

# Development

# Matters

Monthly Development update from DHAN Collective

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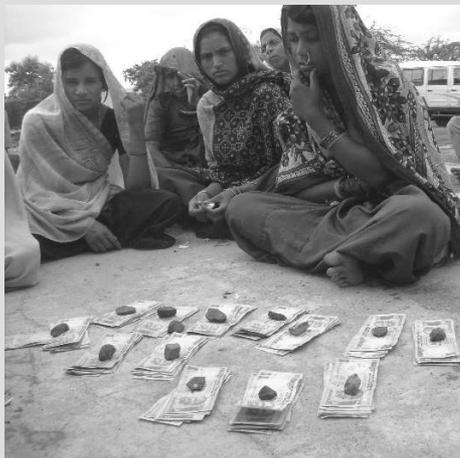
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Feature

## Asset Building by the Poor

Implications for Microfinance



Micro-credit initiatives have primarily helped to play the role of bridge finance in meeting the consumption needs of the poor for debt redemption and thereafter as working capital for micro- enterprises taken up by the poor. As part of an economic development strategy microfinance has helped to be an effective tool to promote sustainable livelihoods through asset/skill building.



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## From the Editors' Desk

### Dear Readers!

Greetings! This August issue of Development Matters carries wide ranges of articles. Girish Sohani writes about asset building by the poor and the implication for microfinance by detailing various aspects of asset building process and its relevance to poverty. Subrata Kumar Biswal narrates his experience of working in a tribal location, Bajna with minimum resources and inspired to venture out and making it a successful one. N. Venkatesan records the proceedings and resolutions of Vayalagam Movement annual general body meeting. Jens Goetzenberger and R. Devika writes about the problems and possible solutions based on their work in Wastewater Pollution in Urban Rainwater Catchment Tanks specifically in A. Kosakulam Tank. World environment day celebration, DHAN way by planting seedlings for Heritage development and the general body meeting of Madurai Green is documented by Ramkumar. Aravindan, brings before the reader, the Perumal Malai, a heritage centre of Jains of those ages with the glimpses of the left out in the form of valuable historically significant base sculptures. Velliappan shares the process of the evolution and the status of collective marketing through producer groups and marketing groups. T. Nagarajan produces a reading material which was prepared as a part of Madurai Marathon 2009 on the theme to create anaemia free world.

### Happy reading!

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# Asset Building by the Poor: Implications for Microfinance

Girish G.Sohani, BAIF Development Research Foundation, Pune\*

## Backdrop

Microfinance has emerged as an important approach and has become a significant sub-sector within financial services, especially for reaching to the poor. Micro-credit initiatives have primarily helped to play the role of bridge finance in meeting the consumption needs of the poor for debt redemption and thereafter as working capital for micro- enterprises taken up by the poor. As part of an economic development strategy microfinance has helped to be an effective tool to promote sustainable livelihoods through asset/skill building. This requires further development and higher level of maturation within the microfinance initiatives. Central to this higher level of maturation is an understanding of assets in the lives of the poor.

## Assets and the Dynamics of Poverty

It is important to understand the interlocked nature of poverty. Poverty can be better understood as a syndrome – absence of capital assets, low access to finance, lack of market access, distortions in the market, inadequate knowledge/skill for a ‘new’ activity and so on. All these factors are interlocked. The combined effect of these factors weighs down on the confidence levels and the entrepreneurial abilities of the poor. Any policy initiative which tackles just one of these factors is bound to

be pulled down to the dust by the combined weight of all others. Not surprisingly, I have heard the poor describe their state more as a ‘lack of choice’ (to do thing differently), rather than as a ‘lack of this asset’ or a ‘lack of that input’. It is therefore important to consider the variety of roles that assets play for the poor. The extent to which each of these roles are served by different assets in turn depends on the inherent characteristics of an asset. The very process of asset building also decides its relevance for the poor in different situations.

## Roles Assets Play

Assets are indeed found to play very different roles in the lives of people – and most certainly in the lives of the poor. Though one tends to think of assets as “productive assets” which would generate an income stream, in reality, assets often play either a multiplicity of roles or many roles beyond being “productive assets”. Often, accumulated savings take the form of assets. These may be thus used as savings for a specific purpose or play the role of fall-back

**Table 1 : Attributes of Assets : Roles**

<b>Roles</b>	<b>Description</b>
Provider of income stream	Quantum, continuity and reliability of income stream
'Insurance' role as a fall back through liquidation	Reliability and values as a fall back through disposal of asset
Form of savings	Can serve as an anchor for livelihood and lifestyle
Anchor	Does it serve as an anchor for livelihood and lifestyle
Provide content for a meaningful life	Does it <ul style="list-style-type: none"> <li>* bring about a quantum change or a marginal change</li> <li>* absorb the family for a substantial part of the working time</li> <li>* the work is found absorbing and central to their life (interesting / creative /.... Not a burden)</li> <li>* etc</li> </ul>

\*Girish G.Sohani was the past Chairman of DHAN Foundation.

insurance. It is also possible that some assets can play the role of an “anchor” for the livelihood activities of the family while the other may play a supplementary or marginal role. The centrality of an asset to the overall livelihood or lifestyle also, in its turn, decides how much “content” an asset can provide to make the life meaningful for the poor. Such a range of roles becomes even more strongly applicable while one considers not just physical/financial assets but also intangible assets such as social capital. Table 1 provides the range of role attributes that assets can have.

The poor sometimes tend to look upon the assets not just as ‘capital goods’ but also as – or rather more predominantly as – insurance or as savings. It is for this reason that there is often a greater preference for more easily disposable units such as goats, birds, and (harvestable) trees.

Each different role of the asset has its related implications. If the asset plays the role of a “productive asset” then the quantum, the continuity, and the reliability of the income stream produced by different assets becomes crucial. If it is a form of savings then its liquidity is crucial. If it has to play the role of “insurance”, the reliability of the fall-back value upon disposal becomes important. Certain assets can be so central to the life of a poor family that they may serve as anchor for creating a livelihood opportunity rather than just a side enterprise. With such a central anchor roles, the asset defines the lifestyle and also lends content to living. A typical example of the last two roles is the role a piece of land and its development can play for a poor family.

### Attributes of assets

Attributes which are inherent characteristics of assets can become

important considerations influencing the choices. Some of the most commonly understood characteristics are: “value addition”, being the income-stream-generating role of the asset; “mobility”, required for shifting location; and “liquidity” is implying ease of encashability. Other characteristics which are also widely considered are: “gestation period”; implying the time required before

generating incomes; and “security”, indicating the stability of asset value. However there are a number of other characteristics such as “divisibility”, “threshold scale”, and “social capital” which can play an important role in the poor person’s choices of asset. Table 2 provides a list and description of various inherent characteristics of assets.

**Table 2: Attributes of Assets: Inherent Characteristics**

Inherent Characteristic	Description
Value addition	Value-addition role in resources flows
Mobility	Ability to shift location without disrupting production
Liquidity	Easy encashability
Divisibility	Ability to divide into smaller scale productive assets
Complementarity	The interlocking of use-effectiveness with other assets / factors
Expandability / Multiplicability	Scope to gradually expand scale or replicate
Appreciation scope	Scope for increase in financial value with passage of time
Thresh-hold scale	Basic Investment scale requirement
Absorbing labour	Capacity of creating employment / self-employment
Familiarity	Familiarity (of the asset) to the poor
Incrementality	Possibility of increase of scale in incremental steps
Versatility	Possibility of multiple usages / applications
Sociability	Whether it promotes higher constructive social interaction leading to formation of "social capital"
Visibility	Whether assets are physical or intangible
Transferability	Scope to transfer asset by way of sale / inheritance / gifting etc.,
Gestation	Time required between asset creation and generating income stream
Security	Security of the stability of asset value

Asset can also in terms of their tangible and intangible nature. Such a typology of assets with a few examples is presented in Table 3.

**Table 3: Typology of Assets**

Categories	Tangible		Intangible
	Non-living	Living	
Fixed	Land	Trees	Social Capital
Mobile	Equipment	Livestock	Skills
	Financial Assets		

perspective at the family level, and two, a society-level perspective. It is worth exploring whether the process of asset building is a net-positive wealth creation process or a net-zero

wealth creation process, as in case of transfer of assets. It is also important to understand that assets can also take the form of social capital which can in turn reduce the scale of investment requirements through a healthy demonstration process.

### Process of Asset-Building

Contrary to quick-shot expectation, asset building does not occur only through the process of purchase. One can easily identify six processes of asset building ranging from creation to transfer to the process of capitalization. These asset building process are described in Table 4. In operating programmes, it is important to simultaneously track through two perspectives – one, the micro-

### 3. Framework for Analysis

Understanding assets in terms of their roles and their characteristics helps to provide some insight into the perspective a family may have on the different assets. These perspectives from the stand point of the specific situation of the family would decide the choice and preferences for particular assets. Table 5 provides an analysis of a few sample assets by these attributes.

It can be seen how a wide variation in the roles and characteristics of the different assets would indicate a different positioning of the asset from the perspective of a poor person.

### Effectiveness of Asset-Use

Any development initiative that aims to build up the assets of the poor hopes to build the assets provided as productive assets or 'capital goods'. They are expected to generate a revenue stream by virtue of their use for various productive purposes. However considering the wide range of other interlocking factors that decide the outcome of such an enterprise, the 'direct' creation of an asset through an anti-poverty program does not necessarily guarantee the anticipated income-stream.

Even when they have been used for the planned purpose, often a gradual erosion of the assets is observed as a result of a gradual eating away of the capital. This can be seen often in case of livestock where the distributed animals serve initially as an income stream and subsequently erode in productive capacity as a result of lack of continuing investment – an eating away of the capital, in a way. The role of land as a productive asset is even more complicated because its interlocking with other factors is probably the strongest and it is relatively more difficult to divide (into small parcels) and dispose off.

Assets created under various anti-poverty programs such as the Integrated Rural Development Programme were very often disposed off in time of need or are kept unutilized as a fall-back saving rather than being used for regular livelihood activities.

**Table 4: Process of Asset-Building**

Process Options	Description
Creation	By way of creation or "first-hand purchase, so that there is a net positive wealth creation in society
Acquisition/ Usurping	By way of means which involve transfer of asset from another user-no net wealth creation, as in case of purchase of "second-hand" assets or gifting
Breeding	The asset would multiply by way of existence e.g. goat-keeping
Capital formation	Build-up of financial capital
Social capital building	In addition to income generation, whether it leads to group formation, building up solidarity, etc
Congeealing	Asset creation out of labour, e.g. developed land, planted and grown orchard

Table 5: Analysis of Assets by Attributes

S. No.	Attributes / Assets	Land: e.g. Medium quality dryland	Equipment e.g. Diesel Pumpset	Trees: e.g. Horticulture Orchard	Trees e.g. Eucalyptus	Livestock: Cow/ Buffalo	Livestock: Goats grit --	Skills	Social Capital
<b>A.</b>	<b>Roles:</b>								
1.	Income Stream	✓	✓✓✓	✓✓✓	✓	✓✓✓	✓✓	✓✓✓	--
2.	Insurance	✓	✓	--	✓✓✓	✓✓	✓		✓✓✓
3.	Savings	--	--	--	✓✓✓	✓✓	✓✓✓	--	--
4.	Anchor	✓✓✓	✓✓✓	✓✓	--	✓✓✓	✓✓	✓✓✓	✓
5.	Meaningful Life	✓✓	✓✓✓	✓✓	--	✓✓✓	✓✓	✓✓✓	✓✓✓
<b>B.</b>	<b>Characteristics:</b>								
1.	Value Addition	x	✓	✓	✓	✓✓	✓✓	✓✓✓	x
2.	Mobility	x	Lo	x	x	✓	✓✓	✓✓✓	X
3.	Liquidity	x	x	x	✓	✓	✓✓	x	x
4.	Divisibility	✓	x	x	✓	x	✓✓	x	x
5.	Complementarity	Hi	Hi	Med	Lo	Hi	Lo	Med	Lo
6.	Expandability / Multiplicability	x	x	✓	✓	✓	✓✓	x	✓✓
7.	Appreciation scope	✓✓	x	✓✓	✓✓	✓✓	✓✓	x	x
8.	Threshold	Hi	Hi	Hi	Lo	Hi	Lo	Med	Lo
9.	Absorbing Labour	✓✓	✓✓✓	✓✓	Lo	✓✓✓	✓	✓✓✓	--
10.	Familiarity	✓✓✓	✓✓✓	✓	✓	✓✓	✓✓✓	✓	✓✓✓
11.	Incrementality	x	✓✓	✓✓	✓✓	x	✓✓✓	x	x
12.	Versality	✓✓✓	x	x	x	x	x	✓✓	✓✓✓
13.	Sociability	x	x	x	x	x	x	✓✓	✓✓✓
14.	Visibility	✓	✓	✓	✓	✓	✓	x	x
15.	Transferability	✓	✓✓✓	✓	✓	✓✓	✓✓✓	x	✓✓
16.	Gestation	Med	Lo	Med-Hi	Med	Lo-Med	Lo	Lo	Lo
17.	Security	Hi	Hi	Hi-med	Hi	Med	Hi-med	Hi	Hi
18.	Environmental Ecological implicative	5	7	6	9	7	13	5	7

When this is the situation of assets of the poor in general even when given as grants, it is not difficult to understand the predicament if asset formation is solely through credit—whether mainstream or through microfinance.

Creating capital assets with the poor and ensuring that they remain ‘performing assets’ for them cannot happen unless the interlocked nature of poverty is taken head-on.

#### **4. Supporting Asset Building: Need for a Comprehensive Approach**

Against the background of the above experience, there are equally bright experiences where more holistic interventions help in more effective tackling of the interlocked problems. Such efforts have departed from the generally adopted approach in four important ways:

##### **Analysing assets from user perspective**

- Taking into account the role attributes and the inherent characteristics of the assets and analyzing them from the perspective of the user’s situation, a programme is developed with a choice of assets that meets the needs of the user. It is often found that asset building which contributes to the livelihood – lifestyle roles has long term effectiveness. While those which have a larger number of inherent characteristics often have a higher short-term preference for the poor.

##### **Grappling with a wide range of interlocking factors**

- Particularly, balancing inputs requires access to markets forward and backward linkages, etc and putting in place the appropriate business development services. Thus, the complementarity characteristic of the assets is properly understood and acted upon.

##### **Strongly engaging in various factors ‘internal’ to the mindset of the poor**

- Not just imparting knowledge and skills (which is indeed crucial), but also building up confidence through incremental development efforts establishing role models and building a vision.

##### **Going beyond conventional measures of economic feasibility analysis and assess ‘feasibility for the poor’**

- Not just particularly looking benefit-cost ratios of IRR, but looking at viable units of operation the cash flows accruing for daily sustenance, the gestation period for the returns to labor and the size of investments required.

These are the experiences drawn from some effective programs with some of the poorest communities in India:

- The comprehensive ‘WADI’ program for tribal development

being implemented by DHRUVA which helps poor families to develop gradually with their own efforts a highly productive farming system including horticulture, agro-forestry small scale irrigation improved agriculture as well as processing and marketing of farm produce.

- The comprehensive livestock development program being implemented by BAIF helps poor farmers to develop at their doorstep a highly productive cross-bred cow starting with non-descript low yielders.
- The Jonathan program with its methodology of mapping each family’s resource base, identify the right intervention through a participatory micro-planning process and build-up a series of interventions through an iterative process.
- Tasar silk worm rearing introduced by PRADAN in Jharkhand.
- Small-scale irrigation based livelihoods promoted by numerous organizations such as AFARM, PRERNA and AKRSP.

It is thus certain that the challenge of asset building with the poor is not insurmountable but it is not simplistic either. Microfinance agencies, therefore, need to tackle it in a very well-thought-out and mature way. ■

# Community banking with bankers' support

Subrata Kumar Biswal\*

**D**HAN Bajna, a young location in Ratlam, Madhya Pradesh conducted "Reen Vitaran Samaroha" (which means Loan Distribution Mela) on 11<sup>th</sup> of August, 2008, (holy month of Sravana). This article speaks about how I, the location integrator, had to motivate people and promote alliance building with bankers to have SHG-Bank linkages within a short period of time.

## My entry to the location:

When I entered this location, I attended a block level banker's committee (BLBC) meeting. Mr. Narendra Kumar Bang, Lead Development Manager (LDM), Central Bank of India (CBI), Ratlam invited me to the meeting. I met Mr. Tiwatneji, Assistant General Manager, National Bank for Agricultural and Rural Development (NABARD), Ratlam, and many bankers and officials of Bajna block. From their interactions I came to know that banks are financially and operationally not vibrant. The pace of development activities is slow. I shared those concerns with the regional team and suggested not to initiate Kalanjiam Community Banking Programme (KCBP) immediately. After two months, I revisited Bajna and spoke with Mr. Surendra Manjrekar, Branch Manager, CBI, Bajna. He motivated and encouraged me to initiate the work by explaining the scope of women self help group (SHG) in tribal context.



Bajna is considered as "Kala pani" – a place no one prefers. It is considered a place for rejection due to its drought-prone nature, high rate of illiteracy, high alcoholism, robbery zone, politically disturbed, high social and economical exploitation, and high corruption rate. Usually government officials are sent here for punishment transfer. In spite of these factors I decided to work for the betterment of the tribal community. I started the location work from the first week of December 2007. I proceeded with screening and movement workers selection. There was overwhelming response from people. Around 300 participants came forward to be a part of our initiative. We selected 15 movement workers, demarcated clusters, and did concept seeding.

The first group was promoted on January 15<sup>th</sup> 2008, until March 2008,

we emphasized on capacity-building of local staff by conducting participatory rural appraisals (PRAs). As a result, there were 19 Kalanjiam (SHGs promoted by DHAN Foundation) covering 256 families with a savings of Rs.15,500. With the encouragement of the success in April 2008 there were 42 new groups. By August 2008, there were 87 groups with more than 1,300 Kalanjiam members. The cumulative savings was Rs.2,99,988 and credit mobilised from Kalanjiam Development Financial Services (KDFS) was Rs.4,70,000 to 38 eligible Kalanjiam benefiting 598 poor tribal families. The reach is significant because there is only one bank, CBI, Bajna branch, and the tribal location was just eight months old. Without the enthusiastic and passionate support of the team of bankers, this feat would not have been

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possible. From the beginning, I developed good relationship with bankers, 110 and my relationship with Mr. Surendra Manjrekar needs special mention.

### Our banking experience:

To attract more families towards KCBP, we planned to organize a one month bank account opening camp in June 2008. 62 groups were able to open their accounts in CBI, Bajna. This camp was a role-model for SHG bank account opening in the district. It was an orientation programme for the associates working at the grassroot level. The bankers' team, including the bank manager, was directly involved in each step of the process. Bank account opening, form filling, designing standard resolution format, evolving byelaws, preparing supportive documentary proof and so on were explained in detail for the benefit of the learners. Every one of us felt this would be a true contribution to financial inclusion. Since then, we scheduled our work according to the banking hours.

After a month of bank account opening, we were involved in credit needs assessment, members' credit accessibility with affordability and KDFS loan appraisal. We came to know about extent of money lender's loan and its exploitative interest rate to meet their credit needs. As the agricultural season was beginning, most of the money was needed for doing agricultural activities. So our location team decided to share their burden by providing credit to purchase two packets of fertilizer. Though the credit may not meet the entire cost, it may contribute significant portion of their input cost. With the cash in hand



they could purchase seeds, pesticides, and farm equipments, and complete activities like land preparation. The dependence on money lenders was drastically reduced. The money (Rs. 4.7 lakhs) was considered as an SHG loan which is to be repaid after the harvest. For this we felt the need of KDFS linkage. Mr. Balaji Narayanan shared about their sanctioning of loans but it would be sent as State Bank of India demand drafts (DDs). I requested him to send it as CBI DDs as there will be clearance deductions and may take a week time to receive money. It was crucial both in terms of money and time for the poor tribal members. Finally, we got CBI DDs for 38 eligible groups.

We decided to distribute the DDs in a grand function in the presence of members and bankers to encourage the left out poor to become members of Kalanjiam. When I shared with Mr. Surendra Manjrekar, he congratulated and said such a function would make the tribal people proud and gain confidence in organizing themselves and spread the success of

tribal women self-help initiatives. I acquired the support of Mr. Satish from Sailana location. Mr. Surendra Manjrekar helped in deciding the chief guest and invitees. We finalized NABARD AGM as chief guest; the other special invitees were Lead District Manager (LDM) of CBI, Ratlam, Block Chief Executive Officer (CEO) and President of Sailana federation. There were press people from Dainik Bhaskar, Jagaran, and Naidunia. Mr. Surendra Manjrekar himself invited the guests and explained the significance of the event.

The event was organised at Janpat Hall on 11<sup>th</sup> August 2008. Though there was heavy rain, people reached the venue with much interest. They completed the needed documents for loan and necessary arrangements for the function. Guests congratulated our team effort with community involvement. Chief Guest, Mr. Tiwatne, encouraged our leaders to go beyond savings and credit. He insisted on initiating income generation activities. Mr. Bang



suggested organizing more people to mobilize resources for the socio economic development of tribal people. Ms. Kalbani Ninama, President of Sailana Kalanjiam Vikas Mahasangh (SKVM, Sailana federation) highlighted the issues which are hurdles for development. Mr. Surendra Manjrekar appreciated our team for consistency in maintaining good quality groups. I gave the inaugural address with details of the progress of the location.

Mr. Satish coordinated the function and gave the vote of thanks. As a part of the function, we introduced the new set of books and explained the uniqueness of our book keeping and auditing system. The applause, while each group received their DDs, is still afresh in the memories of every one who took part in that event. After the function was over, there was a press meet. Mr. Surendra Manjrekar wrote the pressnote for national newspapers and got published the next day.

From this function, I realized that we are working for the economic development of the poor tribal people. Every transaction should be transparent and we should be the role model to others. The event was a means to demonstrate our performance to the mainstream institutions. It is a beginning of an era of SHG-Bank linkage in this tribal location. We hope to mobilise Rs.24 lakhs for 120 SHGs in the next agricultural season to benefit 2,000 tribal families. Now DRDA has come forward to fulfill the credit plan of Bajna for the coming financial year. NABARD has also invited us to take some short and long term development projects for the district.

The support extended by KDFS needs due acknowledgement. They helped us to demonstrate and strengthen our confidence with banks as well as community. The event turned into a path to reach our ultimate goal of community development with the people by the people and for the people. ■

## Humane Trust

# Personality development camp for children:

**A**s we are aware, Humane Trust is regularly organizing events on various themes like personality development, yoga and creating awareness related to heritage, health, education, and other development related matters for DHANites, staff and leaders in people institutions, and children.

On 24<sup>th</sup> August, 2008, Humane Trust organized a programme for children on personality development at DHAN People Academy, Madurai. There were 14 participants for the event.

There was good participation from the children. It was coordinated by Mr. R. Muniramsingh and Mr.R. Vengaijanji. There were classes on inspiring leaders, yoga, and song practice, and children had time to express their artistic talents.



**S. RamKumar\***

\* S. Ramkumar, Programme Leader, Centre for Human Resouce Development, Madurai.

# Vayalagam Movement 2<sup>nd</sup> Annual General body Meeting Proceedings and resolutions

N. Venkatesan\*

The Vayalagam Movement Annual General body Meeting (AGBM) was conducted at People Academy, Pulloothu, Madurai on 19<sup>th</sup> July, 2008. There were more than 70 participants from Vayalagam federations promoted by DHAN Foundation and DHAN Vayalagam (Tank) Foundation, Madurai. Vayalagams work for the conservation of small scale water bodies such as tanks, ponds, and watersheds. The event was inaugurated with the lighting of the lamp by ten leaders from various states like Tamil Nadu, Andhra Pradesh, and Karnataka. Mr. A. Duraisamy, President of Vayalagam Movement, gave an introductory speech sharing the background and the importance of the movement. The inaugural address was delivered by Mr. N. Venkatesan, the anchor of the movement; he also shared the annual report of the movement for the year 2007-2008. Mr. R. Vasavalingam, Treasurer of the movement, shared the annual audit report of the movement. The movement leaders Mr. Pulavar Lakshmikandhan, Mr. Kalivel, Mr. Rasamani, Mr. Kummipurushottamareddy, Mr. A.V.Velusamy, Mr. Vaiyapuri, Mr. K.Vaidyanathan, Mr. A.Ramalingam and many others shared their views and points about the conservation and development of water bodies. The roles played by different stake holders



such as Government, private and public were also discussed. Mr. M.P. Vasimalai, Executive Director, DHAN Foundation and Mr.A.Gurunathan, Chief Executive, DHAN Vayalagam (Tank) Foundation gave the special address to motivate the leaders. A group discussion was organized on strengthening the movement among the leaders by dividing themselves into three groups, which went on for more than an hour. The proceedings of the meeting are as given below:

1. The general body expressed its thanks for the regional movement units for conducting the annual general body meeting at region level at Madurai, Ramnad, Tuticorin, Kanchipuram, Chittoor, Hyderabad, and Tumkur and also approved the proceedings of those meetings.
2. The general body approved the changes made in the regional executive committees during the meetings conducted there.
3. The general body expressed its thanks to all leaders and staff who participated in the appraisal process conducted at 12 registered federations and approved the proceedings of those appraisal processes held for strengthening the federations.
4. The general body expressed its thanks to Government of Tamil Nadu (GoTN) for enacting the Tamil Nadu Encroachment Eviction and Protection of Tanks Act 2007 to strengthen our efforts on encroachment eviction drive and also welcoming the Act to ensure encroachment eviction in all tanks.

\* N. Venkatesan, Programme Leader, Vayalagam (Tank) Foundation, Madurai.

5. At the same time, the general body requested the GoTN to enact a separate Act for the protection of the panchayat union tanks also, as those tanks are not covered under the above Act.
  6. The general body requested the GoTN to recognize the people institutions promoted around the tanks by giving the works under the new World Bank Funded Scheme as done successfully in Andhra Pradesh and Karnataka.
  7. The general body requested its member Vayalagams to introduce the self-regulation concept this year in all the cascades as well as tank federations. As those institutions are closer to the villages and it is crucial to strengthen the Vayalagams at all the places.
  8. The general body requested all executive members and representatives of the federations to concentrate on the mobilization of the Vayalagam Jothi fund to achieve the target for the year 2008-09.
  9. The general body requested all its member institutions to continue their efforts to fight against the encroachment through the signature campaign, *pathayatras*, public hearing meeting and other propaganda means to ensure complete eviction.
  10. Last year during 7<sup>th</sup> March, 2008 our locations across all states celebrated the Vayalagam *shramadhanam* (dedicating through works) at 192 tanks and villages. This has created enthusiasm and motivation among our members. The general body decided to conduct at least 500 such *shramadhanams* at all the locations in the coming year.
11. The general body expressed that the present loan waiver scheme is not a healthy fact or for the farmers. Instead the GoI can reduce the interest rates for agricultural loans. The GoI can support the farmers by sharing the financial allocation through funding the common infrastructures.
- Resolutions of the general body were shared and unanimously approved. The resolutions are given below:
1. The annual report and the audit report of the Vayalagam Movement for the year 2007-08 was approved.
  2. Mr. R. Hanumandhan, who did the auditing for the year 2007-08 was approved as the auditor of the Vayalagam Movement to conduct auditing during the year 2008-09.
  3. The movement has supported Gudipala location in Chittoor region. Now the location got its financial support from Arghyam Foundation and hence Vayalagam movement decided to select Vasudevanallur block as the second movement block from this year onwards and this decision was approved by the general body.
  4. Mr. A. Ramalingam from Chitamoor location of Kanchipuram region was approved as the new Secretary in the place of Mr. S. Balaganapathy, as he resigned due to personal reasons.
5. The general body approved the new executive committee members as addition viz., Mr. Ramu (Pavagada) and Mr. P. Krishnamurthy (Kolar) from Karnataka, Mr. Sankar, Mr. Ashok and Mr. Gangireddi from Andhra Pradesh, and Mr. Poovan and Mr. K. Vaidyanathan from Tamil Nadu as the central executive members of the movement.
  6. The general body decided to celebrate the movement events every year. 7<sup>th</sup> and 22<sup>nd</sup> of March shall be celebrated as Movement Day and World Water day, 5<sup>th</sup> of June as World Environment Day and 2<sup>nd</sup> of October Gandhi Jayanthi, the DHAN Foundation Day. The general body decided to position its activities with the banking sector by meeting the higher officials by sharing the experiences of our federations through the microfinance groups and getting some collaboration with them.
  7. The general body decided to work on integrating the people institutions promoted on water through other NGOs to support and guide them as movement activity.
  8. The general body decided to position the movement through working with the state governments of Andhra Pradesh, Karnataka and Tamil Nadu by meeting the higher officials at the state capitals to share our experiences and exploring the possibilities of collaboration.
  9. The general body decided to working together with Kalanjiam movement to introduce its scheme of Vayalagam *shramadhanam* to the people of Kalanjams. ■

# Wastewater Pollution in Urban Rainwater Catchment Tanks - A. Kosakulam Tank

J. Goetzenberger and R. Devika\*

## Source of Pollution

A. Kosakulam Tank is located in the north of Madurai city, surrounded by Gandhi Nagar and Pandiyan Nagar. The tank and the settlements are part of Madurai Municipal Corporation, ward three. A. Kosakulam tank is a man-made rainwater catchment area constructed in ancient times. The collected rainwater is intended to be stored and subsequently used for agricultural irrigation (tankfed farming), which is an important aspect of peoples' livelihood in this water scare region of Tamilnadu.

The tank is connected via open channels with Kalkuman and Vandiyur Tank; hence, the overflow of A. Kosakulam is mixed with stormwater runoffs and routed into both downstream tanks, which are also used for tankfed farming.

Gandhi and Pandiyan Nagar are unauthorised settlements in which a total of about 2,500 families or 6,000-7,500 people live. Despite the fact that legal bodies generally do not feel the urge of providing infrastructure to unauthorised residents as this could be understood as a step towards legalisation, Madurai authorities provided wastewater drainage in 2006/07 and two community toilet centres.

However, on a closer look, the sanitation infrastructure shows



Fig. 1: A. Kosakulam Tank

tremendous shortcomings which have direct negative effects on A. Kosakulam Tank and downstream water bodies.

Houses in the neighbourhood of A. Kosakulam tank are very basic and do not possess of in-house toilets. Only some houses have external pit latrines,



Fig. 2: Public Toilet Centre

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**Fig. 3:** Open defecation (left) and solid waste contamination (right)



**Fig. 4:** Open sewer channel **Fig. 5:** Uncontrolled sewage drainage

however not connected to an adequate underground sewer system. In order to provide basic sanitation infrastructure, Madurai Municipal Corporation constructed two community toilets. However, these centres are not connected to an adequate wastewater treatment, but the wastewater runs untreated into A. Kosakulam tank. Percolating wastewater pollutes the groundwater and presents a health risk for the slum dwellers who depend on groundwater for drinking purpose. Also, both community toilets are located very close to the tank what unavoidably leads to pollution.

Open defecation occurs exceedingly around the tank despite the fact that two community toilets are provided. This fact can be justified through improper maintenance of the community toilets.

Another source of contamination around the tank is uncontrolled solid waste dumping as no adequate collection and disposal system is

provided. The solid waste bears significant inconveniences and health risks to the residents. Additionally, diversions through animals and wind, direct surface rainwater runoff and runoff via the open drainage channels carry solid waste into the tank which leads to unpleasant landscape and further pollution of the tank and downstream water bodies.

Madurai Municipal Corporation recently provided wastewater drainage in some areas of surrounding settlements in order to avoid wastewater flowing uncontrolled through the slum. However, only open concrete channels running on the surface were provided in selected places. Other areas remain completely unsewered. Although these open channels reduce pollution as the wastewater is routed via defined streams, nuisances through bad smell, unhygienic conditions through flies (leading to illness like diarrhoea, cholera, hepatitis, etc), and mosquito breeding (leading to dengue, malaria, etc.) remain. For the residents the improvements are therefore still

insufficient. The most tremendous problem however is the lack of treatment of the wastewater generated in the public toilet centres.

All generated wastewater is finally drained without any treatment into A. Kosakulam tank. From there, contamination is further transferred via connecting channels running through the city towards downstream Kalkuman and Vandiyur tank. On the way, attached areas also discharge wastewater into the tanks and interconnections, such as Manmalai Medu, Desiya Vinayagar Nagar, Ramvarma Nagar, Loordhu Nagar; as well as shopping complexes and SIDCO industrial colony.

### Related Problems

Due to high loads of organic and inorganic settleable solids, the tank continuously silts up, thus the water catchment volume decreases. Due to high organic matter in the discharged wastewater, aerobic decomposition and anaerobic fermentation occurs. Bad smell is the unpleasant consequence. Nutrients (phosphorus, nitrogen, potassium) reach the tank via disposed faeces and urine and lead to eutrophication and finally collapse of the water body.

The consequences of above pollution are manifold. Due to the pollution, the intended use of the tank for agricultural irrigation is restricted as the water contaminates the fields and the crops. Bathing and washing is impossible as the water is too contaminated. Percolation of the water leads to groundwater pollution and affects the drinking water quality. The nearby residents suffer from water related diseases evoked through flies (transferring contamination from open defecation sites, open channels and the



**Fig. 6:** Ecosan community toilet centre

tank to foods), mosquitoes (transferring malaria, dengue, chikungunya) and direct contamination due to direct contact with excreta (see Fig. 5).

**Possible Solutions**

The provision of toilets on household level, the connection to an UGSS and adequate treatment would be the most convenient and best solution in order to improve the residents' living conditions and to eliminate pollution of A. Kosakulam and downstream tanks. However, for different reasons, this solution might not be feasible (unauthorised settlement, open sewer system was just implemented, no financial resources, etc.).

Nevertheless, improvements of the sanitation infrastructure are necessary as quick as possible to end

with environmental contamination and to provide humane living conditions:

- The existing two community toilets need to be maintained properly in order to avoid open defecation which leads to tremendous contamination and health problems.

Adequate awareness training (e.g. campaigns) has to go hand in hand in order to convince people of using the toilets. Additionally, efficient and adequate wastewater treatment has to be provided for the wastewater generated in the toilet centres. Different adequate decentralised wastewater treatment technologies are available. DEWATS<sup>1</sup> and ecosan<sup>2</sup> sanitation management offer easy and efficient wastewater treatment with low maintenance needs. However, the residents should be involved in the decision making process in order to ensure sustainable use and maintenance.

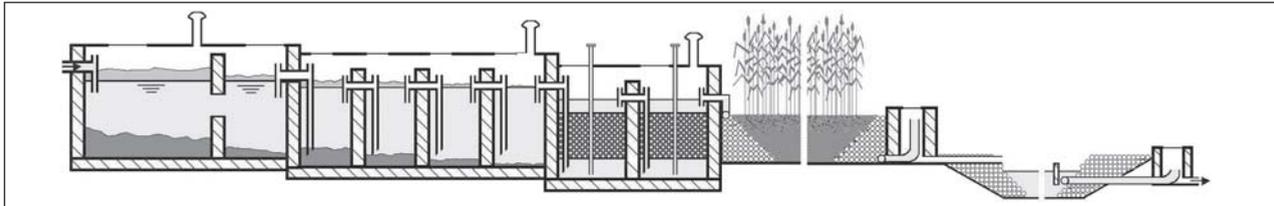
- The existing sewer system has to be extended in order to cover all nearby areas and to avoid

unsewered discharge of wastewater. In order to minimise nuisances due to bad smell, health risks due to vectors like flies and mosquitoes, and direct contact with wastewater, channels need to be covered with concrete slabs or constructed underground. Most important, in order to avoid the wastewater running untreated into the tank, adequate treatment has to be provided for the sewage collected in the sewer system. DEWATS offers adequate and cost-effective treatment under these conditions.

- An adequate solid waste management system needs to be adopted in order to reduce pollution of the tank and its surrounding through uncontrolled littering because of failing alternatives. Collection facilities like solid waste dumpsters and regular, scheduled removal combined with awareness training have to be provided.

**For more information and details please contact:**

DHAN Foundation  
 Centre for Urban Water Resources (CURE)  
 Email: dhancure@gmail.com



**Fig. 7.** DEWATS: decentralised wastewater treatment

<sup>1</sup> Decentralised Wastewater Treatment System: modular treatment systems consisting of settler, biogas digester, anaerobic baffle reactor, anaerobic filter, gravel filter, lagoon system (design depending of wastewater quantity, quality, reuse potential and local conditions).

<sup>2</sup> Ecological Sanitation: sanitation approach focusing on reuse of wastewater constituents (closing-the-loop); e.g. reuse of water for agricultural irrigation / groundwater recharge, reuse of sanitised faeces as soil conditioner and sanitised urine as fertiliser.

# Madurai Green

S. Ramkumar\*

**M**adurai Green is a development organization working for the environment. It has the objectives of greening Madurai, and creating awareness on environmental aspects among the school and college students and the common public. It has a nursery to produce about one lakh seedlings of tree species, and ornamental plants and also undertakes planting and maintenance of gardens and plantations.

Every year, it organizes many events for Madurai. The details of various events organized recently are given below to share with all of you so that you can take up similar activities in your place.

## Celebration of World Environment Day

World Environment Day was celebrated on 5<sup>th</sup> June, 2008. It was organised by Madurai Urban Kalanjams and Madurai Green. There was a procession from Melamadai to Anna bus stand highlighting the values and significance of safeguarding the environment and various ways to arrest pollution. There were about 1,000 participants in the procession from various educational institutions and from the members of urban Kalanjams in Madurai city. Dr. Badrinarayanan, a famous ophthalmologist, flagged off the procession and Mr. Purushothaman, Madurai District Rotary Governor and Mr. M. P. Vasimalai, ED, DHAN Foundation were also there to grace



that occasion. A human chain was formed at Anna bus stand. At the end, about 2,000 tree saplings were distributed to the public. Police Commissioner of Madurai, Mr. Nandabalan distributed the seedlings. Around 1,000 members participated in the celebrations.

## Support for Heritage development of Madurai

Madurai Green was assisted by Humane Trust with Rs. 20,000 for tree plantation in the city. It has launched a scheme by name 'Heritage Kadamba Tree' to promote the kadamba tree, a traditional tree of Madurai, which is considered the 'sthalavruksham' (tree of the place) of the city. In earlier days, the kadamba trees were in abundance and were known as 'kadambavanam' (kadamba forest). The tree is also present in Meenakshi Temple. A few trees exist at the Meenakshi Government College for Women at Madurai. A withered relic of the kadamba tree is also preserved in the precincts of the Madurai Meenakshi

Temple. In the present civilized period, the dearth of kadamba trees is felt by many. With the fund assisted to Madurai Green, there were about 1,200 kadamba tree seedlings raised and they are ready to be planted in six places in Madurai to develop sacred kadamba groves in Madurai.

## General Body Meeting (GBM) of Madurai Green:

It was conducted on 25<sup>th</sup> August, 2008 at the house of Dr. Badrinarayanan. Mr. M. P. Vasimalai, Mr. Vivekanandan, Mr. Purusothaman, Mr. SACS Narayanan, Mr. Kumaresan, Mr. Arul Gnanasekaran, Mr. Edwin Rajasekaran, Mr. S. Ramkumar, Mr. Jayachandran, Mr. Anthony Palraj, and Mr. N. Chidambaram were there for the meeting. The minutes of the last meeting was presented by Mr. Chidambaram and it was approved by the members. Then the activities of the last year were shared. The accounts details from the audited statement were shared and it was approved. Finally the plan for the next year was discussed. ■

\* S. Ramkumar is Team Leader of Center for Human Resource Development, DHAN Foundation, Madurai.

# Heritage value of Perumal Malai

S. Aravindan\*

**P**erumal Malai is one of the big rocky hills in ‘Thiruvuvagam’ cluster. Its height is 220 meter and is spread over an area of 85 acres and 5 cents. It is adjacent to the Cumbum highway in the west direction of Madurai. This hill can be reached via Alampatti-Vadapazhanji road from Madurai Kamaraj University.

## Perumal Malai before seventh century AD (earlier Jainism era)

- **Natural caves and their initiatives**

There are two natural caves. The natural caves in the southern side of the hill might be the shelter for the tribals who lived before the Jain monks. Presence of the tribal is confirmed by the red ochre rock arts found in the foot of the hill.

- **Establishment and growth of Jain Monastery and Academy**

It is assumed that the very first Jain monks who came from North India started their ritual life in Pandya dynasty period from this hill. This is confirmed by the presence of age old ‘Tamil Brahmi Inscriptions’ in the caves of the hill. Then they moved to Kuyilkudi village which is located to the east of Perumal Malai.

- **Caves with rock beds**

The cave is very big and can be easily entered through east and south directions. It was modified in such a manner that the Jain monks could live



very comfortably. The rock at the top of the entrance of the cave was lightly carved at its forehead side to prevent the rain water from coming inside the cave. It looks like the ‘eye brow’ for that cave. The uneven surface of the cave was made flat and polished so that it gives a soothing feeling to the Jain monks while sleeping. The rain water from the ceiling rock was prevented from falling down and directed to other directions by forming small rills at uniform distances. Moreover the water falling around the outside of the cave is also directed downwards by furrowing. This keeps the cave dry always. There are holes up on the forehead portion of the ceiling rock. This indicates the construction of semi-permanent structures around the cave to prevent entry of high speed moist wind during heavy rainy seasons. There are more

than 25 rock beds in and around the cave. These beds were formed side-by-side in a rectangle separated by linear projections. There is another cave in the northeastern side of the first one. But there is no eyebrow cutting is found on the forehead of the ceiling rock. There is only one raised rock with a polished top and Tamil Brahmi inscriptions on the sides.

- **Tamil Brahmi Inscriptions**

There are three Tamil Brahmi inscriptions found in this hill. These inscriptions illustrate the lifestyle, education in academy and details of patrons of Jain monks and the academy. It is found written about the things happened before 300 BC and earlier. Some interesting information for us is about the Acharya ‘Ashtopavasi Padarar’. He admitted female Jain monks (nuns or Kurathis)

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in academy as students and made it a co-education academy for the first time. Teachers and students of the two branches of Madevi Academy each in two hills lived here for generations. We have learned this from the inscriptions found in these hills. The inscriptions tell about the students from 'Shravanabelagola' of Karnataka who stayed along with the Tamil students of Pandya dynasty. Many students became teachers at the same academy. Of the teachers Ashtopavasi Padarar, Gunasena Dhevar, and Mahanandi Periyar were very popular. The patrons of the academy were Pallichivigaiyar community, Kuyilkudi Assembly, Nattavai Assembly, Pandiyan Kings, and Queen Madevi.

Jainism and its impact in Perumal Malai, after Seventh Century AD (later Jainism era)

- **Jainism and its transformation:**

According to Jainism, there was no idol worship. But after the astonishing emergence of Saivaites- 'Laguleesers'

and 'Pasupatheeswarars', Jainism lost its glory. Hence, to withstand the opposition wave of 'Saivaites', Jain monks decided to change their approach and decided to practice idol worship. The Jain monks started to wear white clothes and called themselves as 'Swethambaras'. The secondary position of women was changed and 'Yakshis', women Goddesses, were created. They created their Thirthankaras, Yakshas and Yakshis sculptures and started idol worship from the late seventh century AD to ninth century AD. But there are no sculptures for Acharya or Upathyaya.

- **Thirthankara Sculptures and Vattezhuthu Inscriptions**

During the earlier Pandya dynasty, it was the age of emergence of idol worship by the Jain monks. Many Thirthankara idols were sculpted and worshiped. One solitary idol sculpted on a strong rock base (pedestal) during the ninth century AD is found in Perumal Malai. Thirthankara in the sculpture is sitting in 'Artha-Padmasana\*' posture on a parallel lion

throne carried by three lions<sup>5</sup>. A big pillow is behind him horizontally along with two Makaras. A Yaksha and a Yakshi are fanning him with fly whisks. A bright halo is seen around his back. A "Kevala tree"<sup>#</sup> with bell-shaped flowers and tendril like branches is upon his head. A small triple umbrella<sup>&</sup> is giving shade to him. He is with a sound body stature. This is one of the important sculptures with art value in Pandya dynasty.

(\* 'In Padmasana posture, two feet will be placed on their opposite thighs in a criss-cross manner. But in 'Artha Padmasana', only the right foot will be up on the left thigh and the left foot will be beneath the right leg.)

(<sup>5</sup> There are 24 Thirthankaras in Jainism and each are having their own specific cognizant symbol. If a lion is seen in a Thirthankara sculpture, we can confirm it is 'Mahavir'.)

(<sup>#</sup> 'Kevala Tree' is an imagined tree. The stage Kevala is defined as the stage beyond desire and aversion. But 'Kevala Tree' is then transformed as a wish-fulfilling-tree like 'Karpaga Vruksha' of Hinduism. Since Thirthankaras have conquered all desires and aversions, they are qualified to be underneath the 'Kevala Tree'. Presence of this tree is an indication that nature comes to serve him instead of Thirthankaras seeking shelter under its shadow.)

(<sup>&</sup> Triple umbrella is sculptured for Thirthankaras only.)

- **Base Sculptures**

Upon the outer surface of the big cave there are two base sculptures of two Thirthankaras. These are very similar to the idols. The difference is they are in base sculpture forms. Triple

umbrella and 'Kevala Tree' says these sculptures as 'Thirthankaras' sculptures. Presence of cognizant, 'the lion', indicates that these two sculptures are of 'Mahavir'. From the inscriptions, we come to know how the Jain monasteries were protected as well as supported by the communities. These two base sculptures are made in two adjacent shelves. 'Vattezhuthu' inscriptions are also found under these two sculptures. From these inscriptions, we can understand that these sculptures are made by two students on behalf of the patrons of 'Madevi Perumpalli Academy'. It is a unique thing that the above Jain Academy of the early Pandya dynasty and Madurai Kamaraj University of the present age are located in same geographical area. We can understand that this academy was famous during the age from ninth century AD to tenth century AD. This monastery and academy were watch guarded by a community 'Pallichivigaiyars' whose job was carrying the 'Pallakku or Chivigai' of Kings, Queens, Ministers and royal people.

### **Present status of Perumal Malai**

- **History of destruction of Perumal Malai**

Perumal Malai is also a sub cluster of two big rocky hills. The total visible length of Perumal Malai is approximately two kilometers. But it extends its underground length even to the extent of 4 kilometers. This hill has its roots below a depth of thirty feet beneath the top soil layer, but now, we can see only one hill because one of the two hills was completely demolished in both the above ground level as well as below ground level. There are 4-5 big irregular well-like structures. From the local people we

come to know that there were big hills 20-30 years ago. After cutting the above-ground-level rocks, the quarry people have also cut down the below-ground-level rocks too. These irregular wells were created due to the below ground level quarrying.

- **Archeological Survey of India (ASI)**

According to the 1958 Act, it surveyed whole India and took the control over the archeologically important sites. During 1960s, all the monuments in and around Madurai were taken under the control of ASI. In that way Samanar Malai (Thiruvuvagam) also came under ASI's control. They employed two watchmen to protect the monuments in Samanar Malai and Perumal Malai. For the past forty years, those watchmen went around and protected the places from the damages done by the mischievous boys but not by the adults. In order to protect the monuments from the high frequency sounds and their vibration effects, ASI submitted an appeal to Mines Department to withdraw Perumal Malai from leasing out to quarry. But Government took a policy decision

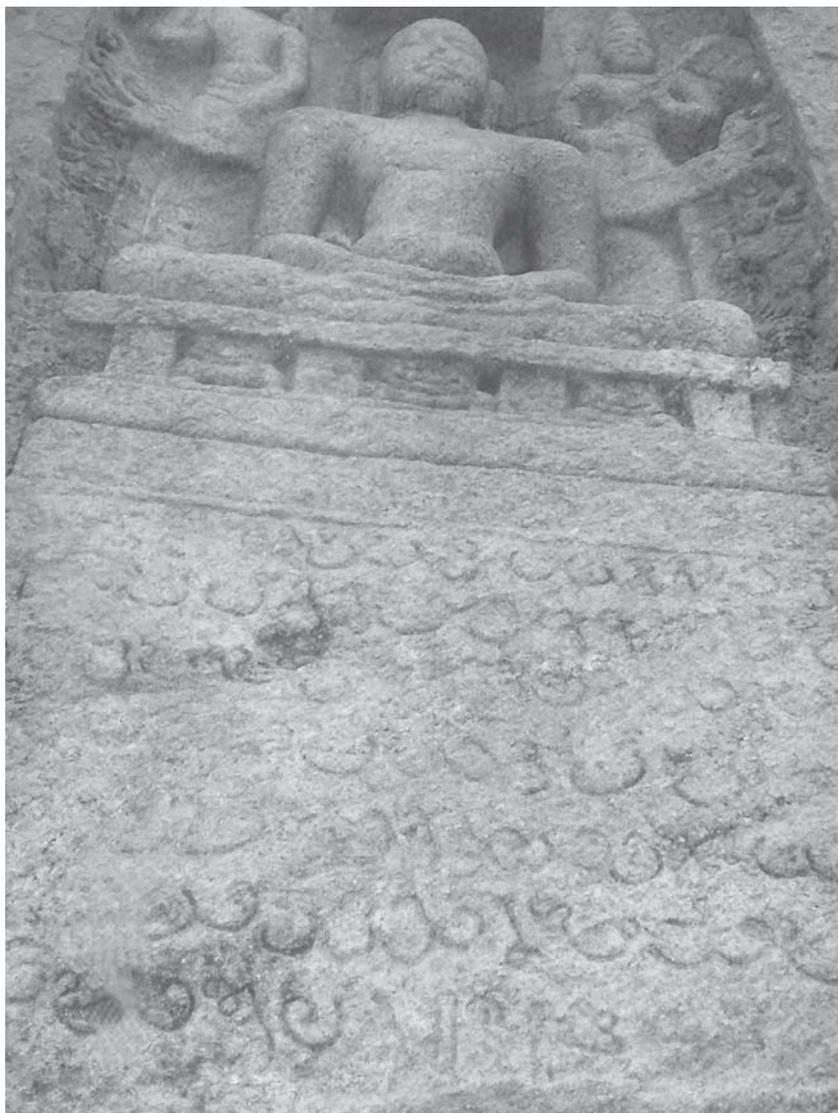
that 'a hill with an isolation distance of 300 meters from a monument can be leased out to quarry' and part of Perumal hill also leased out for quarry. After that, ASI could not stop quarrying. Quarry continued its activities approaching Perumal hills in the east and Vadapazhanji Kanmoi in the north.

- **Quarry activities**

About 20 years ago, people of Vadapazhanji and Thottiyapatti villages resisted quarry people because they were affected by the blasting sound during night times. There is no response from the quarry people for the opposition raised by the public. 4-5 houses were broken down due to the vibrations of blast in quarry in Thottiyapatti village. After this sad event, people in Thottiyapatti started vacating from the village and settling with their blood-relations in faraway places. Now, a few of them have come back to protect their lands after hearing the news that 'Tidal Park' is going to be established nearer to Nagamalai Pudukkottai.

After cutting down the above-ground-level portions of the hill the





quarry was extended to below ground level also. They excavated rocks wherever the hill extended its roots. Trailing behind the rocks, quarry activities reached Vadapazhanji Kanmoi which is up on the root rocks of Perumal Malai. By the quarry actions, the rocks are cut and taken off leaving big ponds in the water holding area of the tank. Who ever watching the tank superficially, may have the idea that quarry people did good thing to the tank in increasing its water holding capacity. But in reality, it is not so. The quarry people are pumping out the collected water in the

created rock ponds then and there. Otherwise, they cannot break the rocks by blasting. This makes the tank dry forever. Before the encroachment and destruction of tank water holding area, the water harvested from the watershed area was sufficient to fill the tank to its fullest capacity. Hence, shallow water tank served the purpose satisfactorily. But now, because of the 30–40 feet deep ponds created inside the tank, farmers are left in a position to pump out the water for their every irrigation which is taxing them heavily as diesel expenses and engine hiring charges are mounting up.

Affected farmers of Vadapazhanji gathered under the leadership of Mr Azhagar Thevar, President of Vadapazhanji Farmers' Association. They approached the District Collector on every 'Farmers Grievance Relief Day', but all efforts were in vain. Moreover, he was threatened by the quarry persons for his strong efforts against quarry. Due to the efforts of many organisations like Tamil Nadu Jains' Sangam, and Madurai Kamaraj University Historical Society some of the District Collectors with scholarly leaning understood the cultural importance of these hills and passed orders for stopping quarry activity.

From the local people's interview and by simple observation, it is clearly understood that even now also quarry activity is continuing in secret, at the back side (northern side) of Perumal Malai. Blasting is done with mild effect to yield minimum broken pieces of rocks. A total of 10 families are living at the foot of the hills of Perumal Malai are depending up on the quarry works. But for the sake of safety, they are telling that men are going for some other works in Madurai city and ladies are doing the polishing or abrade works. The quarry is in progress towards the foothills of Perumal Malai which will cause lodging of the hill into pieces of rocks if there are any natural shakings or vibrations.

- **Present Situation of Perumal Malai**

**Geographical situation:**

- This hill is now standing without any root rocks support. All the root rocks had been carved



underground. This will cause lodging in of hill in due course.

- Since the Vadapazhanji Tank has been encroached, agriculture is affected. Hence, lands are becoming barren and it reduces the trespassers.
- The surrounding area is covered by patches of Prosopis jungles.

#### Social Situation:

- People are frustrated because of the corrupt nature of the officials.
- People are not interested in conservation of the hill because they have no idea about heritage or importance of monuments.
- People have an aversion to the quarry people because of their disturbed nights.
- About 20 families in Karadippatti and Muthuppatti are involved in quarry activity secretly.
- People are involved in so many diversified income generation activities and have less interest in conservation activities.

#### Transport facilities:

- Pucca black top road is available up to 'Vadapazhanji' village and then dirt track is available.

- Vehicles like mini four wheelers can go to a point which is one kilometer before the hill.

#### Tourism activities:

- Except for some history and tamil teachers and some religious learned people, nobody in Madurai knows about the presence of these types of Jain hills and their heritage values.
- Because of less or no advertisement for this site, no tourists are visiting this place now.
- There is no aesthetic look in the surroundings of Perumal Malai.
- Local people have no awareness about this type of activity.

#### Ways to conserve Perumal Malai

- In order to give **immediate protection** to Perumal Malai it has to be converted as a temple of a local deity namely Karuppasamy or Dhroupathi or Muniyandi etc., with the help of a local Samiyadi.
- Find out alternative livelihoods for the quarry workers so that they give up their quarry work.

- Recommend ASI to place many attractive advertisements about the Jain Monasteries around Madurai in all important tourist spots of Madurai.
- Recommend the Tourism Department to set a package tour by combining Samanar Malai, Perumal Malai, and Kongar Puzhiyankulam Malai visits.
- Recommend Tourism Department to place many attractive advertisements about the Jain Monasteries around Madurai in all star hotels of Madurai where foreign visitors are staying.
- Motivate the people in Vadapazhanji, Muthuppatti, and Palkalai Nagar by telling them about our heritage and importance of monuments.
- Form cultural heritage conservation groups involving both men and women in the surrounding areas as in the earlier days.
- Motivate the local people to build Kudils which help the visitors to meditate or take rest.
- Form tank-based groups for conserving 'Vadapazhanji Tank'
- Motivate people to provide tourism-based services (providing local foods prepared in their homes, establishing meditation kudils in their lands, excavating ponds, and rearing pets give pleasant environment) to the visitors which will impress them.

For further details of this place you can read the book "ENPERUMKUNDRANKAL", Vedachalam, V., Sastha Publications, Madurai, 2000. ■

# Price fixing at door steps

R. Villayutham\*

## Introduction

Thalainayiru block is located in the south of Nagapattinam district of Tamil Nadu. There are 27 panchayats and 69 villages in Thalainayiru block. Thalainayar Kilakku Vattara Vayalagam (TKVV) is working at three panchayats: Naluvadhpathy, Vellapallam, and Kovilpathu. The working villages are Kovilpathu, Vanavanmahadevi, Vellapallam, and Naluvadhpathy. There are 3,704 farming families and 753 fishing families. The population is 17,808 with 9,227 men and 8581 women.

The land is blessed with good quality ground water; hence, the cultivation of coconut, mango, cashew, groundnut, Karthigai Kilangu (*Gloriosa superba*, a tuber known for its medicinal value) and other vegetable and flower crops are possible. Due to the fertility of the land, the produce is of good quality. The weight of coconut (100 dried coconuts, copra) is 15 to 20 kilograms, groundnut (100 nos.) 70 – 85 grams, the cashew nuts, mango varieties like Neelam, Senthuram, Rumania, Kalapadu, banganapalli, kilimookku (colloquially ottu) and local breed (colloquially naattu) are of more taste than neighbouring areas.

Though the farmers have these advantages, due to lack of capital in right time, they could not cultivate agricultural and horticultural crops in time and they could not purchase good quality seeds. The seeds were purchased at higher rate than market



rate from some merchants on credit at a high rate of interest. They are forced to sell the produce to them so they could not fix the price for their produces.

Groundnut seed was purchased at Rs. 1,350 per bag (each bag weighing 37 kg) with the loan amount. After harvest they had to sell to the merchant-moneylenders at a cost of Rs. 100 less than the market price. The money after the deduction of loan amount is given to the farmers only after three days to one week. This was the routine of the farmers. Thus they were in the debt trap and could not come out of it for several years.

## Collective Marketing through Primary Producer Groups (PPG)

In the aftermath of the 2004 tsunami, DHAN Foundation entered

in these villages and started organizing the farmers into Vayalagams (farmers' self help groups). During this intervention period the members expressed that increasing the yield is not what they need; the need is getting timely supply of seeds and selling the produce at a better price without middlemen. They strongly felt this intervention would fetch more profit out of their agricultural activity. They were organized to form primary producers groups (PPG). A PPG was promoted with the farmers of these villages. All the farming families were interested to buy high quality groundnut seeds for sowing. A purchase committee of five members selected among the group went to Ananthapur, Andhra Pradesh to purchase groundnut seeds as the groundnut in Ananthapur was known for its quality. DHAN Foundation staff

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working in Ananthpur helped them to buy seeds. They procured 22 tonnes of seed groundnuts at an overall cost of Rs.6,52,100. The farmers availed this amount as loan from the Cluster Development Association (CDA) at 12 percent interest per annum.

The purchased seeds were packed into 564 bags, each bag weighing 40 kg, and it was distributed to 211 members through groups and CDA. The price per bag was fixed as Rs. 200 which was Rs. 150 - 200 less than the local market price. By this, farmers could save Rs.1,14,600 on the input cost. The farmers, through collective purchase of seeds with a loan at lesser interest rate, could save the interest of Rs.52,168 which is the margin exploited by merchant-moneylenders. Thus the savings on their input cost was Rs.2,30,601 and individual saving was Rs. 1,093. This encouraged the members to be united in all their initiatives.

Based on the success in savings on the input cost, the members decided to market their produce after harvest in a collective way. Also they wanted to sell their produce for better price. A five member marketing committee was formed. The committee decided to purchase a bag of 40 kg for Rs. 800 – 825 from the farmers. The committee also contacted many merchants outside their villages apart from the local merchants. This created a healthy competition among merchants. The outsiders started their value at Rs.850 – 900 seeing the quality of the produce. The local markets raised the price as Rs. 910. At last the groundnut was sold at Rs 2400 per bag weighing 80 kg, much higher than the market price. The price fixing was done by the committee and

the purchasers, but the sale was done at the door steps of the individual farmers to ensure the right weight and the payment was made on the spot.

The market committee procured 61 tonnes of groundnut from 152 members for Rs.13,15,149 and sold the produce at Rs.13,52,419. The profit of Rs.37,720 was earned and shared among the 152 members. A net gain of Rs.1, 52,700 was realized by avoiding sales through the merchant-moneylenders. A service charge of 15 percent (Rs.33,750) was collected. The net profit was Rs.4 lakhs and individual benefit was Rs.20,000.

### **Primary Agriculture Marketing Groups (PAMGs)**

Seeing the success of collective action, the Vayalagam members decided to market all their produce in a similar way. The farmers were organized into different primary agriculture marketing groups (PAMGs). It had an aim of maximizing the profit by avoiding exploitation. The role of middlemen

should be replaced by the group members. This collective action helped sustain the agriculture, farmer, and marketing groups. So far, five PAMGs were formed for groundnut, dry coconut (copra), cashew, and karthigai kizhangu. There are 310 members involved in PAMGs with their share amount of Rs.31,000.

### **Overview of Farmers' Producer and Marketing Group (FPMGs)**

During March 2007, 310 farmers organized into five farmers' producer and marketing groups. The group was involved in input and output supply of agricultural products of the village. The marketing activities were initiated with crops like groundnut, cashew nut, dry coconut, and *Karthigai Kilangu*. The members were impressed by seeing the end of the season hence resulted in the enrollment of more members in the primary producers groups (PPG) and primary marketing groups (PMG).

By directly marketing the agricultural produce, the farmers



gained more income. The primary producers groups (PPG) and primary marketing groups (PMG) were formed by the cluster members. The PPG members were involved in the production of agriculture and horticulture crops. Among the PPG members, some members were selected for PMG. The PMG members involved themselves in procurement of the agricultural products, identifying the market channels and marketing of the agriculture commodities. Now, based on the success and emerging needs, the PPG and PMG are initiated for groundnut, dry coconut (copra), cashew nut, and karthigai kizhangu. These PPG and PMGs facilitated need-based intervention on seed procurement and in establishing direct market linkages.

### **Marketing Activity - Groundnut Procurement and Marketing**

At Koilpathu and Naluvadhpathi north, 130 farmers bought ground nut seeds from PPG and PMG. The harvested produce was kept at their homes and they were not willing to sell it in the local market. They want to sell their produce through PPG and PMG only to avoid middlemen exploitation. The market links have been established by the marketing groups in various ways. By this intervention, the PMG was able to procure the groundnut at Rs. 130 per 40-kg bag compared to Rs. 100 per 40-kg bag in local market. The market group procure ground nut produce from the farmers was 61,115 kg and sold to Poovathadi sekar merchant. The procurement cost of 61,115 kg of ground nut was Rs. 13,15,149. If the farmers had sold through the local market, the farmers would have got only Rs. 11,62,449. The profit was

Rs. 1,52,700. Apart from the profit the merchant have contributed Rs. 25 per bag to PPG and PMG. The gross profit was Rs. 37,270. The net profit of the ground nut was Rs. 11,208.

### **Marketing Activity - Cashewnut Procurement and Marketing**

A total of 35011.300 kg of cashew was procured from 801 farmers through PPG and PMG procurement at the cost of Rs. 977,048.35. From that, 34,602 kg of cashew was sold at the cost of Rs. 1,108,838 to Pantruti merchants. The gross profit of the marketing is Rs. 1,31,789.7 and net profit of the marketing was Rs. 7,709.925.

### **Marketing Activity - Coconut Copra Procurement and Marketing**

So far 57,624.900 kg of copra was procured from the farmers through PPG and PMG procurement at the cost of Rs. 1,586,963.60. From that, 57,624.900 kg of copra was sold at the cost of Rs. 1,699,894. The profit realized was Rs. 1,12,930.40. There were 61 tonnes of groundnuts 35 tonnes of cashew and 57 tonnes of copra marketed directly to mills and eliminated middleman involvement. By this activity, the farmers are getting adequate confidence and interest for selling their produce at high price, and getting high profit.

### **Marketing Activity - Input supply**

#### **Karthigai kizhangu (*Gloriosa superba*) purchase and distribution**

A total of 3,086 kgs of karthigai kizhangu (*Gloriosa superba*) was purchased from various sources in and around Karur and Thethakudi at Rs. 3,62,869. The amount

(Rs. 4,00,000) was mobilized from the clusters of Vayalagam (both men and women groups). This year, karthigai kizhangu (*Gloriosa superba*) had increased demand compared to last year, and the cost of one kg of karthigai kizhangu (*Gloriosa superba*) is Rs. 116.50. Hence a member got Rs. 120 per kg. The net profit of this activity is Rs. 10,451. 40 members were benefited by these PPG/PMG centre. The farmers' contribution was 10%, the remaining amount was considered as loan with 16% interest rate. The farmers would repay the entire balance loan amount at the time of harvest.

### **Ground nut seed purchase and distributions**

In 2008-09, the purchase team went to Cuddalore and Mannarkudi and spent two days for the purchase of ground nut seeds. 11,576 kg of groundnut seeds varieties like C-2, Kuruvai, JL 24 was purchased from various sources in Tamil Nadu. The total expenditure for the ground nut seeds purchase was Rs. 4,07,756 which included seeds cost, transport cost and farmers expenses as boarding, and bus fares. The seeds were distributed to the farmers as loan amount (Rs. 4,11,620). Net profit realized by this activity was Rs. 3,864. This is the first activity which was fully initiated by the PMG. This year totally, 294 bags were distributed to 67 farmers. The farmer contribution was Rs. 100 per bag. (One bag weighs 40 kg). The remaining amount would be considered as loan with 18% interest rate. The farmers must repay the full loan amount at the time of harvest. The details of the beneficiaries are given below.

### Input supply

Seeds	Total (in kg.)	Distribution (in Rs.)	Net Profit (in Rs.)	Total beneficiaries
Groundnut (2006)	22,044	6,52,100	No loss & No profit	211
Karthigai Kilangu	3,086	3,70,320	10,451	40
Groundnut (2007)	11,576	4,11,620	3,864	67

### Price variation in Input supply

Seeds	Local market Rate (in Rs.)	Farmers/ Marketing Group Rate (in Rs.)	Price Variation (in Rs.)
Groundnut (Per Bag)	1000 (38 kg)	900 (40 kg)	100
Karthigai Killangu	200 per kg	120 Per kg	80

### Marketing/output supply

Procurement	Total (in kg.)	Sales (in Rs.)	Net Profit (in Rs.)	Total beneficiaries
Cashewnut	34,602	11,08,838	77,099	354
Copra	57,625	16,99,894	Progress	387
Groundnut (2007)	61,115	13,52,419	11,208	152
Groundnut (2008)	43,701	10,31,422	Progress	131

### Price variation in output supply

Crops	Local market rate per bag	Farmers/marketing group rate per bag	Price difference per bag
Groundnut	800 (40 Kg)	900(40 Kg)	100
Dry coconut	1300 (50 Kg)	1400 (50 Kg)	100
Cashewnut	2240 (80 Kg)	2400 (80 Kg)	160

### Difference

Farmers marketing group	Local marketing
Low price input supply	High price input supply
Correct weight	Loss of weight
Shortage of expenses like labour, transport	High charge of expenses for transportation
Immediate cash sales	Irregular cash settlement
No risk for input and output marketing	High risk for input and output marketing
Prepaid contribution	Credit based transaction
Very high profit	Meagre profit

### Impact of Marketing and Input supply

The farmers could procure the inputs at very low cost. As the purchase was well planned and done in bulk, timely supply of quality seed was possible. As farmers sold their produce through their PMGs, farmers were able to fix the price of the crops for the first time. Since there were no middlemen drainages of the profit were avoided like weight loss, transport cost, and labour cost. High profit was realized due to direct marketing. Due to collective strength bargaining capacity increased and immediate cash settlement was made. This ensured regular employment and business activities for the farmers throughout the year. Unity and self-confidence is developed among group members. Agriculture turned into a profitable business activity. This motivated farmers to start cultivating their uncultivated arable lands after seeing the success of this initiative. The community as a whole could see the cost of cultivation and outcome hence they are maintaining their expenditures. Strong relationship is formed between farmers of this village and adjacent villages.

### Allocation of Net profit

- Federation service charge - 15%
- Risk reduction management fund - 10%
- Farmers marketing group corpus - 25%
- Share dividend - 50%

### Future Plan

After seeing the success in agricultural crops the villagers want to extend it to mango, flowers, coconut husk, and dairy products. It is decided to increase the share holders. In the future, this would become a producer company and register under company act. Each member would receive their identity card. In the coming days, it is planned to go for mutual insurance for crops in order to overcome natural calamities. The need for construction of warehouse and cashew processing unit is also felt. ■

# Anaemia

**A**naemia is a common blood disorder affecting particularly females and children. Adolescent girls and mothers of reproductive age are at high risk. Adolescence is a crucial development period where much of the growth and skeletal development occurs. Chances of anaemia are high in families with poor socio economic status. Statistics show that 60% of adolescent girls and more than 70% of pregnant women are anaemic. Adolescent period is the most important stage in the life cycle of women but unfortunately mostly neglected. Adolescent girls of poor socioeconomic status are undernourished, deprived of basic rights to health and education. Such adolescent girls are reflected by their poor body size/growth i.e. they are shorter and have a narrow pelvis. When such an undernourished adolescent girl is married at an early age, child bearing becomes a risk. A large number of girls from poor households are pushed to early marriages. Statistics show 4.5 million marriages that take place in India are immediately after menarche. Girls bearing their first baby between the ages of 14-18 years are at obstetric risk and the subsequent result is low-birth-weight babies, and increased infant and maternal mortality rates. Anaemia during pregnancy is high if the pre-pregnancy anaemic status is low. Such adolescent girls after delivery have profuse post partum haemorrhage and the chances of MMR (maternal mortality rate) are high.

- Female deaths in the age group of 15 – 19 years bear testimony to the high mortality rate of women. Severe anaemia is one of the important reasons for abortion, premature births, and low-birth-weight of babies.
- Other major complications in young mothers are high blood pressure, iron deficiency anaemia, and cephalo-pelvic disproportion.
- Adolescent motherhood adversely affects child survival and maternal life because of high incidence of foetal wastage. Women have to experience a comparatively greater number of pregnancies to give birth to a child that will survive. It is observed that adolescent mother suffers a higher child loss than mothers aged 20-24 or 25-29 years. Due to frequent pregnancy, the health of the mother is badly affected and an underweight child faces a higher risk of death at each stage.

As such the adolescent girls and the pregnant mothers have to be given special care to give birth to a healthy and full term baby. The average weight of the new born baby should be 3 kg.

## What is anaemia?

Blood is the nutrient media for the body. The red colour of the blood is due to the red blood cells containing

a pigment called haemoglobin. Anaemia is a condition where the level of haemoglobin in the blood is below the normal range. Haemoglobin is the iron-containing protein in red blood cells that carries oxygen around the body. So in anaemia, less oxygen will be carried and delivered to the tissues. The normal haemoglobin level from age one until puberty is 11 g/dl or above. Levels of haemoglobin may be low because the number of red blood cells is low or because each red blood cell has an abnormally low amount of haemoglobin within it. This means the red blood cells have to work harder to get oxygen around the body. During heavy exercise, the cells may not be able to do their job adequately and the person becomes exhausted. Anaemia is not a disease in itself, but results in malfunction somewhere in the body. This blood condition is common in females. Estimates suggest that around one in five menstruating women and half of all pregnant women are anaemic. Red blood cells are created in the bone marrow and normally are destroyed after about four months of life. Anaemia results when the balance of this mechanism is disturbed. Either the bone marrow produces too few blood cells or the cells are destroyed or lost at too fast rate.

## The various types of anaemia are classified according to:

- Decreased or defective production of red cells by the bone marrow

T. Nag arajan\*

- Decreased survival of red cells in the blood
- Insufficient nutrients such as iron and certain vitamins

### 1. Iron deficiency anaemia

**(IDA):** Of all the causes of anaemia IDA is the most common variety. IDA has profound negative effects and varies with the target people.

- In children and infants, it causes impaired health and development, limited learning capability, and impaired immune function.
- In pregnant mothers, it causes increased maternal and newborn mortality. In India, 20 to 40 percent of maternal deaths were found to be due to anaemia. Conditions such as abortions, pre-mature births, post-partum haemorrhage and low birth weight were especially associated with low haemoglobin levels in pregnancy.
- In adults it causes reduced working and productive capacity.

#### IDA predominantly affects:

- Adolescent girls
- Women of reproductive age
- During pregnancy and lactation
- Young children

Apart from inadequate dietary intake of iron, poor bio-availability of iron from cereal based diets, high intestinal worm infections (particularly hook worm), and parasitic infections like malaria are considered to be the main factors

responsible for iron deficiency anaemia. The adult human body contains between 3-4 g of iron of which about 60-70% is present in the blood (Hb iron) as circulating iron and the rest (1 to 1.5 g) as storage iron.

#### Functions of iron:

Iron is necessary for many functions in the body including formation of haemoglobin, brain development and function, regulation of body temperature, and muscle activity. Lack of iron directly affects the immune system; it diminishes the number of T-cells and the production of antibodies. The central function of iron is oxygen transport or cell respiration.

#### Sources:

Two main forms of iron are haem iron and non-haem iron.

**Haem iron:** Foods rich in haem iron are liver, meat, poultry, and fish. They are better absorbed than non-haem iron and also promote absorption of non-haem iron in plant foods eaten at the same time.

**Non-Haem iron:** Foods containing non-haem iron are those of vegetable origin, for example cereals, green leafy vegetables, legumes, nuts, oil seeds, jaggery, and dried fruits. The bio-availability of non-haem iron is poor owing to the presence of phytates, oxalates, carbonates, phosphates and dietary fibre which interfere with iron absorption. Phytates in bran, phosphates in egg yolk, tannin in tea and oxalates in vegetables bind with the iron from the food and prevents its absorption. In some areas significant amounts of iron may be derived from cooking in iron

vessels. Iron absorption from habitual Indian diets is less than 5% the bio availability is poor. Absorption of Iron takes place from duodenum and upper small intestine in the ferrous state. The rate of iron absorption is influenced by many factors:

- Iron reserves in the individuals
- Presence of inhibitors (phytates, tannin, oxalates) i.e post meal consumption of tea/coffee reduces the absorption of iron from food
- Promoters or enhancers (all vitamin 'C' rich foods like Guava, lemon, orange, tomato)
- Iron absorption and disorders of duodenum or jejunum
- Iron absorption is increased when there is rapid cell growth, i.e. In children, adolescent, pregnant and lactating period

The iron absorbed is stored in liver, spleen, bone marrow and kidney. Most of the iron is lost through haemorrhages. Whenever the blood is lost the iron is lost. The main causes of haemorrhages are:

- Physiological (menstruation, child birth)
- Pathological (hook worms, malaria, haemorrhoids (piles), peptic ulcer, cancer)

Widespread use of IUDs (intra uterine contraceptive device) in the family planning programme is an additional cause of iron loss. IUDs have shown to increase the average monthly blood loss by between 35 to 146 percent depending upon the type of device.

**2) Vitamin B 12 deficiency anaemia:** Like iron, B 12 is also essential for formation of haemoglobin, hence lack of B12 also results in anaemia. However this type of deficiency takes at least 2-3 years to develop. This is caused due to the dietary deficiency of B12 and failure to absorb B12 from food due to stomach or intestinal disorders.

This is most common and prevalent among pregnant women. This would result in pale face, fatigue, breathlessness, yellowish skin, abdominal pain, weight loss, and loss of appetite. It would also cause neurological disorders, like poor balance, numbness in legs and hands, confusion, and depression. This deficiency could be treated by taking a wide range of foods which include wheat, pulses, sprouted grain, and milk foods.

**Vitamin B 12 injections can be taken in severe cases.**

- 3) **Folate deficiency anaemia:** This deficiency is common in pregnant women and elderly people as folate is important for haemoglobin formation. This deficiency would severely impair the growth of brain and spinal cord of the foetus resulting in neurological disorders in new born babies. In order to prevent this, folic acid tablet supplementation is commonly practiced. Intake of diet rich in green leafy vegetables would help in preventing this deficiency.
- 4) **Sickle cell anaemia and Thalassaemia:** In case of this anaemia, the red cells formed are

abnormal and contain immature haemoglobin which is destroyed more quickly than normal haemoglobin. In sickle cell anaemia, under certain conditions sickle cell shaped red blood cells get stuck in small blood vessels causing oxygen shortage in surrounding tissue and results in life threatening conditions like heart failure, kidney failure, and stroke (paralysis). This is a congenital abnormality and cannot be corrected by diet supplements. Regular blood transfusion is the only treatment and essential for survival of the patients.

- 5) **Haemolytic anaemia:** In this type of anaemia, RBCs are destroyed more quickly than normal as RBCs are not formed properly due to certain auto-immune disorders. As a result, patients would have mild fever, vomiting, jaundice, and darker urine than normal urine. This could affect the brain and liver and may cause death. This deficiency is also caused due to intake of some medicines in a few cases. Removal of causative drugs, giving steroids for auto immune disorders, and removing spleen (responsible for destroying RBC) are the remedies to cure this deficiency.
- 6) **Ablastic anaemia:** In this anaemia, production of blood cells in bone marrow falls due to certain drugs, toxic chemicals, and radiation etc which results in low resistance to infections and spontaneous bleeding. In severe cases patient may die within one

year of onset due to infection and bleeding. This can be treated by antibiotics, blood transfusion, and intake of drugs to stimulate bone marrow. In severe cases, bone graft may be necessary.

**Groups at high risk for anaemia are:**

- 1. **Menstruating women:** when the menstruation is frequent i.e. twice in a month or when the duration and quantity of blood loss is high. High blood-loss is considered when she passes multiple clots in bleeding.
- 2. **Pregnant Women:** When a woman becomes pregnant at an early age and when the space between two pregnancies is too short.
- 3. **Breast-feeding women:** When a woman breast-feeds her baby for long duration i.e. for one year or more.
- 4. **Babies especially if premature:** Premature babies have poor iron stores and when supplementary feeding is delayed.
- 5. **Children going through puberty and adolescence:** During this period there is rapid cell division and growth takes place. In girls menstruation is initiated and there is direct blood loss.
- 6. **People with stomach ulcers, piles, or cancer:** In these cases there is blood loss often.
- 7. **Individuals when met with an accident:** There is severe blood loss.

## Causes of Anaemia

- Defective bone marrow that affect blood cell manufacture.
  - Shortage of iron, the main ingredient of haemoglobin.
  - Shortage of Vit 12 or folic acid both needed to produce R.B.C. (Red Blood Cells)
  - Due to abnormal manufacture of haemoglobin (sickle cell disease, thalassaemia.)
  - Breakdown of blood, inherited (inborn) defects of red blood cells, autoimmune haemolytic anaemia (where the R.B.Cs are broken down within the body).
  - Loss of blood through heavy menstruation, piles or internal bleeding which may be caused by diseased condition like; Peptic ulcer, cancer of the gastro intestinal tract.
  - Infections such as malaria, septicaemia which reduces the life span of RBC.
  - Malabsorption – caused by conditions such as colic disease (intestinal disease)
  - Chronic diseases – such as TB, rheumatoid arthritis and HIV / AIDS
  - Hormone disorders – such as hypothyroidism.
  - Certain drugs – including alcohol, antibiotics anti-inflammatory drugs, or anti-coagulant medications.
1. Pale skin
  2. Pale finger beds
  3. Spoon shaped nails of finger
  4. Swelling of body (Oedema)
  5. White sclera of eyes
  6. Weakness
  7. Tiredness
  8. Fatigue
  9. Irritation
  10. Breathlessness
  11. Drop in blood pressure while standing from a sitting or lying position. This may happen after acute blood loss like profuse menses in women.
  12. Frequent headache.
  13. Racing heart or palpitations (Fast heartbeats)
  14. Cracked or reddened tongue/ cracked corners of mouth
  15. Loss of appetite, acidity, heart burn,
  16. Palpable spleen or liver
  17. Strange food cravings like chalk, earth (eating of chalk and mudstones)

### Diagnostic methods

Depending on the cause, anaemia is diagnosed using a number of tests including:

- **Medical history** – including any chronic illnesses and regular medications.
- **Physical examination**
- **Blood tests** – including complete blood count and blood iron levels.

- **Gastroscopy or colonoscopy.** (To find out stomach ulcers and piles)
- **Bone marrow biopsy.**
- **Feecal occult blood test** – examining a stool sample for the presence of blood

### Normal haemoglobin levels in females

Normal	11 – 12 gm/dl
Mild anaemia	10 – 11 gm/dl
Moderate anaemia	08 – 10 gm/dl
Severe anaemia	<8 gm/dl

**Treatment** depends upon the blood haemoglobin levels

- When the haemoglobin levels are below low, Blood transfusion is compulsory.
- When the haemoglobin levels are average dietary supplements can cure the anaemia.

### Treatment options

Treatment depends on the cause and severity, but may include:

- **Vitamin and mineral supplements** – in the case of deficiency.
- **Iron injections** – if the person is very low on iron
- **Vitamin B12 (by injection)** – required for pernicious anaemia.
- **Antibiotics** – if infection is to blame
- **Altering the dose or regimen of regular medications** – such as anti-inflammatory drugs, if necessary

## Symptoms

Depending on the severity the symptoms of anaemia are expressed as below:

- **Blood transfusions** – when the anaemia is very severe and in case of Thalassaemia and Ablastic anaemia.
- **Oxygen therapy** – if required
- **Surgery to prevent abnormal bleeding** – such as heavy menstruation
- **Surgery to remove the spleen** - splenectomy

**Long term outlook**

The prognosis depends on the cause. For example, if the anaemia is caused by dietary deficiencies, then taking the appropriate supplements for some weeks or months alleviates the condition. Relapses may occur, so changes to diet and perhaps, regular supplementation may be necessary. In other cases, the anaemia may be permanent, and life long treatment is needed. No matter what the cause, it is important to regularly monitor the person’s blood to ensure adequate red blood cell and haemoglobin levels, so that the treatment can be adjusted accordingly.

**Prevention strategies:** The most prevalent types of anaemia affecting

the pregnant women are iron deficiency, B12 and folate deficiency anaemia.

In most cases these can be prevented by a systematic community oriented health care approaches involving behavioral change communication.

1. Anaemia caused by dietary deficiency can be prevented by making sure that the locally available rich sources of iron foods are eaten. The locally available rich sources of iron foods are: drum stick leaves, green leafy vegetables, jaggery, peanuts, milk and milk products, fresh fruits and vegetables.
2. Sanitation and good personal hygienic practices like;
  - a. Washing hands and legs before eating and after using toilet with soap.
  - b. Regular cutting of nails in children and wearing slippers while going to field for defecation can prevent worm manifestation (hook worm

manifestation is the important cause of anaemia in children)

- c. Cooking foods in iron vessels. Traditionally people use to cook food in iron vessels as they are a very important source of iron intake. These practices could be encouraged and continued.
  - d. Use of foot wear during defecation particularly in areas when open field defecation is in practice may be helpful in reduction of anaemia in a given community. Wearing slippers prevent the hook worms from entering the body through foot.
3. Ensure that the iron and folic acid tablets are provided to all pregnant women in addition to change in dietary practices. These tablets are supplied by government free through PHCs and distributed by ANMS/ VHWS. Awareness need to be created among all pregnant women about this facility.

The reading material is prepared as a part of Madurai Marathon 2009 to be conducted in January, 2009. The theme is to create anaemia free world.

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# Independence Day celebrations

S. Ramkumar\*

## CBOA – DHAN Nursery & Primary School:

Independence Day was celebrated at CBOA-DHAN school, Melavellore on 15<sup>th</sup> August, 2008. The flag hoisting was done by Madhavan Kutty, a reputed lawyer from Madurai. Rasupandi, Thangavel, and the other members from Canara Bank Officers Association (CBOA), and M.Palanisamy and S.Ramkumar from DHAN Foundation, were present for the occasion. Saravanakumar, Managing Director, Gangai Vattara Kalanjiam (federation of self help groups), Mrs.Sundari, the Federation President, and other staff from Gangai Vattara Kalanjiam were also there. After the flag hoisting, there was a cultural programme followed by children's programme in the school premises. Prizes were distributed to the children who won in various competitions. The school principal and the teachers made all the arrangements and made the function a grand success.



## Karunai - DHAN Nursery & Primary School:

A similar programme was organized at Karunai-Dhan School at Nilakottai. It was a colourful event. Many parents and students came and partook in different competitions. It was coordinated by Mr. Ragavan and the school teachers. Prizes were distributed by Ms. Jean Watson,



founder of Karunai Illam, Nilakottai. Mr. Khader, Regional Coordinator of Dindigul region was also present

along with the students and faculty of Karunai DHAN LIFE centre at Nilakottai. ■

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# Building on Heritage of Local governance



*A stage built around a big tree in any Indian Village would symbolize the local Panchayats, a system of local governance that existed for several centuries. Gram Sabhas (Village councils) are one of the earliest forms of people's voluntary fora, which governed the villages by decision making in matters of common interest and the administration of justice.*

## Reviving traditions of local democracy

Democratic systems are nothing new to Indian villages. In South India, the “Kudavolai” system practiced by imperial Cholas, as far back as 900 AD, points to the existence of well-organized representative institutions. The Uttiramerur inscriptions give information about the village administration, taxation and land revenue. Taking the principles of functional groups (Variyam) detailed in the system, DHAN Foundation conceived a new theme “Working with Panchayats” to bring vibrant democratic practices in the Panchayats system through promoting functional groups and their networks. These informal groups are trained for better participation in local governance and in the Gramsabha meetings. It advocates for legitimate space for such groups in planning and implementation of development works.

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