + 20), and to support the formulation of new objectives that will contribute towards developing water resources that are truly sustainable[1].

Also in December 2003, the United Nations General Assembly proclaimed the period 2005–2015 as the International Decade for Action 'Water for Life'. The decade officially started on World Water Day, 22 March 2005. The primary goal of the 'Water for Life' Decade has been to promote efforts to fulfil international commitments made on water and water-related issues by 2015. Focus is on furthering cooperation at all levels, so that the water-related goals of the Millennium Declaration, the Johannesburg Plan of Implementation of the World Summit for Sustainable Development, and Agenda 21 can be achieved[2].

The challenge of the Decade has been to focus attention on action-oriented activities and policies that ensure the long-term sustainable management of water resources, in terms of both quantity and quality, and include measures to improve sanitation. Achieving the goals of the 'Water for Life' Decade requires sustained commitment, cooperation and investment on the part of all stakeholders from 2005 to 2015 and far beyond. The Decade also provides an opportunity for everyone to get involved, and is active all around the world[2].

Access to safe drinking water remains an urgent necessity, as 30% of urban and more than 50% of rural households in India still depend completely on untreated surface or groundwater[3]. While access to drinking water in India has increased over the past decade, the tremendous adverse impact of unsafe water on health continues[4]. It is estimated that about 21% of communicable diseases in India is water-related[5]. The highest mortality from diarrhoea is said to be among children under the age of 5, highlighting an urgent need for focused intervention to prevent diarrhoeal disease in this age group[6]. Presently, about 62 million people in 20 states of India suffer from endemic fluorosis problem[7].

The United Nations is responsible for coordinating the 'Water for Life' Decade through UN-Water, the inter-agency mechanism for implementation of the Johannesburg Plan of Implementation of water-related provisions and the Millennium Development Goals (MDG) concerning freshwater. The target of the MDG formulated in 2000 was halving the number of people who do not have safe drinking water and basic sanitation facilities by the year 2015 (ref. 8). The UN General Assembly recognized safe drinking water and sanitation as a human right in its 2010 resolution[8]. According to the latest estimates of the WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation, released in early 2013, 36% of the world's population (2.5 billion) lacks improved sanitation facilities, and 768 million people still use unsafe drinking water sources. According to the report, the MDG drinking water target has been achieved globally, but the sanitation target is far off track and unlikely to be met by 2015. Presently, the main issue is sustainability of any project. Particularly in rural areas of developing countries some of the projects implemented are defunct due to non-involvement of stakeholders/people. So it is emphasized that community approach for sustainability should be adopted in these projects.

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The translocated Kurdi Angod sacred site – a conservatory of RET plants of the Western Ghats

Monuments that hold some historical and mythological significance are considered as sacred sites and are active centres of worship and symbols linking man with divinity[1]. Often situated in remote locations and forested areas, their vicinity is endowed with a rich floristic diversity consisting of many unique and rare medicinal plants endemic to the region. Plants belonging to such rare and threatened taxa are conserved in such sacred sites as they are mostly located away from human settlements. Kurdi Angod is one such site in Kurdi village, Sanguem taluka in south Goa. Located deep within a remote forest patch at the foothills of the Western Ghats, the site holds a laterite 'Shivalinga' that has survived the invasions and persecution by Muslim rulers and the Portuguese. This structure built by the Kadambas in the 10th century AD was originally situated 17 km southeast of the Kurdi village on the banks of the River Salaulem. It was systematically dismantled and reconstructed between 1975 and 1986 by the Archaeological Survey of India (ASI), which feared its submergence due to the construction of a dam nearby. Entrance to this unique laterite stone monument is under strict vigil of ASI and is completely secluded from human interferences as developmental activities are prohibited in the vicinity. Even religious offerings, touching or plucking of plants are strictly prohibited within its precincts. The site is bordered by high boundary walls on three sides with the rear side extending into the forest.

Human habitation in response to population increase has altered the natural vegetation to a large extent. As a result, forests now exist only in small fragmentary pockets and in areas that have

Table 1. Species found in Kurdi Angod sacred site

Endemic keystone species
Chlorophytum nimmonii Dalzell
Euphorbia nana Royle
Geissaspis tenella Benth.
Impatiens minor (DC.) Bennet
Jansenella griffithiana (C. Muell.) Bor
Senecio belgaumensis (Wight) C. B. Clarke

Unique medicinal species
Anamirta cocculus (L.) Wight & Arn.
Asparagus gonoclados Baker
Asparagus racemosus Willd.
Biophytum sensitivum (L.) DC.
Casearia championii Thwaites
Catunaregam spinosa (Thunb.) Tirveng.
Cocculus hirsutus (L.) Theob.
Curculigo orchioides Gaertn.
Cyclea peltata (Lam.) Hook. f. & Thomson
Desmodium triflorum (L.) DC.
Ficus racemosa L.
Helicteres isora L.
Hemidesmus indicus (L.) R. Br.
Iphigenia indica (L.) Kunth
Mimosa pudica L.
Momordica dioica Roxb. *ex* Willd.
Murraya koenigii (L.) Spreng.
Nothapodytes nimmoniana (J. Graham) Mabb.
Rauvolfia serpentina (L.) Benth. *ex* Kurz
Schleichera oleosa (Lour.) Oken
Senna tora (L.) Roxb.
Sida rhombifolia L.
Stephania japonica (Thunb.) Miers
Terminalia chebula Retz.
Uvaria narum (Dunal) Blume
Ziziphus oenoplia (L.) Mill.

RET species
Caesalpinia spicata Dalzell
Canscora decurrens Dalzell
Crotalaria filipes Benth.
Crotalaria lutescens Dalzell
Curcuma decipiens Dalzell
Curcuma pseudomontana J. Graham
Cynarospermum asperrimum (Nees) Vollesen
Dendrobium microbulbon A. Rich.
Dendrobium ovatum (L.) Kraenzl.
Dimeria stapfiana C. E. Hubb. *ex* Pilg.
Eria dalzellii (Hook. *ex* Dalzell) Lindl.
Erinocarpus nimmonii J. Graham *ex* Dalzell
Eriocaulon eurypeplon Körn.
Eriocaulon lanceolatum Miq. *ex* Körn.
Euphorbia concanensis Janarth. & S. R. Yadav
Euphorbia notoptera Boiss.
Garcinia indica (Thou.) Choisy
Habenaria multicaudata Sedgw.
Holigarna arnottiana Hook. *f.*
Hopea ponga (Dennst.) Mabb.
Hydnocarpus pentandrus (Buch.-Ham.) Oken
Impatiens diversifolia B. Heyne *ex* Wight & Arn.
Impatiens tomentosa B. Heyne *ex* Wight & Arn.
Iphigenia magnifica Ansari & R. S. Rao
Jasminum malabaricum Wight
Ligustrum perrottetii A. DC.
Meiogyne pannosa (Dalzell) J. Sinclair
Murdannia versicolor (Dalzell) G. Brückn.
Naregamia alata Wight & Arn.
Neanotis montholonii (Hook. *f.*) W. H. Lewis
Neanotis rheedei (Wight & Arn.) W. H. Lewis
Neanotis subtilis (Miq.) Govaerts *ex* Punekar & Lakshmin.
Osbeckia parvifolia Arn.
Pittosporum dasycaulon Miq.
Rotala malampuzhensis R. V. Nair
Smithia hirsuta Dalzell
Terminalia paniculata Roth
Theriophonum dalzellii Schott
Typhonium bulbiferum Dalzell

evaded transformation, that are rare and under high pressure. In this scenario, sacred sites become repositories of rich plant biodiversity. In such undisturbed areas, virgin forests with climax vegetation are a common feature with many palaeo-endemic plant taxa within them. During studies on floristic diversity in the Netravali and Cotigao Wildlife Sanctuary on the rare, endemic and threatened (RET) species of Goa, this exclusive Kurdi Angod sacred site was uncovered which constituted a completely secluded small patch of lateritic plateau, covering *c.* 3 sq. km. The site has stood unexplored in terms of floral wealth and defied transformation. Table 1 gives a list of endemic keystone species, unique medicinal plant species and RET species of plants found in the area.

The medicinal and RET species surviving in the Kurdi Angod sacred site are unique representatives of the lateritic plateaus of the Western Ghats. Such places are ideal for *in situ* conservation of plants and an archive for wild strains of plant genetic material. In this context, the Kurdi Angod sacred site exists as a remarkable heritage of the Kadamba dynasty. Being an important component of lateritic plateau, the site also holds special significance in elevating soil fertility through biomass build-up and efficient nutrient cycling along with soil binding and conserving soil moisture content. Additionally, the dense forest vegetation also functions in regulating the climate which in turn helps counteract any fluctuations and changes due to global warming. Future research should focus on the role played by such sacred sites in carbon sequestration[2].

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Gregarious flowering in woody bamboos: does it mean end of life?

Of the nearly 1700 bamboo species (Poaceae: tribe Bambusae), gregarious nature of flowering is largely restricted to woody species, distributed in subtropical and temperate evergreen or deciduous forests[1]. India has one of the highest concentrations of gregariously flowering species[2], but such species are also found throughout Asia, Africa and the Americas[3]. Many bamboo species have a peculiar life cycle, with long vegetative periods followed by synchronized flowering and death of the entire population over extensive areas[4], at intervals ranging from 6 to 120 years. Such a single suicidal bout of reproduction[2] is followed by seed production[5–7] and subsequent seed germination. Post-fruiting